PD-ABD-841

U N C L A S S I F I E D

AGENCY FOR INTERNATIONAL DEVELOPMENT

Washington, D.C. 20523

PROJECT PAPER

South Pacific

Profitable Environmental Protection
879-0023

Dated: September 13, 1991

U N C L A S S I F I E D

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT DATA SHEET

1. TRANSACTION CODE: A (A = Add, C = Change, D = Delete) — Amendment Number: _____

DOCUMENT CODE: 3

2. COUNTRY/ENTITY: REGIONAL DEVELOPMENT OFFICE/SOUTH PACIFIC

3. PROJECT NUMBER: 879-0023

4. BUREAU/OFFICE: APRE — 04

5. PROJECT TITLE (maximum 40 characters): PROFITABLE ENVIRONMENTAL PROTECTION

6. PROJECT ASSISTANCE COMPLETION DATE (PACD): MM 09 DD 30 YY 95

7. ESTIMATED DATE OF OBLIGATION (Under 'B.' below, enter 1, 2, 3, or 4)
A. Initial FY 91 B. Quarter 4 C. Final FY 94

8. COSTS ($000 OR EQUIVALENT $1 =)

A. FUNDING SOURCE	FIRST FY 91 B. FX	C. L/C	D. Total	LIFE OF PROJECT E. FX	F. L/C	G. Total
AID Appropriated Total RDO/SP						
(Grant)	(503.5)	(168)	(671.5)	(1,650)	(750)	(2,400)
(Loan)	(–)	(–)	(–)	(–)	(–)	(–)
Other U.S. AID 1. S&T/FENR	–	–	–	30	–	30
Other U.S. AID 2. S&T/WID	–	–	–	300	–	300
Host Country						
Other Donor(s)						
TOTALS	503.5	168	671.5	1,980	750	2,730

9. SCHEDULE OF AID FUNDING ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE 1. Grant	2. Loan	D. OBLIGATIONS TO DATE 1. Grant	2. Loan	E. AMOUNT APPROVED THIS ACTION 1. Grant	2. Loan	F. LIFE OF PROJECT 1. Grant	2. Loan
(1)	ARDN	270	110	–	–	571.5	–	2,000	–
(2)	PSEE	772	877	–	–	100	–	400	–
(3)									
(4)									
TOTALS				–	–	671.5	–	2,400	–

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each): 160 098 098 096 720 870

11. SECONDARY PURPOSE CODE: 230, 590, 690, 74

12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)

A. Code	ENV	PROV	TECH	BR	BU	PVON	INIR
B. Amount	100%	50%	60%	80%	20%	30%	30%

13. PROJECT PURPOSE (maximum 480 characters)

TO DEMONSTRATE WORKING MODELS OF PROFITABLE COMMERCIAL AND COMMUNITY ENTERPRISES THAT ENABLE THE LONG TERM CONSERVATION OF BIOLOGICALLY AND ECONOMICALLY VITAL ECOSYSTEMS.

14. SCHEDULED EVALUATIONS: Interim MM YY MM YY; Final MM 06 YY 94

15. SOURCE/ORIGIN OF GOODS AND SERVICES: [x] 000 [ ] 941 [ ] Local [ ] Other (Specify) _____

16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of a ____ page PP Amendment.)

THE RDO/SP CONTROLLER CONCURS WITH THE METHODS OF FINANCING, PAYMENT VERIFICATION AND AUDIT PRESENTATION CONTAINED HEREIN.

CHARLES J. CRANE
CONTROLLER

17. APPROVED BY
Signature: J B Woods
Title: JOHN B. WOODS, REGIONAL DIRECTOR
Date Signed: MM 09 DD 13 YY 91

18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MM DD YY

AID 1330-4 (8-79)

11 SEP 1991

ACTION MEMORANDUM FOR THE REGIONAL DIRECTOR, RDO/SP

FROM : James Osborn, Assistant Regional Director

SUBJECT: South Pacific Regional Profitable Environmental Protection Project (879-0023) - Authorization

Problem: Your authorization is required for a grant of $2.4 million for the South Pacific Regional Profitable Environmental Protection Project. It is planned that $671,508 will be obligated in FY91. Your signature is also required to waive normal source/origin requirements for the purchase of certain project equipment.

Discussion: The conservation of natural resources in the South Pacific is extremely important to its long-term economic wellbeing. Nevertheless, irresponsible exploitation of those resources is common-place. Sustainable economic development is dependent on protecting the environment from further degradation. Public sector efforts have had some impact, but government resources, inadequate for immediate developmental needs, can not adequately address the problem.

There is a growing school of thought that profit-making activities do not have to degrade the environment and that some of them can actually enhance it. The Profitable Environmental Protection (PEP) project aims to validate this hypothesis.

This three-year project will document the conservation contributions made by selected profitable enterprises and disseminate this information with the objective of encouraging the proliferation of such enterprises. Most of this work will be carried out through a grant with the Private and Voluntary Organization (PVO), the Foundation for the Peoples of the South Pacific (FSP). Besides being a registered PVO with considerable experience working with AID, FSP maintains field offices throughout the region and possesses considerable knowledge on implementing development projects in the South Pacific based on 25 years experience.

Project implementation will start in Vanuatu, where the PEP project office will be established. FSP's existing field office there will take responsibility for establishing the PEP office and other arrangements for the arrival of the two resident specialists who will direct the day-to-day activities under the FSP grant. One specialist will be an expert in conservation, the other in small business development.

An area on Vanuatu will be chosen as the initial project site based on its ecological significance. This Ecological Management Unit (EMU) will be representative of EMU's found elsewhere in the South Pacific, so that lessons learned there will be able to be eventually applied throughout the region. Once the EMU is identified, existing and new profitable enterprises will be encouraged, provided with technical assistance and studied. FSP

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will try to develop a number of successful enterprises that enable conservation and measure their impact on the environment. In addition to the assistance of the two resident experts, short-term technical assistance will be brought in as needed to help in such fields as natural resource economics, social science, marketing and production. With the successful launching of the initial project site in Vanuatu, two other sites will be chosen and established in Vanuatu and two others in other countries of the region.

An integral part of the FSP grant will be the dissemination of the information gained under the project. This knowledge will be made available to public sector decision makers, development agencies and conservation groups, with the objective of motivating them to encourage the establishment of many more profitable enterprises that enable conservation. The South Pacific Regional Environment Program (SPREP) is intended to be an important instrument in this outreach of the project.

Project Review: The Project Identification Document (PID) for the PEP project was approved by AID/W on March 9, 1991. RDO/SP was authorized to develop a Project Paper (PP) and you were given authority to authorize the project (state 075121 March 9, 1991). The PP was reviewed by RDO/SP on September 4, 1991. The review concluded that the PP represents a project which is technically, financially, economically, socially, institutionally and environmentally sound and feasible. It was also concluded that the project, adequately addresses the issues raised during the AID/W PID review. Several issues were raised with the PP and all recommended modifications have now been made to the paper.

Congressional Status: The Congressional Notification for this project expired on July 24, 1991 (State 246910).

Recommendation: That you (a) authorize the Profitable Environmental protection Project by signing the attached Project Authorization (TAB A) and Project Paper Facesheet (TAB B) and (b) approve a waiver of normal source/origin requirements for certain project equipment by signing the attached waiver (TAB C).

Attachments:

A: Project Authorization (TAB A)
B: Project Paper (TAB B)
C: Waiver (TAB C)

Clearance:
Prog:KMDahlgren
Cont:CCrane
PDA:RMSingleton
APRE/DR/PD:MHuffman

C

PROJECT AUTHORIZATION

NAME OF COUNTRY: South Pacific Regional

NAME OF PROJECT: Profitable Environmental Protection

NUMBER OF PROJECT: 879-0023

1. Pursuant to Sections 103 and 106 of the Foreign Assistance Act, as amended, I hereby authorize the Profitable Environmental Protection Project (the "Project") for the South Pacific Region involving planned obligations of an amount not to exceed two million four hundred thousand United States Dollars ($2,400,000) in grant funds over a four year period from the date of this authorization, subject to availability of funds in accordance with the A.I.D. OYB/allotment process, to help finance foreign exchange and local currency costs of the Project. The planned life of project is four years from the date of the initial obligation.

2. The project consists of technical and other assistance to develop, demonstrate and disseminate innovative mechanisms and strategies for protecting the natural environment of the South Pacific Region through the promotion of profitable private enterprises. The project will identify pilot representative Ecological Management Units in the Region and therein promote selected pilot enterprises. Data on the enterprises' impact on the natural environment will be collected, analyzed and disseminated with the objective of encouraging the spread of profitable enterprises that help conserve the environment.

3. The Project Cooperative Grant Agreement and any other agreements, which may be negotiated and executed by the officer (s) to who such authority is delegated in accordance with A.I.D. regulations and Delegations of Authority, shall be subject to the following essential terms covenants and major conditions, together with such other terms and conditions as A.I.D. may deem appropriate:

   a. Sources and origin of Commodities, Nationality of Services

   Commodities financed by A.I.D. under the project shall have their source and origin in the United States (A.I.D. Geographic Code 000), except as A.I.D. may otherwise agree to in writing. To the extent permitted under the Agency's Buy America guidance cable dated December 5, 1990, State 410422, procurement with an estimated value of $750,000 will be from local South Pacific Region sources (A.I.D. Geographic Code 879).

d

Except for ocean shipping, the suppliers of commodities or services shall have the United States or, to the extent described in the Project Paper, the South Pacific Region, as their place of nationality, except as A.I.D. may otherwise agree to in writing. Ocean shipping financed by A.I.D. under the project, except as A.I.D., shall otherwise agree to in writing, shall be financed only on flag vessels of the United States.

b. Condition Precedent for Assistance to an Enterprise

Before expenditure of project funds for assistance to an enterprise under the grant to the Foundation for the Peoples of the South Pacific (FSP), an environmental assessment will be performed on the enterprise. Such an assessment shall:

(1) review the degree to which the enterprise is compatible, physically and economically, with the nature of the target ecosystem complex in which it will operate;

(2) establish the criteria to be used to monitor and assess the environmental management procedures of the enterprise, its performance vis-a-vis its environment and the degree to which it has met the environmental objectives in its business plan; and

(3) follow the process outlined in section 22CFR, Part 216.3(4) for scoping and Part 216.3(6) for processing and review, which requires review of the Scoping Statement and the Environmental Assessment by the AID/Washington Asia Bureau Environmental Officer (after review by the RDO/SP Project Officer).

JOHN B. WOODS
Regional Director

9/13/91
Date

ACTION MEMORANDUM FOR THE REGIONAL DIRECTOR, RDO/SP

Date: September 12, 1991

From: Jim Osborn, ARD

Subject: AID Procurement Source and Origin Waiver for Profitable Environmental Protection Project (879-0023)

Problem:

A waiver is needed of the procurement source and origin from U.S. only (code 000) to Special Free World (code 935) for a limited amount of commodities.

Discussion:

The project design anticipates the purchase of the following commodities to be used by the grantee's long term advisors in Port Vila: one four-wheel drive vehicle, two personal computers (including printers, software and other auxiliary equipment) and some office furniture.

The availability of after-sale service and spare parts is an important factor in the purchase of both vehicles and computers. The criteria for waiver of source and origin includes the following which is applicable here as local availability of service and spare parts is a part of the commodity requirements: "The commodity is not available from countries or areas included in the authorized geographic code" (HB 1B, paragraph 5B4a(2)).

In addition to the usual source and origin requirements, there is a special legislative provision concerning motor vehicles: section 636(i) of the Foreign Assistance Act. A waiver of 636(i) is permitted when there is "present or projected lack of adequate service facilities and supply of spare parts for U.S. manufactured vehicles" (HB 1B, paragraph 4C2d(1)).

There is no dealer in Port Vila who sells and services American-made vehicles. Therefore, the grantee should be given permission to buy a non-American vehicle locally.

The cost of importing office furniture from the United States would be much higher than the cost of locally made office furniture (desk, chairs, bookshelves, etc.). Another criteria for source and origin waiver is "lowest available delivered price from the United States is reasonably estimated to be 50 percent or more higher than the delivered price from a country or area included in Geographic Code 941" (HB 1B, paragraph 5B4a(3)). Therefore, the grantee should be permitted to buy the office furniture locally.

The cooperative grant agreement should contain language permitting the local procurement described above but with the grantee documenting the facts of each local procurement.

Recommendation:

That for the reasons given above, you approve a waiver of source and origin requirements for the vehicle and office furniture and a waiver of the provisions of section 636(i) for the vehicle. Your signature below will also signify that "Exclusion of procurement from Free World countries other than the cooperating country and countries included in Code 941 would seriously impede attainment of U.S. foreign policy objectives and objectives of the foreign assistance program."

Approved: _____

Disapproved: _____

Date: 9/13/91

Drafted: Ralph Singleton, 9/12/91: doc. WAIVER

Cleared: KDahlgren, PROG (draft)
CCrane, CONT (draft)

PROFITABLE ENVIRONMENTAL PROTECTION
Project 879-0023

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PROFITABLE ENVIRONMENTAL PROTECTION

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* Available in RDO/SP

ABBREVIATIONS AND REFERENCES

ADB	Asian Development Bank
A.I.D.	Agency for International Development, United States
A.I.D./W	An Office of A.I.D. in Washington, e.g., Bureau for Asia or Bureau for Science and Technology
AIDAB	Australian International Development Assistance Bureau
ANU	Australian National University
ASPEI	Association of South Pacific Environmental Institutions
BSP	Biodiversity Support Program, financed by A.I.D.Conservation of Biological Diversity Project, (936-5554)
CFTC	Commonwealth Fund for Technical Cooperation
CSIRO	Commonwealth Scientific and Industrial Research Organization, Australia
EIA	Environmental Impact Assessment
EA	Environmental Assesment
EOPS	End of Project Status
EPA	Environmental Protection Agency, United States
EPAT	Environmental and Natural Resources Policy And Training, A.I.D. Central project no. 936-5555
ESCAP	Economic and Social Commission for Asia and the Pacific
EWC	East-West Center, Honolulu
F/FRED	Forestry/Fuelwood Research and Development Project, A.I.D.
FAO	Food and Agriculture Organization, UN
FENR	Office of Forestry, Environment and Natural Resources, A.I.D./S&T
FFA	Forum Fisheries Agency
FSP	The Foundation for the Peoples of the South Pacific
FT	Full Time
FY	U.S. Fiscal Year, October 1 - September 30
IIED	International Institute for Environment and Development
IUCN	International Union for the Conservation of Nature and Natural Resources World Conservation Union, Gland, Switzerland
JICA	Japan International Cooperative Agency
LOP	Life of Project
MARC	Market Access and Regional Competitiveness, RDO/SP Project no. 879-0018
NGO	Non-Governmental Organization
ODA	Overseas Development Administration, UK
OYB	Operation Year Budget of A.I.D.
PACD	Project Assistance Completion Date
PEP	Profitable Environmental Protection, RDO/SP Project no. 879-0023
PID	Project Identification Document
PIDP	Pacific Islands Development Program, of EWC

PIMAR	Pacific Island Marine Resources, RDO/SP Project no. 879-0020
PNG	Papua New Guinea
PP	Project Paper
PVO	Private and Voluntary Organization, a Non-Profit Organization Registered with A.I.D.
RDO/SP	Regional Development Office/South Pacific, A.I.D.
RDSS	Regional Development Strategy Statement of RDO/SP
S&T	A.I.D. Bureau for Science and Technology
SOPAC	South Pacific Applied Geo-Science Commission
SPC	South Pacific Commission
SPREP	South Pacific Regional Environment Program
ST	Short Term
TFAP	Tropical Forestry Action Plan
TNC	The Nature Conservancy
UK	United Kingdom
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
USAID	U.S. Agency for International Development
USP	University of the South Pacific
VITA	Volunteers in Technical Assistance
WRI	World Resources Institute
WWF US	World Wildlife Fund of the USA
WWFI	World Wide Fund for Nature, International, Gland, Switzerland

EXECUTIVE SUMMARY

The world recognizes that rational utilization of natural resources is crucial to sustainable economic development, and that a rational approach will not happen without the commitment of business. Natural resources in the South Pacific, where most human communities depend on them for income, are being exploited irresponsibly. Public sector attempts to deal with the problem has proven inadequate, and private sector resources to address the problem are indicated.

There is a growing school of thought that economic activities do not have to degrade the environment and that some of them can actually enhance it, with little or no relative strain on public sector finances. The Profitable Environmental Protection (PEP) project aims to validate this hypothesis by encouraging profitable enterprises that enable conservation.

In the South Pacific the major theme of the USAID program in the 1991-1994 period will be promotion of sustainable economic growth driven by private and community enterprise. The goal of the PEP project is conservation of the biological systems of the South Pacific consistent with sustainable economic development. Its purpose is to demonstrate working models of profitable commercial and community enterprises that enable the long term conservation of biologically and economically vital ecosystems.

The project will begin in Vanuatu, a nation with eco-systems that are both critical in importance and representative of systems found in other South Pacific nations. In the first year of the project, activities will be centered within the initial target country. In the following years, an "outreach" program will expand the activity to three other nations while continuing to develop its model building in the regional center.

Local, regional and international expertise will be brought to bear to identify critical environmental associations, select enterprise categories which promote the rational use and/or protection of those associations, and support individual model enterprises within these categories to test the effectiveness of enterprise as an engine of environmental protection. The Foundation of the Peoples of the South Pacific (FSP), which has offices throughout the region, will have primary implementation responsibility.

The project is planned for a total obligation of 2.4 million from RDO/SP resources and $330,000 from S&T resources. At the end of this four year effort (1991-1995), a set of models for profitable environmental protection will have been developed and disseminated to public sector agencies, bilateral and multilateral donor agencies, NGO's and the private sector. The process of identifying critical ecological management units and complementary environmentally responsible business types will have been improved and simplified for ready extension outside the project, and a number of models of actual businesses demonstrating and/or testing the utility of the approach will have been supported and set on the path to self-sustainability.

Project Paper analyses show that the project is technically, financially, economically, socially, institutionally and environmentally sound and feasible.

I. SETTING

A. Biological Diversity

In a world dominated by the inhabitants of continental areas, the tropical South Pacific region is distinctive for its size and great diversity of islands scattered over enormous distances. The Pacific Ocean encompasses one-third of the globe, as much as the Indian, Atlantic and Arctic Oceans combined. It is the earth's largest single geographic feature. Between its eastern and western shores, a distance roughly three times the width of the United States, more than 25,000 islands -- over half the world's total -- dot the surface.

The South Pacific, containing islands of varying origin -- continental, volcanic, coral reef and atoll -- extends over 29 million sq. km and is an important centre of marine evolution. The Indo-Malaysian archipelagos on the western margin of the Pacific are considered to be the centers of the greatest species diversity in marine organisms. This species richness diminishes across the southern part of the Pacific from west to east and from north to south.

The total land area of the tropical South Pacific is relatively small: less than 500,000 sq. km, of which most lies within the continental land mass of Papua New Guinea. Nevertheless, the diversity of ecosystems and taxa found within the island areas is staggering. In this respect, Papua New Guinea stands out, where over 10,000 species of flora, including 1,200 species of tree and 2,700 species of orchid are recognized. Terrestrial species diversity also diminishes from west to east, as one moves from the larger and more complex continental and mountainous volcanic islands to the low oceanic islands and atolls on the eastern margin.

The South Pacific region's terrestrial and marine environments are is estimated to supporting some 2,000 different ecosystems with high levels of endemism. Geographic isolation of islands has led to the evolution of unique island biotas by serving as "a filter for colonizers and encouraging evolutionary adaptation and spectacular radiation within founder populations". For these reasons the Pacific islands are thought probably to contain the worlds highest proportion of endemic species per unit of land area or inhabitant. Systems of representative protection however are not well developed in the region. In 1985, only 0.15 percent of the total land area and less than 20 percent of known ecosystems were represented within designated protected areas. Few of these areas are well managed and progress towards expanding the system is slow.

At the same time, island nations within the region are confronted with high population growth and increasing demands on the resource base. Deforestation, soil degradation, pollution of lagoons, coral reef destruction, over-harvesting of fisheries and the introduction of exotic species are all problems the people of the South Pacific now have to address. This situation is particularly acute on the low oceanic islands and atolls.

There, land area is limited, soils generally infertile and native populations of flora and fauna small and vulnerable. High population densities are placing heavy demands on the remaining forest fragments and marine resources. Although overall species diversity is not as great as in other parts of the western Pacific, a much higher percentage of the taxa present are considered threatened or endangered -- up to 50 percent of the flora taxa in Kiribati, for example.

At the other extreme, in the more resource rich environments of the larger island nations of Melanesia accelerated extraction of timber species and habitat and mineral resources are causing severe localized environmental disturbances. Considering the patchy distribution and rarity of species in these environments, serious species loss from such activities is anticipated.

Unfortunately , in both island scenarios described, and because of the high levels of endemism within the South Pacific region, local losses of biodiversity are often global losses. It is in recognition of this threat and appreciation of the great biological wealth, that the region is now receiving considerable global attention.

B. Economics of Sustainable Development in the Region

The PEP project responds to the powerful but simple conclusion of the World [Brundtland] Commission on Environment and Development that:

> Conservation of living natural resources -- plants, animals, and micro-organisms, and the non-living elements of the environment on which they depend -- is crucial for economic development. The challenge facing nations today is no longer deciding whether conservation is a good idea, but rather how it can be implemented in the national interest and within the means available in each country.

The key question therefore is whether the Pacific Islands can continue to expand their economies and populations as they have over past decades without environmental repercussions that increasingly undermine economic productivity and living standards. The question is acute because all but a small percentage of the economic activity in the region is based on natural resources and dependent on biological and chemical processes that are inherently limited, especially in island ecosystems. The regenerative capacity of biological populations, primary biological productivity, and the tolerance of plant and animal species to climatic variations and other stresses are all constrained. The capacities of air, water, and soils to assimilate wastes are limited by rates of chemical and physical processes specific to pacific island ecosystems. As these thresholds are passed, natural systems are altered, creating threats to the region's biodiversity and economic development potential.

In the South Pacific since World War II, the rampant growth of human populations and accelerated expansion of economic activity have brought negative extensive negative changes in the environment. These changes result from, inter alia, pollution of lagoons and reef systems, the extension of farming and animal husbandry beyond the sustainable carrying capacity of the land, over fishing, and tree felling at rates that exceed forests' regeneration and replacement capacity and increased soil erosion. In some instances tourism development has reduced the economic value of natural places.

Such changes in the region's natural systems have profound economic significance. Exhaustible natural resources are depleted from direct use as materials and energy sources. Renewable resources, such as forests, yield valuable commodities, yet economic losses are suffered if their capacity for yields and supplies is reduced. Renewable resources such as forests also yield valuable economic services -- water and soil retention, for example -- the loss of which implies economic costs associated with flooding and sedimentation. The degradation of "touristic value" through over-development results in serious economic downturns through lost visitor income.

For Pacific Island citizens, natural systems provide demonstrably large economic benefits in themselves by enhancing the quality of life, and preserving stocks for later, higher value uses. Today in Pacific Island countries, there is a serious risk that as economic activity depletes natural resources and disturbs natural systems, net economic welfare might be diminished, if not for those who make use of the resources, then for those who suffer the environmental impacts, or for future generations, for whom the resources and their benefits would be unavailable. Current economic welfare would be obtained, then, at the expense of future reductions in living standards.

In view of the disruptions already occurring in the region's natural systems, expansion of the economic base, absent a markedly different mode of economic activity, will result in substantial further deterioration of water quality (fresh and salt), accumulation of industrial, household, and hotel wastes, depletion of natural resource stocks, and accelerated loss of biological diversity, including fish, essential in local diets.

Analysis and measurement of the economic benefits of the long-term conservation of vital ecosystems in the region is a challenge because conventional analytic tools are insufficient to the task. Resource economists convincingly point out that the economic significance of natural resources is not adequately reflected in current economic accounting systems. The non-marketed, un-priced services (clean air, good water, pleasing environs, etc.) that natural resources provide are typically not valued, while the advantages (profits, revenues, benefits) to be realized from the exploitation of a natural system are. The result is that resource degradation often appears to raise, rather than lower, economic welfare. Inevitably, decisions based on such one-sided accounts are biased against resource conservation, and usually against long-term sustainable growth as well.

C. Current Strategies

1. The United States

Environmental issues and their implications for sustainable economic development are bound to be increasingly important for U.S. public and private agencies and for private enterprises. The stakes involved, and their implications for the United States and the countries in which the Agency for International Development (A.I.D.) works, are immense. A.I.D. policy and the mandate from Congress embodied in Sections 118 and 119 of the Foreign Assistance Act call for increased attention to conservation of the world's biological resource base and tropical forests, particularly in developing countries where the losses are greatest. A.I.D. is committed to assist developing countries in their efforts to conserve resources for their long term role in supporting sustainable development.

A.I.D. defines its interest in conservation in terms similar to the concept adopted by the International Union for Conservation of Nature and Natural Resources: namely, that conservation is the management of human use of the biosphere so that it may yield the greatest sustainable benefit to present generations while maintaining its potential to meet the needs and aspirations of future generations. A.I.D. has concentrated its specific conservation strategy on conservation of endangered biological resources and their habitats and sustainable use and preservtion of tropical forests.

In the South Pacific the goal of the A.I.D. program in the period 1991-1994 is "economic growth which sustains the environment and is based on private and community enterprise". The objectives of the program are to:

- increase exports of high value products,
- improve family health, and
- conserve vital ecosystems and natural resources.

During the "Honolulu Summit" of October 28, 1990 between the President of the United States and leaders of Pacific Island nations, President Bush committed the United States to encourage increased economic productivity in the region in a new era of mutual relationships that would bring new U.S. initiatives, including A.I.D. projects concentrated on marine resources, trade and investment, commercial agriculture and environmental protection.

2. Governments of the Region

Governments in the South Pacific region on a more general level are aware of and sensitive to environmental protection issues, as was evident in the prominence given to

environmental issues at the 1991 meeting of the South Pacific Forum. They look to the Forum Fisheries Agency to help identify the treaty provisions that are necessary to safeguard their marine resources from the ravages of international commercial fishing fleets. With the help of other members of the South Pacific Commission, they have increased the scope of the South Pacific Regional Environment Program (SPREP). Its mandate is to assist its regional member countries and territories to protect and improve their shared environment and manage their resources for the benefit of present and future generations. Most governments have recognized that their natural resources are an economic resource, threats to which are in turn threatening the future well-being of their people. And most have included environmental protection of one form or another in their development strategies. (See Annex R for information on specific countries.)

3. Other Organizations

Summaries of the major programs of organizations active in the South Pacific are available in Annexes I, J and K. Among the most active multilateral agencies are the World Bank and the Food and Agriculture Organization of the UN (Annex K). Included among the active official bilateral agencies are Australia, which channels much of its regional assistance on environmental matters through SPREP; New Zealand, which supports environmental planning and maintains the principle of sustainable development in its human resource, institutional support and rural development programs; and the United Kingdom, which finances small scale, environmentally friendly income generating projects (Annex I).

Historically, the international and local NGOs in the region have focused on social and community development, allowing the expression of environmental concerns to be carried by others. The situation is changing, however, and NGOs are insisting that their programs be environmentally sound, or are adding an environmental dimension to their research and educational activities. (See Annex J for a list of local NGOs and their activities.)

II. DESCRIPTION

A. Goal, Purpose and Approach

The goal of the Profitable Environmental Protection project is **conservation of the biological systems of the South Pacific consistent with sustainable economic development.** The working definition of sustainable economic development adopted for purposes of the project concept is:

> A pattern of social and structural economic transformations (i.e., "development") that optimizes the economic and other societal benefits available in the present, without jeopardizing the likely potential for similar benefits in the future.

The purpose of the project is to **demonstrate working models of profitable commercial and community enterprises that enable the long term conservation of biologically and economically vital ecosystems.**

The approach is to identify ecological management units (EMUs) where habitats in need of protection and human communities concerned about their environment coincide, and then to work with entrepreneurs to develop working models of profitable enterprises that protect the environment in those habitats (see Annex D). The intention is to demonstrate that enterprises that are ecologically benign and sustainable can be profitable, that businesses can mitigate their negative effects on the natural environment, and that development can be integrated with nature conservation.

The most significant measures of success at the end of the project will show (1) the existence of a set of working models of profitable environmental protection and their wide dissemination to lenders, assistance agencies, entrepreneurs and community leaders in the region; (2) a number of enterprises, representing a variety of business types and active in a number of representative EMUs, actively pursuing environmentally protective business tactics, and (3) a body of knowledge -- lessons, approaches, ideas and models -- that have been codified and discussed. The project models and lessons that indicate the value, workability and limits of enterprise for achieving conservation goals will be useful to the wider South Pacific community and the rest of the world. A subsequent project may be necessary, beginning early in FY 1995, to build upon this foundation to expand the kinds and numbers of enterprises pursuing profitable environmental protection. A decision whether or not to design another project will depend upon the evaluation of this first project.

B. Project Rationale and Approach

1. Rationale

The problem addressed by the project is that human interaction with natural systems can cause those systems to deteriorate, and to lose their regenerative capacity. The natural system's benefits or "services" are lost, sometimes permanently. The net result is that options for human activity are diminished, and a community's ability to meet its needs and wants is jeopardized. Hundreds of examples exist in the Pacific Islands region, most relating to unsustainable harvesting of marine and terrestrial plant and animal species. The encouraging note is that most of the islands' natural systems are still fundamentally intact, so there is a great deal to "save" and the subsequent long term benefits are realizable.

One important cause of natural system degradation is the impact of productive activities --mining, collecting, harvesting, processing, transporting and others adding value to natural products or places. Historically, "modern" productive activities have been undertaken without understanding of or regard for the carrying capacity of natural systems or their interdependent relationship with other natural complexes. Lacking the distorting consequences of population pressure, traditional practices did recognize these relationships. But in most regions of the world, population growth is destroying traditional people's ability to interact on a sustainable basis with natural systems.

Biodiversity conservation strategies comprise two interrelated sets of actions: (a) those that focus directly on the condition or status of the natural resources, and (b) those that focus on human uses of those resources, their impacts and the management of those impacts. The former guide the latter, by identifying the ecosystems, species and sites most at risk. The latter are the means by which conservation can be achieved, through modification of human activities.

A common tactic to deal with human activity that is ecologically unsustainable is to put up a total barrier between the human activity and the ecological system, or to constrain the activity in order to "protect" a portion of an area deemed to be threatened. In the South Pacific, however, there are few opportunities for formally setting aside from direct human activity any significant areas of coastal seas and islands. Human settlement is widespread, and Pacific Island people are closely dependent upon the land and sea, for local natural resources are usually their only basis of livelihood.

In these circumstances, where the future well-being of man and nature (Pacific Islanders and the biological communities with which they live) are closely entwined, the most positive contribution that can be made to conservation of nature is to facilitate the introduction or expansion of activities that are sustainable ecologically and are socially, especially economically, beneficial. This is the focus of PEP. The project will develop an approach to enterprise development that avoids negative effects of productive activities

on natural systems and also positively protects biological diversity by removing development pressures from sensitive parts of those systems. It will develop and disseminate proven enterprise models that can be adopted at an acceptable level of risk by entrepreneurs in specific types of ecosystems.

2. Approach

The project first will assess the threats to the biological sustainability of targeted ecological management units (EMUs), that is, the ecosystem complexes and the people who live in or interact with them. The objective will be to estimate the degree to which the natural values of an EMU (for production of all types of goods and services) are reduced, and its regenerative capacity compromised, when elements of the natural system are harvested or otherwise disturbed. Existing and planned enterprises that are to be active in the EMU will be assisted in creating strategies that will conserve the natural resources of their surroundings, while at the same time creating a new, or maintaining a current, income stream. In some instances, the revised strategy of an enterprise will result in reduction of pressure on threatened resources. In others, the enterprise will actually improve the status of its natural resource base, as, for example, an enterprise involved in waste management, or recycling. There will be a role, also, for consulting firms to advise multinationals and major tourist facilities on how to avoid environmental damage, even, perhaps, to improve the overall situation.

The PEP project will develop experience with enterprises that have resolved to follow business strategies that will conserve their environment. The project will help such enterprises gain access to technology, markets and financing. The model strategies adopted will be ones that other entrepreneurs and communities can adopt and that lending institutions can support.

The project will employ a full time team of two persons that will be supported by short term experts and the staffs of the Foundation for the Peoples of the South Pacific (FSP). The full time team will pair a professional conservationist ("environmental coordinator") experienced in grassroots economic development with a small business advisor experienced in environmental issues. The analysis, tools and models they construct will bridge the concerns of the conservation and development oriented communities. Throughout all phases of the project the team will involve local males and females of the community in formulation and testing of the models. The ecological management unit (EMU), once selected for project activity, will become the framework within which enterprise opportunities will be identified. Following analysis of the existing enterprise environment, current market indicators and evidence of business successes and failures, potential enterprise opportunities will be identified. The project team will address the difficulties the selected businesses are encountering by participating directly in problem solving. Inputs of technical or managerial assistance, and contacts with financing institutions, may be required at various stages during the life of the activity. Such

assistance will be available only for enterprises conforming to a conservation plan established under the project.

The full cycle of selection of an EMU, analysis of existing interactions with the environment and introduction of modifications in the way enterprises are operating (or assistance in development of new enterprises) will be repeated at least six times during the life of the project. (See Annexes D and E for descriptions of the procedures that will be followed in relation to the environment and to enterprises.)

3. Location and Regional Outreach

The project team will be located in Port Vila, Vanuatu, associated with the FSP office for that country. Based on the following considerations, Vanuatu has been selected for the site of the project, and of the first three ecological management units (EMUs):

- In terms of variety of habitat, intrinsic biological value and threat from human use, it ranks second to Papua New Guinea (and equal to Fiji) in providing the representative ecological associations to be targeted in the A.I.D.-assisted countries in the South Pacific, lacking only bogs, alpine meadows and habitat of mammalian fauna.

- The first three environmental management units (EMUs) are readily accessible in Vanuatu where they are of high significance in both human and ecological terms.

- Vanuatu is representative in terms of its heavily rural population and varied linguistic and social groupings.

- Recent research in the country provides an ecological data base.

- Intra-regional transport and communications provide relatively easy and inexpensive access to other countries expected to participate in the project, e.g. Solomon Islands, Tonga, Kiribati, Western Samoa.

- The FSP office is experienced in implementing a varied program, which has included assistance to enterprises and environmental initiatives funded by A.I.D. and other donors.

- The local affiliates of FSP in Vanuatu have held a conference of government and private sector representatives dealing with environmental issues. The chamber of commerce is interested in helping businesses desiring to take a responsible approach to the environment.

Once the PEP model-building method is tested in three different ecological management units in Vanuatu, the team will assist the communities and enterprises of at least three other countries, beginning with Papua New Guinea, which has the greatest diversity of species requiring conservation and a lively exploitative private sector. After the project has been underway for one full year, members of FSP affiliates and other private sector representatives from Papua New Guinea will go to Vanuatu to gain an understanding of the kinds of activity that the project can bring to their country. Similar orientations will be organized for other island countries, broadly represented.

A Project Advisory Group comprising A.I.D. and NGOs active in the region and committed to conservation will advise the project team and help disseminate data and descriptions of the working models and lessons of PEP to conservationists and business groups. The first meeting of the Advisory Group in early 1992 will be attended by the candidates selected for the two long term positions in the project and a representative of SPREP.

An informal group of interested individuals and agencies, to be known as the Technical Support Group, will have the opportunity to share their experience and ideas and to comment on the project as it is implemented. Communication will be through the electronic mail "conference" known as ECONET which is used for communication by conservationists, social scientists and small business specialists and others all over the world. and to share

C. Project Elements

Elements of the project comprise:

- Identification of representative ecological management units (EMUs) that are representative of threatened habitats in the region and in which development of model enterprises will take place.

- Selection of enterprises that are potentially protective of the environment, and assistance to their individual or community-based owners and managers.

- Involvement of lenders.

- Documentation and dissemination of lessons.

- Linkages with other programs.

- Use of SPREP's important position in the region cooperatively to promote further testing and adaption of models.

The detailed implementation schedule in Annex C sets forth the steps that will be taken throughout the project to carry out six cycles -- on as many different sites -- of EMU selection, enterprise selection and assistance to enterprises. Dissemination and discussion of ideas and results will take place throughout the implementation period, culminating in a set of models of environmentally responsible enterprises and methods of identifying and assisting them.

1. Selection of EMUs as Sites for Project Activity

The environmental analysis has identified six representative ecological "associations" that are high in need for conservation and are representative of conditions in the region: lowland forest associations, wetland associations, coastal strand and nearshore marine associations, raised coral island and nearshore marine associations, atoll-lagoon-reef associations, and montane forest associations. The first step for the Environmental Coordinator in the project, in collaboration with the enterprise specialist, will be to refine the selection of actual project sites, three EMUs on islands of Vanuatu and three others in other nations, beginning with Papua New Guinea.

2. Assistance to Enterprises

A preliminary survey of the EMU will yield information on the entrepreneurs, actual and potential, male and female, and the enterprises with which they are now associated, or will be associated. Some enterprises will be the undertaking of a single owner-manager, others will be larger modern style businesses, and some will comprise the cash-earning activities of the community that owns or controls the surrounding natural resources.

The enterprises will be screened for their financial, economic and market feasibility, their status of community support if they are community-based, and their current and future estimated impact on the environment. Those that survive project team scrutiny will receive assistance to help them adjust their impact on the environment. In every instance, moreover, they will necessarily be helped in identifying markets and sales opportunities, and in the development of appropriate business plans. The project will seek business success. However, the lessons from failure may represent models that other entrepreneurs should avoid.

It is anticipated that the project will work closely with a variety of enterprise types, from transnational corporations and nationally based businesses to community owned and community based activities. Because the EMUs are likely to be located in rural settings, however, the project will work frequently with and within communities. Community enterprises earning commercial profits might include honey production, coconut shell charcoal, crocodile farming or fish processing.

Activities that have already shown that they can be profitable that could provide a basis for diversified and sustainable subsistence or commercial income are listed in Table II.1 below.

Linkages between a community and an international enterprise are possible, and would be appropriate for project attention. A variety of related or "linked" activities could occupy and provide income to a given group of individuals. For example, an "eco-tourism" facility may require a builder-owner-operator of the facility, people to function as "guides" for the visitors, and individuals to provide the service functions required by lodging operations. Depending on the nature of the community at the location of the enterprise, the project may choose to promote a "package" of services to tourists, to focus on the facility operator as the contractor for the supporting services or to bring in a consultant to deal with such matters as waste management.

After an initial investigation of the existing businesses and the business opportunities in an EMU, the team will agree on the selection of enterprises for project attention. To be included an enterprise can be either an existing large or small activity interested in growth and development as well as in demonstrating a consciousness of the need to protect national natural resources, or a new enterprise, perhaps based in a community that is interested in maintaining cultural values as well as in creation of wealth for the group. The project team will help the enterprise develop a business plan that will cover the full range of information and objectives generally expected from a credit-worthy enterprise but will also contain a complementary conservation plan that will focus on the environmental aspects of the enterprise activity. The conservation plan will project the impact of the enterprise on the environment and will serve as a base line for evaluation of its activity from the environmental perspective. Assistance to the enterprise will be tailored to provide needed inputs of technology, marketing, and production planning. The Enterprise Specialist will draw upon short term consultants as necessary.

3. Involvement of Lenders

One of the most important issues confronting implementation is the relative lack of business support structures for small businesses, whether community-based or single-owner or partnership enterprises. The project will ensure that the business community in general, and commercial financing institutions specifically, are involved in the development of the project from the start. The Enterprise Specialist will establish a relationship of information exchange, advice and consultation, and will actively promote interaction between the project and small businesses, business associations, multinationals, local banks, venture capitalists and other credit vehicles.

TABLE II.1

CATEGORY	SUBSISTENCE LOCAL SALE	COMMERCIAL EXPORT	COMMERCIAL
FORESTED/AGRICULTURAL AREAS			
Wildlife-based Ecotourism	† †	† †	† †
Agricultural-based Ecotourism	†	†	† †
Culture/History-based Tourism	†	† †	† † †
Staple Food Production	† † †	† † †	† †
Vegetable Production	† † †	† † †	†
Fruit/Nut Production	† † †	† † †	† †
Wildfood Gathering	† †	† †	†
Livestock Farming	† † †	† †	†
Medicine Production*	† † †	† †	†
Oil/Perfume Production	† † †	† †	†
Ornamentation/garlands	† † †	† †	†
Handicraft Production	† † †	† † †	† †
Ornamental Plant Trade	† †	† †	†
Fuelwood Production*	† † †	† † †	-
Reforestation	† † †	† † †	† † †
Refaunation	†	†	†
Wildlife Farming	†	† †	† †
Specimen Rock Trade	†	†	†
Timber Extraction	†	† † †	† † †
Furniture Manufacture	†	† †	† †
COASTAL/MARINE-DEPENDENT AREAS (some of the above categories would also apply)			
Marine Ecotourism/Reef Reserves	† †	† †	† † †
Coastal Ecotourism/Land or Island Reserves/Sanctuaries	† †	† † †	† † †
Reef/Lagoon Fishing	† † †	† † †	† *
Pelagic/Deepwater Fishing	† †	† †	† † †
Beche-de-mer Production	† †	† †	† †
Specimen Shell Trade	†	† † †	† † †
Shell Ornamentation	† † †	† † †	† † †
Mariculture	† †	† †	† †
Giant-Clam Culture	† † †	† † †	† † †
RIVER COMMUNITIES (some of the above categories would also apply)			
Aquaculture	† †	† †	†
Transport	† † †	† † †	† †
Ecotourism	†	† †	† †
Fishing	† † †	† †	†
URBAN AREAS (some of the above categories would also apply)			
Small-scale Recycling	† †	† †	† †
Home food Gardening	† † †	†	†
Composting/Soil Sale	† † †	†	-

Notes to Table II.1, above:

† † † means great existing or potential contribution to total income in most countries in the region.

† † means considerable existing or potential contribution in the region, of considerable local potential.

† means some existing or potential contribution in some parts of the region.

Securing the early support and involvement of lending institutions is pivotal for the success of the project. First, the local institutions have an enormous amount of knowledge concerning target site enterprise initiatives that have worked and those that have not. In particular, they will know what factors have led to the differing actual outcomes of project activity. The project will ensure that such institutional memory becomes part of PEP model development.

Second, such institutions are established members of the greater community in which the project will function. Their involvement ensures that support and consultation to enterprise activities such as those supported by PEP are available for the long term, rather than based on the sharply delimited resources available from the project.

4. Documentation of lessons

A final project publication will combine a presentation of the direct results of the PEP Project with a comparative assessment of parallel efforts. Data and conclusions will be recorded regularly in monthly and quarterly reports, and in the report of the mid-project progress and the evaluation at the end of the second year.

It is anticipated that there will be continuous exchange of information among implementers of the project and institutions and agencies sharing similar concerns regarding threats to the environment in the South Pacific. The project should expect to make available to agencies, institutions, government departments, etc. a document which will offer a new view of enterprise development and environmental protection.

A summary monthly report will be circulated through the worldwide electronic mail "conference" known as ECONET so that interested parties can receive information, pose queries and make comments. At six-monthly intervals, a project newsletter will be distributed on ECONET and in hard copy, and the Project Advisory Group will meet to discuss issues and ideas. During the third year of the project, a regional conference will concentrate on the linkage of conservation and enterprise objectives.

5. Linkages with Other Programs

The set of working models and associated procedural tools developed by the project should have widespread applicability throughout the region. In order to make the most effective distribution of these models and tools, from the outset the project will maintain contact with institutions and organizations having development interests and programs in the region. Thus the project will facilitate information exchange among researchers and their institutions as well as a wide range of local and international organizations that might be interested in coordinating their programs in conservation, community development, or enterprise development with the PEP project, or in initiating new, and related, programs.

6. South Pacific Regional Environment Program (SPREP)

As an inter-governmental membership organization, the South Pacific Regional Environment Program (SPREP), since its inception in 1982, has concentrated on public sector programs of research, survey and technical assistance. Its growing recognition of the importance of the private sector in development, economic growth and influence on the environment was expressed at the 1991 meeting of SPREP's governing body. A.I.D. is in the best position among donors to help SPREP extend its program and influence toward the private sector.

The involvement of SPREP in the project will begin with the attendance of the Director, or his designee, at the first meeting of the Project Advisory Group in early 1992. Among other possibilities for A.I.D. support under PEP, still to be discussed with SPREP would be:

a) short term expertise for private entrepreneurs within SPREP's Environmental Education and Training program,

(b) a study under the Environmental Management and Planning program to stimulate governmental interest in the role of the private sector by recommending policies, tax incentives and other regulations that would help businesses work within a sustainable physical environment, or

(c) financing of a technical assistance fund for the discretionary use of the SPREP Director, the A.I.D. funds to be exclusively for outreach to the private sector, perhaps to extend a model developed under the project to additional enterprises, or new locations.

III. IMPLEMENTATION PLAN

A. Major Implementation Actions

1. Cooperative Grant Agreement

The project was designed by a team provided under a Cooperative Agreement between RDO/SP and the U.S. private and voluntary organization, The Foundation for the Peoples of the South Pacific (FSP). The performance of FSP has been satisfactory to RDO/SP. Thus, under the collaborative assistance mode adopted for the project design, the Mission desires to continue using the services of FSP for implementation of the project. As the first step in project implementation, a new cooperative grant agreement will be awarded to FSP to provide most project inputs.

2. Memoranda of Cooperation

The RDO/SP will execute a memorandum of cooperation with the government of each country in which the project will be active. The agreement with Vanuatu is expected to be completed in November 1991. No disbursement for project purposes will be made in Vanuatu, or other countries, until a memorandum of cooperation has been executed.

3. Annual Work Plans

Within two months of execution of the new "Implementation" cooperative agreement, FSP will prepare for RDO/SP approval a detailed work plan, including a budget for the first year's implementation. Subsequent work plans will be submitted annually.

4. Project Initiation Activities

The project approach involves the extensive use of FSP's existing network of local, in-country offices and partner organizations to establish a functional operation base in Vanuatu, and subsequently elsewhere, from which the activities of the project implementation team can be successfully carried out.

Immediately upon execution of the cooperative grant agreement, FSP headquarters personnel will initiate a recruitment process to fill the full time adviser positions. Announcements of vacancies for full time and short term positions will be placed in selected publications with appropriate distribution. FSP country offices will also conduct extensive searches of their markets in order to develop a listing of available local talent for potential use at various stages of the project.

The FSP office in Vanuatu will secure local office space, identify housing options, formalize the conditions under which project personnel will be working, communicate about the project with interested government departments and other regional entities,

secure appropriate clerical and administrative support and prepare appropriate briefing materials for the full time project personnel.

At this time also, the Project Manager in FSP's San Diego headquarters will initiate an outreach program to inform interested individuals and organizations around the world about the project and pursue previously made expressions of interest in collaborating in the broad project effort.

5. Implementation Approach

International expertise will be accessed and made available to the project through the following:

(a) a Project Advisory Group which will meet twice yearly to review the progress of the project,

(b) a Technical Support Group, an informal group of experts in the fields of conservation biology and the preservation of biodiversity, social science, and enterprise development, who do not meet, but who participate in the electronic mail conference known as ECONET, and

(c) broader use of electronic mail capabilities to link project experts with interested persons and organizations.

On-site project implementation will be accomplished by two long-term project specialists, one representing conservation biology and biodiversity interests and the other representing enterprise interests. The FSP Country Director in Vanuatu will provide on-site logistical and administrative support to the two specialists, one of whom will serve as field team leader.

Short term consultants will be employed to provide subject specific, in-depth analysis and project back-up to the full time project staff. Priority will be given to employing qualified Pacific Islanders as consultants. The consultants will have relevant expertise in, inter alia,

- ecological systems
- social science
- regional and international marketing
- appropriate technology
- monitoring and evaluation

The application of the PEP procedure in model building will occur under controlled conditions that are conducive to monitoring and evaluation.

In each procedural cycle the project team will first identify an appropriate ecological management unit, or EMU, in which to work, selecting the unit on the basis of its representativeness of threatened ecosystems of the region (see Annex D). Following review of the existing and potential enterprises operating in the EMU, assistance will be offered to selected enterprises to ensure both their profitability and their responsibility vis-a-vis the environment. Each cycle of project activity will provide project experience to draw upon in developing models for future cycles, and for eventual dissemination to entrepreneurs, communities, governments, NGOs and official donor agencies.

Based on six cycles of project activity, a representative sample of approaches to enterprise activities within certain types of environmental and renewable resource parameters will generate information in the form of indices showing which sectors, markets, motivational factors and other elements contribute to the success or failure of enterprises both in terms of their profitability and their success in preserving biodiversity. Such results, as far as they can be known in the short period of the project, will then be transformed into a working model to be further tested and, later, disseminated.

6. Involvement of South Pacific Institutions

Throughout all phases of the PEP Project, efforts will be made to secure the significant involvement of Pacific Islanders, their institutions and their organizations, such as the Association of South Pacific Environmental Institutions, the Melanesian Environment Foundation of Papua New Guinea, the National Association of Non-Governmental Organizations, and the National Community Development Trust of Vanuatu.

It is likely that NGOs now assisting enterprises as part of their more general work in community development will be able to enrich the project by sharing their experience with local enterprises. Further, such NGOs may be able to identify community entrepreneurs who are likely to be amenable to responsible environmental management in their businesses.

The project will also solicit the cooperation of banks and the business community to participate in the PEP initiative. Lending institutions must be convinced that environmentally responsible enterprises can be viable, even profitable. Furthermore, demonstrations of what can or cannot be achieved by enterprises could lead managers of similar types of enterprise to adopt similar approaches.

7. Implementation Schedule

A detailed schedule is at Annex C.

B. Responsibilities

1. Agency for International Development

As soon as the project is authorized in September 1991, the A.I.D. Regional Development Office/South Pacific (RDO/SP) will prepare a Project Implementation Order for Technical Services (PIO/T) for the Regional Contracting Officer in Manila to award a (Cooperative Grant Agreement) to The Foundation for the Peoples of the South Pacific (FSP) to provide the FY 1991 funds. The agreement will be the obligating document.

In early FY 1992, RDO/SP will also prepare a PIO/T for the Office of Procurement in A.I.D./Washington to amend the Cooperative Grant Agreement with the World Wildlife Fund of the United States to add $145,000 to the Conservation of Biological Diversity (BSP) Project (936-5554) and its Biodiversity Support Program (BSP) to finance short term technical assistance in scientific and social monitoring of aspects of the project related to conservation of biological diversity. The Asia Bureau in Washington will obtain the concurrence of the Bureau of Science and Technology (S&T), Office of Forestry, Environment and Natural Resources (FENR) and deliver the PIO/T to the Office of Procurement for action.

The S&T Bureau will consult with WWF US on that organization's proposal to make $30,000 in core funds available from the BSP in FY 1992. Based on the proposal from WWF (Annex L), the S&T Bureau will prepare and execute the necessary documents to make an Operational Year Budget (OYB) transfer to RDO/SP.

As soon as FY 1992 funds are available from the earmarked Congressional appropriation for the Office of Women in Development, S&T/WID will prepare an OYB transfer of $300,000 to help finance the services of the Enterprise Adviser to support his commitment to involvement of female entrepreneurs in project activities. RDO/SP will add the funds to the grant to FSP.

Following agreement with SPREP on the provisions of a grant from RDO/SP to SPREP, RDO/SP will execute the grant to that organization. Two subsequent grants of $50,000 each will be made in FY 1993 and 1994 respectively.

The designated Project Officer for the project will be the Mission's Environment Officer. This officer will be responsible for, inter alia, processing all required PIO/T's, recommending changes in the budget or in project components as required by the terms of the cooperative agreement, monitoring the progress of the project, and ensuring that project evaluations cover issues of interest to A.I.D. The Project Officer will make available to the PEP project all relevant data bases and project experience stemming from other A.I.D. projects in the South Pacific, for example from Market Access and Regional Competitiveness and Pacific Island Marine Resources.

stemming from other A.I.D. projects in the South Pacific, for example from Market Access and Regional Competitiveness and Pacific Island Marine Resources.

2. The Foundation for the Peoples of the South Pacific (FSP)

The Foundation will provide project inputs as specified in its cooperative grant agreement with A.I.D. and will coordinate these inputs with those from S&T/WID and WWF to ensure that project outputs are accomplished. The Foundation will account for all funds disbursed to it by A.I.D. and will submit quarterly progress reports to RDO/SP in the format specified in the grant agreement.

FSP headquarters will assume overall project management responsibilities for the project. The FSP Regional Office in Suva will serve as liaison between headquarters and RDO/SP. The Vanuatu country office will provide administrative support to the on-site PEP team and will serve as liaison between the project, government and local enterprises and agencies. Other FSP country offices will provide similar types of support, depending on the levels of project activity in a given country.

3. Technical Support Group

The project's Technical Support Group will provide critical advice and guidance to project management throughout the life of the project. The group, comprising a number of subject specialists, will use the electronic mail conference known as ECONET, a network that can provide a cost effective way of securing high level professional services in support of project objectives. A specific set of expertise thus will be made available to comment on specific issues raised by project implementers. It is anticipated that the long term experts of the project will need to confer with interested persons with skills and experience in project management, conservation matters, business development and community development. Core members ofthe Technical Support Group will include representatives from, among others, World Resources International, Volunteers in Technical Assistance, A.I.D.'s Office of Women in Development, FSP, World Wide Fund for Nature International and the World Wildlife Fund US-consortium implementing the Biodiversity Support Program.

4. Project Advisory Group

A Project Advisory Group will be created to review and consult on project developments and to function as a high-level vehicle for the effective dissemination of project related information throughout its members' organizations and other interested persons with whom they are in contact. FSP headquarters will serve as the Secretariat of the Advisory Group. The Project Manager, as Secretary, will serve as the coordinator of Advisory Group functions and its meetings, which will be held twice a year, beginning in early 1992. A preliminary list of organizations expected to be invited onto the Advisory Group and the anticipated contributions of each are as follows:

- A.I.D. Bureau for Science and Technology, Office of Women in Development

  Provision of funds for half the cost of the enterprise specialist, and provision of expertise in, e.g., evaluation, social analysis, information dissemination

- Environmental Enterprises Assistance Fund

  Access to a list of small enterprises in the energy field and other enterprises known to Winrock International and the Fund, participation in assessment of enterprises that might be helped by the project and, upon the establishment of a Local Investment Fund in the region, financing for eligible enterprises

- Volunteers in Technical Assistance (VITA)

  Coordination of response to enterprise related queries from any party involved in project implementation, including those generated via the ECONET conference, assistance in identification of technical expertise to assist enterprises, access to the VITA Volunteer capabilities, information dissemination, development of effective telecommunications for the project

- World Resources Institute (WRI)

  Provision of the services of a specialist to participate on the Technical Support Group, assist in the development and publication of information materials and dissemination of information, and provide other services as requested

- World Wide Fund For Nature, International (WWFI)

  Provision of technical support for the Environmental Coordinator of the project, short term technical expertise, dissemination of information, coordination of technical input made available through the Biodiversity Support Program led by WWF US, coordination with other donor programs within the region, assistance in identifying appropriate consultants to the project

- World Wildlife Fund US (WWF US): Biological Diversity Support Program

  Provision of technical support for the Environmental Coordinator, funds for project evaluation, assistance in information dissemination, participation on the Technical Support Group, coordination with the WWFI program in the Pacific region.

Final criteria for institutional membership on the Advisory Group will emphasize those organizations having made a demonstrable commitment to the project in the form of

resource commitments and thus having a tangible interest in its successful implementation. As noted, SPREP is expected to be a member and local NGO's will also be considered for membership (see page 10).

5. South Pacific Regional Environment Program (SPREP)

Beginning early in 1992, the Regional Development Office of A.I.D. in the South Pacific (RDO/SP) will confer with the Director of SPREP to reach agreement on the use of $150,000, to be offered in three annual grants. The exact nature of therole of SPREP in the project has not yet been determined. One possibility would be to promote through SPREP additional governmental and private sector attention to role of enterprise in conservation in developing island countries. It is expected that assistance through SPREP will take the form of support for dissemination of enterprise models emerging from the PEP program and perhaps a fund for small grants to promote further trials of those models in different countries. The first grant will not be made until formal agreement on its uses has been reached.

IV. COST ESTIMATE AND FINANCIAL PLAN

A. Sources of Funds

The sources of project funds and obligation schedule are shown in Table IV.1 below.

Table IV.1 SOURCES OF PROJECT FUNDS AND OBLIGATION SCHEDULE

SOURCE	FY91	FY92	FY93	FY94	TOTAL
RDO/SP OYB	671,508	1,000,000	428,492	300,000	2,400,000*
S&T/FENR	-	30,000	-	-	30,000
S&T/WID	-	300,000	-	-	300,000
TOTAL	671,508	1,330,000	428,492	300,000	2,730,000

* Total amount to be authorized by RDO/SP

In addition to the $2.4 million that will be authorized by RDO/SP, $330,000 will be contributed to the project from S&T Bureau.

B. Methods of Implementation and Financing

Table IV.2

	METHODS OF IMPLEMENTATION	METHODS OF FINANCING	APPROX. AMOUNT ($000)
1.	TA + AUDIT - Grant (Cooperative Agreement)	Letter of Credit	2,260
2.	CONTRIBUTION TO SPREP - Grant	Direct Transfer	150
3.	BUY-IN TO S&T/FENR Conservation of Biological Diversity Project (936-5554)	OYB Transfer from RDO/SP	145
4.	Contribution from S&T/FENR Conservation of Biological Diversity Project 936-5554	Coop Agmt. with WWF US	30
5.	Evaluation - RDO/SP Grant or Contract	To be determined	45
6.	Contingency - Contract(s) and or Grant(s) to be determined by RDO/SP	To be determined	100
	PROJECT TOTAL		2,730*

* $2.4 million from RDO/SP FY91-94 OYB's; $30,000 from S&T/FENR Project in FY92 and $300,000 from S&T/WID in 1992, both as OYB transfers to RDO/SP.

1. Grant to FSP.

Except for three annual grants to SPREP, $175,000 from the Conservation of Biological Diversity project, and an amount reserved by RDO/SP for contingencies and evaluation, all project activities, including audit, are expected to be managed by FSP, under a new cooperative grant agreement. Funds will be provided to FSP through the established letter of credit issued by the Treasury Financial Communications System (LOC - TFCS).

Consistent with the terms and conditions of the current Grant, access to contingency funds exceeding 15 percent of established line items will require the approval of the RDO/SP Project Officer.

FSP, with concurrence from RDO/SP, will contract for and pay directly three annual audits of its project accounts by a certified public accounting firm. The Foundation, in operation since 1965, is an experienced and reputable U.S. PVO which has received support from a number of A.I.D.-funded projects. The Foundation has an established system of accounting, auditing, program and financial management. Financial records are audited annually by a major U.S. accounting firm.

2. Grant to SPREP

Three grants of $50,000 per year in FY 1992-1994 will be made directly to SPREP by RDO/SP.

3. Buy-in to S&T/FENR Project

$145,000 of project funds will be used to buy-in to the S&T/FENR Conservation of Biological Diversity Project (936-5554) to assure inclusion of the South Pacific in the data base and monitoring work of that project. This will be done in FY1992 by an OYB transfer.

4. Contribution from S&T/FENR Project

Core funds from the Conservation of Biological Diversity project (936-5554) managed for the BSP consortium by WWF US, will finance $30,000 of evaluation services.

5. Contribution from S&T/WID Project

The STT WID office intends to transfer $300,000 in FY1992 to RDO/SP to add to the FSP grant. The funds will be used to pay part of the cost of one long-term advisor.

6. Contingency

This additional amount for contingency will be committed by RDO/SP by contract, grant or buy-in to A.I.D./Washington projects. The actual procurement or grant mechanism(s) to use are determined at the time the project need is identified.

C. Project Components

The project will be administered by the Foundation for the Peoples of the South Pacific (FSP), the Biodiversity Support Program, financed by the S&T/FENR Conservation of Biological Diversity project (936-5554) and the A.I.D. Regional Development office for the South Pacific (RDO/SP). Table IV.3 indicates the divisions of responsibility for the various project components.

Table IV.3 **SUMMARY BUDGET (US $ 000_)**

Component	Grant to FSP	Buy-in to 936-5554	Core funds from BSP, 936-5554	Admin. by RDO/SP	TTL
1. Tech. Asst.& Travel a. Long Term t/a b. Short Term t/a c. Travel	 531 251 241				1023
2. Office Support a. South Pacific b. Headquarters	 237 158				395
3. Confer., Publications etc.	112				112
4. Monitoring, analysis		145	30		175
5. Audit	15				15
6. Overhead, Dir. Costs, FSP, 23.97%	372				372
7. Commodities	33				33
8. Evaluation by RDO/SP				45	45
9. Inflation	107				107
10.Contingency	203			100	303
11.Grant to SPREP				150	150
TOTAL PROJECT COSTS	2260	145	30	295	2730

Component	Grant to FSP	Buy-in to 936-5554	Core funds from BSP, 936-5554	Admin. by RDO/SP	TTL
Sources of Funds					
RDO/SP	1960	145		295	2400
S&T FENR			30		30
S&T/WID	300				300

D. Cost Factors

1. Technical Assistance

1a. Long Term Experts

The salaries for the two long term technical advisers (5 1/2 person-years) is estimated to average $55,000 per year. The rate for the long term technical adviser (either the Environmental Coordinator or the Enterprise Specialist) who will also serve as the on-site project manager will be higher than that of the other adviser. Fringe benefits are estimated at 30 percent of salary, or an average of $16,500 exclusive of housing and transportation which are presented in other budget categories. These rates represent market rates in effect for expatriate expertise at the levels required for the successful implementation of the project.

1b. Short Term Consultants

The total average cost of each expatriate expert (15 person months) including international and in-country travel and per diem of about $18,500 per month assumes a daily rate of $500 (salary and overhead) for 22 work days per month. For a Pacific Island expert (15.5 person months) at a daily rate of about $250 (salary and overhead) the average will be about $12,000 per month, including travel and per diem.

1c. Travel, Transportation and Per Diem

The project plan proposes six intra-country-inter-island trips per year by each long term advisor and about 13 trips to other island countries by the two long term advisors over the life of the life of the project. Travel costs are estimated at late 1991 fares, and per diem at A.I.D. approved rates.

2. Home Office and Field Office Support

Home office support is based on estimates of time required for the Project Manager to implement the project (10 person-months plus 7 person-months of other staff, see Annex C). Housing and costs of office personnel, equipment and supplies in Port Vila, Vanuatu, are estimated at rates current in late 1991. Some 25-person months of time by the country directors are to be charged to the project at a rate which reflects total costs for the directors (salary, fringe, allowances).

3. Conferences, Publications, etc.

Each of two meetings per year of the Project Advisory Group will cost about $1,000. The costs of electronic mail for project management and participation in a conference network assume subscription fees throughout the project and purchase of equipment the first year. Publications costs are estimated on the basis of the experience of World Resources Institute, which produces a varied group of documents on environmental subjects. A regional conference in FY 1994 arranged by FSP is budgetted at $40,000 for site costs, airfares of initial participants, etc.

4. Monitoring

Monitoring expertise is included among the short-term consultants to be funded by the grant to FSP and in the buy-in to the S&T project. One internal mid-term progress review will be carried out by FSP and AID personnel.

5. Audit

Three annual audits of financial records to be carried out by FSP's regular external audit firm, are budgeted at $5,000 each.

6. Overhead

The A.I.D. currently approved overhead rate for FSP of 23.97 percent has been applied to direct costs of activities carried out by FSP.

7. Commodities

A single 4-wheel drive project vehicle will be purchased for $20,000, for use by the advisors working in Vanuatu. Maintenance is estimated at $500 per month. Commodities also include two computer systems and office furniture for the two long-term advisors.

8. Evaluation

Costs of the evaluation to be conducted by RDO/SP are estimated at $45,000.

9. Inflation

An inflation allowance of five percent per year is considered adequate in the region as of 1991.

10. Contingency

Contingency for the FSP Grant is budgeted at 10 percent of FSP Activity Costs to cover unforseen needs. An additional contingent amount of $100,000 is reserved to RDO/SP.

11. Grant to SPREP

Three annual contributions of $50,000 each will be made to SPREP for a total of $150,000.

E. Local Cost Financing

To the extent possible all project goods and services will have their source and origin in the United States (Geographic Code 000). However, to the extent permitted under the Agency's buy America policy, procurements with an estimated value of $750,000 will be from local, South Pacific region sources. These procurements include housing, utilities, local travel, office equipment and furniture and other equipment which must be serviced locally.

V. MONITORING, EVALUATION AND AUDIT

Monitoring and evaluation will be key elements in the development, testing and refinement of the multi-disciplinary intervention procedure expected as the outcome of the PEP project. It will be necessary to monitor the enterprise development and the conservation impact of activities. The project does not have resources for intensive monitoring of social-cultural dynamics during the life of the project, but based on preliminary discussions it is anticipated that agencies such as the World Wide Fund for Nature (WWF) will carry out special studies to assess the impact of project activities in selected communities.

Evaluation of the success of the project will focus on the project's success in using enterprises to enable conservation of biological diversity. Success of the project is not to be judged by the level of profit earned by enterprises receiving technical assistance during from the project. In the United States under relatively favorable conditions, only one in five small businesses survives after three years. The PEP project should not be expected to achieve unrealistically high results in business success; nor should the project's team or its evaluators lose sight of its primary focus on conservation. The skills developed by persons assisted can, however, be expected to provide a basis for future enterprise development within communities.

A. Monitoring

The project will monitor the conservation impact of enterprise activities in the ecological management units (EMUs) selected for project activity. It will monitor adherence to the conservation objectives laid out in the business plan of the enterprise, the environmental management procedures adopted and how consistently these are followed, and indicators of environmental performance. Measurable indicators will be developed on a site-specific basis by the project team and consultants. For example, in a wetland association, indicators may have to be developed to measure maintenance of productivity, protection of nursery areas, protection of water quality, maintenance of estuarine flushing and protection of bird habitat. Baseline measures will be developed by the full time experts and consultants to the project, and indicators will be monitored over the life of the project.

Enterprises receiving technical assistance will be carefully monitored as part of the project activities. Data on business owners, managers and jobs created will be sex-disaggregated. Specific monitoring indicators will be developed during the first cycle of EMU activity. Monthly reports will be prepared by the project staff and submitted to the advisory group for the project as a means of getting input into ongoing project activities. The monthly reports will be synthesized into quarterly reports to RDO/SP and other entities providing funding for activities. A specific monitoring plan will be developed during the first two months of the project and the San Diego-based FSP Project Manager will assure that the monitoring process is implemented.

B. Evaluation

The project plan calls for a progress review one year after the full time experts have begun their work in the field and an evaluation following two years of project activity. Personnel from A.I.D. and full time personnel of the project will participate with outside consultants in both the project review and the evaluation. No outside consultant time has been budgeted for the review and two and a half person months ($45,000) has been budgeted for the outside evaluation. One or more of the agencies of the Project Advisory Group may provide special expertise, as in enterprise development, resource economics or conservation, to the review and evaluation teams.

The following project outputs will be evaluated: (1) the intervention procedure, (2) the interaction between enterprises and the environment, (3) results of contacts with lenders, (4) the number of enterprises receiving technical assistance and the resulting level of adherence to conservation enhancing business operation practices, (5) results of information dissemination efforts and (6) efforts to enlist support from other donors.

Concurrent with the final evaluation, RDO/SP will consider the design of a successor project, to begin implementation immediately following the PEP project.

C. Audit

Three annual audits of project funds will be financed by FSP and carried out by their regular audit firm.

VI. SUMMARY OF ANALYSES

The project analyses available in Annexes D-G to this Project Paper indicate that the project is sound in its environmental, enterprise development, economic, financial and social aspects. The Institutional Analyses in Annex H indicate that the proposed grantees, The Foundation for the Peoples of the South Pacific and the South Pacific Regional Environment Program, are institutions with experience in implementing programs and established accounting and auditing procedures that have satisfactorily handled grants from A.I.D.

A. Environmental Aspects

The Initial Environmental Examination recommends a positive determination (see ANNEX R). An environmental assessment will be performed on each test enterprise.

The environmental experts on the design team have demonstrated the feasibility of employing a scientific and logical procedure to identify ecosystems of biologically diverse conservation need that are illustrative of the problems of environmental pressure facing the South Pacific region (see Annex D). The paper concludes that the A.I.D. - recipient countries of the region contain a rich variety of habitats with significant ecological value.

Selection of the particular target ecosystems upon which to focus project activities must depend upon further refinement on a country-by-country basis. The procedure followed to verify the feasibility of determining conservation priorities and localities upon which to focus considered the following factors for the A.I.D. - assisted countries of the region:

- the distribution of island types and major marine and terrestrial habitat types,
- the ecological characteristics of each major habitat type,
- the human uses, associated impacts and vulnerability of each major habitat type.

Six representative ecological associations proved to be most appropriate for project attention during its two and one-half years of intensive activity. These are the: lowland forest association, wetland association, coastal strand and nearshore marine association, raised coral island and nearshore marine association, atoll-lagoon-reef association, and montane forest association.

Annex D further sets forth the most feasible and efficient process to locate optimal settings for project work -- in Vanuatu to begin with, to be followed by Papua New Guinea and by Solomon Islands and/or Tonga and/or Kiribati -- from both ecological and enterprise points of view. The screening of enterprises for their suitability as objects of

project attention, and analysis of the likelihood that an enterprise will contribute to conservation of resources, and will be viable, is a task that must be accomplished during the project itself.

B. Enterprise Aspects

Given the feasibility of selecting habitats both at risk and subject to human economic activity and the environmental experts' recommendations on project sites, and using Vanuatu as an illustration, the enterprise development specialists on the design team conclude that: (1) the existence of a very active business community makes it likely that there will be a sufficient number of "test businesses" to work with to demonstrate the project approach and yield models; (2) it is reasonable to assume that financing institutions will be interested in supporting the businesses affected by the project; (3) considering that the natural resources are still largely intact, the project will have the opportunity to work with a wide latitude of ecological and enterprise types; and (4) the competitiveness of the enterprises in markets within and beyond the region appears likely.

The analyses (see Annex E) point out that international business principles are primarily based on management structure and operations foreign to the ways of community-based operations, and that although there is increasing interest in participating in export markets, the number of persons with a strong background and understanding of business development principles is not large. They conclude that it will be feasible to include in the project those existing and potential entrepreneurs who are not accustomed to defining economic gain solely in terms of cash income, but that the type of entrepreneurial activities they engage in may need to be adapted to "modern" business realities. Moreover, in some instances it may be necessary to factor an entrepreneur's responsibilities to support his extended family and community into the cost of doing business.

As to the question whether enterprise demands and conservation needs can both be served, the analyses conclude that an entrepreneur must not give primary attention to conservation objectives if such a priority will cause the business to fail. This does not mean that small, or large, businesses cannot have non-business purposes, only that these purposes cannot cost more than the enterprise can afford. The analyses conclude that it will be feasible, within a short period of project time, to review the potential viability of businesses operating within, or desiring to operate within, the selected EMUs, and to select enterprises for project activity. Standard financial analysis and business activity planning can be used in both selection of target enterprises and assistance to them.

The pitfalls faced by any agency attempting to foster small business development will be the same in the context of this project. These pitfalls must be recognized, and avoided, if an enterprise is to be able both to survive and to help improve the environment. Among them are (1) failure to identify individuals with strong entrepreneurial

characteristics, (2) cultural factors that undermine business discipline, (3) emphasis on production, or technology, rather than market potential, and (4) lack of access to financing. The project will have to try to confront such potential pitfalls through its business and community assessment process, its analysis of enterprise viability, its enterprise-specific assistance in identification of markets and its work with lenders to engage them in support of the environmentally responsible enterprises. The procedure for enterprise development designed for the project, and the structure of technical expertise outlined for implementation, should ensure a reasonable probability of success.

C. Economic and Financial Aspects

The combined financial and economic analysis at Annex F concludes that reasonably expected benefits exceed the costs of the project.

The tools for estimation of the full value of biodiversity, beyond certain specific utilitarian values, are available to economists today in theory but are not in use in practice. Economists to not normally deal with the functions of ecosystems; nor do they include indirect values of environmental resources in national accounts. For this project, with its experimental approach, a full analysis of costs, benefits and rate of return is not feasible. However, analysis in Annex F presents a discussion of the types and general magnitude of benefits that can be expected to accrue from a project of the nature contemplated. This discussion is coupled with a presentation of the level of benefits that would be needed to justify the project investment. The analysis concludes that it is reasonable to expect that the project would produce a level of benefits that would justify its investment. benefit values, which are shown to more than justify the project investment.

At the level of individual enterprises, the project insists on the necessity of financial analysis in order that the assumption that independent enterprises can be the engines of environmental protection can be tested. In order to validate the approach proposed by the project and assure sustainability, the enterprises must be profitable. Confidence that they can at least pay their way is necessary to convince public sector decision makers of the economic consequences of profitable environmental protection.

D. Social Soundness

In a region as diverse as the South Pacific, there is tremendous variation in social forms and cultural values. The Social Soundness Analysis at Annex G alerts project managers, however, to the dynamic tension that exists in most of the societies between traditional attitudes about family and clan responsibilities and contemporary individualistic perspectives which may be more supportive of entrepreneurial behaviors. Similarly, in each country the traditional configurations of land tenure and use rights and control over non-land natural resources must be factored into the identification of ecological management units and subsequent assistance to enterprises. The conclusion of the

analysis is that the most serious issues have been addressed in the project design and that the project is feasible.

The project was formulated in detail by a team comprising expertise in social analysis, enterprise development and environmental science and management. At every step in project development, the scientific and business approaches were tested against the insight provided by perspective on organization and likely reaction of human communities. The ecological management units (EMUs) to be identified as the sites of project activity will be defined in terms of both environmental characteristics and community interaction with the environment. Social scientists also point out that project implementers must be aware of the traditional patterns of sharing income, in order to assure that the strictly financial viability of a particular enterprise can be isolated and analyzed.

Information on the participation of women in small enterprises in the region is sketchy, but it is clear that sex-role patterns are based on a patriarchal value system that has emphasized women's roles and responsibilities at the household level and given them a secondary role in formal decision-making. A key element of the project will be its assessment of gender roles and attention to women as participants in planning change and managing or working in enterprises.

The beneficiaries of the project will derive benefits at varying stages, some early, others at later stages. The expectation is that, following this project, broader application of the models developed and experience gained will occur assisted by successor initiatives. Most immediately, benefits will accrue to the scientific and development community by enhancing understanding of how natural resources can be used sustainably to support rather than inhibit economic activity. Such information is needed vitally by country, regional and community planners.

The direct impact on persons at the community level will be confined primarily to those persons living in the communities participating in enterprise development efforts. That impact has the potential for a significant spread effect within and outside the community because of the training approach of the project and the planned incorporation of initial participants as technical consultants for later phases of the project.

Ultimately the project should have a positive impact on the global environment through improving conservation of biodiversity. The benefits of this impact will accrue to present and future generations.

VII. CONDITIONS

Before expenditure of project funds for assistance to any enterprise under the grant to FSP, an Environmental Assessment will be approved for that enterprise. Such an assessment shall:

(A) review the degree to which an enterprise is compatible, physically and economically, with the nature of the target ecosystem complex in which it will operate;

(B) establish the criteria to be used to monitor and assess the environmental management procedures of the enterprise, its performance vis-a-vis its environment and the degree to which it has met the environmental objectives in its business plan; and

(C) follow the process outlined in section 22CFR, Part 216.3(4) for scoping and Part 216.3(6) for processing and review, which requires review of the Scoping Statement and the Environmental Assessment by the AID/Washington Asia Bureau Environmental Officer (after review by the RDO/SP Project Officer).

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Program Goal	**Measures of Goal Achievement**	**Sources of Information**	**Outside Conditions Necessary for Achievement of Goal**
Conservation of biological systems of the South Pacific through sustainable economic development	Reduced risk to and degradation of ecosystems of the Pacific	Studies of degradation of Pacific ecosystems	Worldwide commitment to ecologically sustainable development

Profitable Environmental Protection: Project 879-0023

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Project Purpose	**End of Project Status**	**Sources of Information**	**Outside Conditions Necessary for Achievement of Purpose**
To demonstrate the means for profitable commercial and community enterprises to enable the long term conservation of biologically and economically vital ecosystems	1. 15 enterprises, of 6 types, achieving conservation of a range of vital land and sea ecosystems	Surveys of enterprises and their achievement of conservation	Policy environment does not preclude profitable enterprise activity
	2. Results of enterprise and conservation activity analyzed and evaluated; tools and approaches to problems of enterprise and the environment codified.	Project reports and surveys of the conservation, economic and social benefits from enterprises	
	3. Lessons, models and ideas disseminated to entrepreneurs (both female and male), lenders, assistance agencies and intermediaries in communities	Project publications and distributions	Entrepreneurs and agencies are committed in principle to conservation
	4. SPREP assertions to the private sector driven conservation is in developing island countries.	SPREP programs and minutes of meetings	Commitment of SPREP to inclusion of private sector in its programs

Profitable Environmental Protection: Project 879-0023

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Outputs	**Magnitude of Outputs**	**Sources of Information**	**Outside Conditions Necessary for Delivery of Outputs**
1. Identification of threatened environmental management units (EMUs) as potential sites of enterprise activity	5 - 7 EMUs in 4 difference countries	Survey report	Support by host countries
2. Analysis of current relationships of enterprises and communities to the environment	30 enterprises reviewed	Project report	
3. Assistance to enterprises (run by females and males) to improve impact on environment and economic and social benefit	6 - 15 enterprises have received technical assistance	Project records	
4. Lending institutions helped to identify and serve appropriate enterprises	4 institutions have initiated or expanded lending to conservation-oriented enterprises	Records of lenders	
5. Evaluation of beneficial and detrimental effects of various enterprise activities and formulation of guidelines for enterprises, lenders and assistance agencies	Guidelines prepared for 3 ecosystems and 6 business types	Project records	
6. Information on tools and regionally sustainable and models disseminated; linkage system established through ECONET; advisory committee active	Ongoing rollover of lessons into next activities; linkage system in use; publications prepared and disseminated	Project records and publications	
7. Data shared at international conference	Conference held	Project records	
8. SPREP information dissemination and small grants program.	Model enterprise examples disseminated to SPREP members	SPREP and project publications	SPREP administers funds within LOP

AID-assisted countries: Cook Is., Fiji, Kiribati, Niue, PNG, Solomon Is., Tonga, Tuvalu, Vanuatu, Western Samoa

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS					IMPORTANT ASSUMPTIONS
Inputs to Project, by Organization (in US$'000's)	**Fiscal Years 1991**	**1992**	**1993**	**1994**	**TOTAL**	**Conditions necessary to provision of inputs**
A.I.D.	672		428			
RDO/South Pacific		1000		300	2400	Congressional Appropriation
AID/Washington: S&T/WID	0	300	0	0	300	Congressional Appropriation
WWF/US, from AID-funded 936-5554 Core funds	0	30	0	0	30	Continued commitment of managers of Conservation of Biological Diversity project
TOTALS	672	1330	428	300	2730	

PROFITABLE ENVIRONMENTAL PROTECTION, Project 879-0023
Illustrative Budget by Year of Expenditure
US Dollars

CATEGORY		FY 1992 QUANTITY	FY 1992 COST	FY 1993 QUANTITY	FY 1993 COST	FY 1994 QUANTITY	FY 1994 COST	FY 1995 QUANTITY	FY 1995 COST	CATEGORY TOTAL
1. TECHNICAL ASSISTANCE										
1a Long Term (2):	Salary & Fringe	1 yr	71,650	2 yr	143,300	2 yr	143,300	-	-	
	Relocation & R&R	2 fam	36,000	2 fam	10,000	2 fam	36,000	-	-	
	Rent,Security,Util.	2 fam	18,000	2 fam	36,000	2 fam	36,000	-	-	
	Language Training	2 Adv	1,000	-	-	-	-	-	-	531,250
1b Short Term:Xpat	Biological Science	1x 1mo	11,000	3x 1mo	33,000	-	-	-	-	
	Industry/Technology	1x 1mo	11,000	2x 1mo	22,000	2x 1 mo	22,000	-	-	
	Marketing/Sales	1x 1mo	11,000	2x 1mo	22,000	2x 1 mo	22,000	-	-	
	Resource Economics	1x 1mo	11,000	-	-	-	-	-	-	
ST: Predeparture Expenses		8 adv	800	3 adv.	300	-	-	-	-	
ST: Regl./Local	Biological Science	2x 1mo	11,000	3x 1mo	16,500	2x 1mo	11,000	-	-	
	Social Science	1x 1mo	5,500	2x 1mo	11,000	-	-	-	-	
	Resource Economics	1x 1mo	5,500	1x 1mo	5,500	1x 1mo	5,500	-	-	
	Evaluation	-	-	1x 1mo	5,500	1.5x 1mo	8,250	-	-	251,350
1c TRAVEL AND PER DIEM										
LT: Fares	Within Vanuatu	6 RT	3,600	6 RT	3,600	6 RT	3,600	-	-	
	Vanuatu-Fiji	1 RT	600	1 RT	600	1 RT	600	-	-	
	Vanuatu-PNG	-	-	3 RT	3,600	3 RT	3,600	-	-	
	Vanuatu-Tonga	-	-	2 RT	1,600	2 RT	1,600	-	-	
	Vanuatu-Solom.Is.	-	-	-	-	2 RT	1,600	-	-	
	Vanuatu-Kiribati	-	-	2 RT	1,200	2 RT	1,200	-	-	
	Vanuatu-W.Samoa	-	-	-	-	2 RT	600	-	-	27,600
		days/rate		days/rate		days/rate				
LT: Per Diem	Fiji	10/137	1,370	10/137	1,370	10/137	1,370	-	-	
	Papua New Guinea	-	-	30/199	5,970	30/199	5,970	-	-	
	Tonga	-	-	20/ 87	1,740	20/ 87	1,740	-	-	
	Solomon Islands	-	-	-	-	15/ 99	1,485	-	-	
	Kiribati	-	-	10/ 84	840	10/ 84	840	-	-	
	Western Samoa	-	-	-	-	15/110	1,650	-	-	24,345

CATEGORY		FY 1992 QUANTITY	FY 1992 COST	FY 1993 QUANTITY	FY 1993 COST	FY 1994 QUANTITY	FY 1994 COST	FY 1995 QUANTITY	FY 1995 COST	CATEGORY TOTAL
1c.cont'd										
ST: Per Diem	Vanuatu	240/142	34,080	510/142	72,420	60/142	8,520	-	-	115,020
ST: Fares	US-Vanuatu	4 RT	10,000	7 RT	17,500	4 RT	10,000	-	-	
	Aust-Vanuatu	1 RT	1,800	3 RT	5,400	-	-	-	-	
	Islands-Vanuatu	1 RT	1,200	4 RT	4,800	2 RT	2,400	-	-	
	Within Vanuatu	8 RT	4,800	16 RT	9,600	4 RT	2,400	-	-	69,900
2. OFFICE SUPPORT										
2a Country Dirs.	Fiji	1 mo	6,000	1 mo	6,000	1 mo	6,000	1 mo	6,000	
	Vanuatu	3 mo	18,000	3 mo	18,000	3 mo	18,000	-	-	
	Papua New Guinea	1 mo	6,000	1 mo	6,000	1 mo	6,000	-	-	
	Tonga	-	-	1 mo	4,000	1 mo	4,000	-	-	
	Solomon Islands	-	-	1 mo	4,000	1 mo	4,000	-	-	
	Kiribati	1 mo	2,500	1 mo	2,500	1 mo	2,500	-	-	119,500
2b Local Office	Admin. Assistant	.5 yr	4,000	1 mo	8,000	1 mo	8,000	-	-	
	Rent		3,600		7,200		7,200		-	
	Supplied, Maintenance		3,000		6,000		6,000		-	
	Communication		15,000		15,000		15,000		1,000	
	Vehicle Maintenance	1 veh	7,500	1 veh	6,000	1 veh	6,000	-	-	118,500
2c San Diego HQ	Project Manager	3 mo	18,750	3 mo	18,750	3 mo	18,750	1 mo	6,250	
	Other Staff	2 mo	10,000	2 mo	10,000	2 mo	10,000	1 mo	5,000	97,500
Proj.Mgr.Travel	San Diego-Wash.	5 RT	5,000	4 RT	4,000	4 RT	4,000	1 RT	1,000	
	San Diego-SoPac	3 RT	7,500	2 RT	5,000	2 RT	5,000	-	-	
	San Diego-Europe*	2 RT	4,000	1 RT	2,000	2 RT	4,000	-	-	
Proj.Mgr.per/d	Washington D.C.	25/131	3,275	20/131	2,620	20/131	2,620	5/131	655	
	Vanuatu	10/142	1,420	5/142	710	5/142	710	-	-	
	Fiji	3/137	411	3/137	411	3/137	411	-	-	
	Australia	6/214	1,284	3/214	642	3/214	642	-	-	
	United Kingdom	6/220	1,320	3/220	660	6/220	1,320	-	-	60,611

* The FSP Project Manager will interface with other donors in an attempt to solicit support to expand project-related activities.

ANNEX B

CATEGORY	FY 1992 QUANTITY	FY 1992 COST	FY 1993 QUANTITY	FY 1993 COST	FY 1994 QUANTITY	FY 1994 COST	FY 1995 QUANTITY	FY 1995 COST	CATEGORY TOTAL
3. PUBLIC., CONFER. ETC.									
Electronic Mail Conferencing	contin.	5,000	contin.	2,000	contin.	2,000	-	-	
International Conferences	-	-	-	-	1	40,000	-	-	
Publications	-	-	-	-	various	24,000	-	-	
Advisory Group Meetings	2	2,000	2	2,000	2	2,000	1	1,000	
Extension of experience		8,000		12,000		12,000	-	-	112,000
4. COMMODITIES									
Vehicle	1	20,000		-	-	-	-	-	
Office furniture	2 sets	3,000		-	-	-	-	-	
Computer systems	2	10,000		-	-	-	-	-	33,000
5. AUDIT, by FSP	1	5,000	1	5,000	1	5,000		-	15,000
6. OVERHEAD ON FSP DIRECT COSTS, 23.97% (excl.Line 4)		93,354		139,945		131,446		5,011	369,755
7. Monitoring & Analysis buy-in to S&T Project 936-5554		45,000		20,000		110,000	-		175,000
8. TOTAL PROJECT COSTS		560,814		743,778		789,824		25,916	2,120,331
9. EVALUATION,		-		-		45,000		-	45,000
10. INFLATION, at 5% of total activity		28,041		37,189		41,741		-	106,971
11. CONTINGENCY									
IN FSP Grant		50,000		75,000		75,000		-	200,000
Held by RDO/SP		30,000		35,000		35,000		-	100,000
12. CONTRIBUTIONS TO SPREP		50,000		50,000		50,000		-	150,000
TOTAL PROJECT		718,854		940,967		1,036,565		25,916	2,722,302
								Rounded:	2,730,000

PROFITABLE ENVIRONMENTAL PROTECTION
Project 879-0023
Project Expenditures
(U.S. Dollars)

Components	Foreign Exchange	Local Costs	Total
Technical Assistance & Travel	743	312	1,055
Office Support	315	90	405
Conferences, Publications Etc.	107	5	112
Audit	15		15
Overhead	282	98	380
Commodities		33	33
Inflation	86	21	107
Contingency	257	41	298
Grant to SPREP		150	150
Buy-in to BSP	145		145
BSP Core Funds	30		30
Totals	1,980	750	2,730

PROFITABLE ENVIRONMENTAL PROTECTION, Project 879-0023

IMPLEMENTATION OF TECHNICAL ASSISTANCE
CY 1992-1995

	1992			1992			1992			1992		
	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
1. RECRUITMENT COMPLETED: LT EXPERTS	XXXXXXX											
2. PREPARATION, Vanuatu	XXXXXXXXXXXXXXXXXXXXX											
Agreement w.govt.;support staff hired;												
vehic/equip procured;housing located												
3. PROJECT ADVISORY GP. ORGANIZED		XXXXXXXXXXXXXX										
Meetings held									XX			
4. LT ADVISERS ARRIVE, Vanuatu			XXXXXXX									
5. EMUs FOR VANUATU IDENTIFIED				XXXXXXXXXXXXXXXXXXXXX								
6. COUNTERPARTS IDENTIF., Vanuatu				XXXXXXXXXXXXXXXXXXXXX								
7. PROJECT PROCEDURES DEVELOPED			XX	XXXXXXXXXXXXXXXXXXXXX								
LT Advisers, ST resource economist,												
social scientist, FSP Director,												
country counterparts												
8. TECHNICAL SUPPORT GP. ORGANIZED												
Data from LT advisers received					XXXXXXX							
9. CYCLE ONE: 1ST EMU, Vanuatu												
By Envir.Coord.& Consultg.Scientist(s)												
Selection of site of project action						XXXXXXX	XXXXXXXXXXXXXXXXXXXXX			XXXXXXX		
Project plan												
By Enterprise Specialist and												
Technical Consultants												
Enterprise profiles/opportunities;						XXXXXXX	XXXXXXXXXXXXXX					
review candidates;consult lenders;									XXXXXXX	XXXXXXX		
addit. consultants as necessary;										XXXXXXX		
enterprise assistance plan											XXXXXXX	
By Team of Experts with FSP Director												
Agreement on enterprises to be												
assisted and data needed;											XXXXXXXXXXXXXX	
monitoring data gathered												XXXXXXX
Assistance Plan Carried Out												

	1992			1992			1993			1993		
	JUL	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MARCH	APRIL	MAY	JUNE
10.CYCLE TWO: 2ND EMU, Vanuatu												
By Envir.Coord.& Consultg.Scientist(s)												
Selection of site of project action		XXXXXXXXXXXXXX		XXXXXXXXXXXXXXXXXXXXX								
Project plan							XXXXXXX					
By Enterprise Specialist and												
Technical Consultants												
Enterprise profiles/opportunities;		XXXXXXXXXXXXXX		XXXXXXX								
review candidates;consult lenders;					XXXXXXXXXXXXXX							
addit. consultants as necessary;						XXXXXXX						
enterprise assistance plan							XXXXXXX					
By Team of Experts with FSP Director												
Agreement on enterprises to be												
assisted and data needed;							XXXXXXXXXXXXXX					
monitoring data gathered								XXXXXXX				
Assistance Plan Carried Out												
11.CYCLE THREE: 3RD EMU, Vanuatu												
By Envir.Coord.& Consultg.Scientist(s)												
Selection of site of project action				XXXXXXXXXXXXXXXXXXXXX			XXXXXXXXXXXXXX					
Project plan									XXXXXXX			
By Enterprise Specialist and												
Technical Consultants												
Enterprise profiles/opportunities;				XXXXXXXXXXXXXXXXXXXXX								
review candidates;consult lenders;							XXXXXXXXXXXXXX					
addit. consultants as necessary;								XXXXXXX				
enterprise assistance plan									XXXXXXX			
By Team of Experts with FSP Director												
Agreement on enterprises to be												
assisted and data needed;								XXXXXXXXXXXXXX				
monitoring data gathered									XXXXXXX			
Assistance Plan Carried Out												
12.INTERNAL PROGRESS REVIEW									XXXXXXX			
13.PNG REPS VISIT VANUATU												

ANNEX C

	1993		1993			1993			1994			1994			
	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY
14.CYCLE FOUR: EMU in Papua New Guinea															
By Envir.Coord.& Consultg.Scientist(s)															
Selection of site of project action	XXXXXXXXXXXX		XXXXXXXXXXXXXXXXXX												
Project plan						XXXXXX									
By Enterprise Specialist and Technical Consultants															
Enterprise profiles/opportunities;	XXXXXXXXXXXX		XXXXXX												
review candidates;consult lenders;				XXXXXXXXXXXX											
addit. consultants as necessary;					XXXXXX										
enterprise assistance plan						XXXXXX									
By Team of Experts with FSP Director															
Agreement on enterprises to be assisted and data needed;					XXXXXX	XXXXXX									
monitoring data gathered						XXXXXX									
Assistance Plan Carried Out															
Extend Vanuatu program															
15.CYCLE FIVE: EMU in a Third Country															
By Envir.Coord.& Consultg.Scientist(s)															
Selection of site of project action										XXXXXXXXXXXX		XXXXXXXXXXXXXXXXXX			
Project plan															XXXXXX
By Enterprise Specialist and Technical Consultants															
Enterprise profiles/opportunities;										XXXXXXXXXXXX		XXXXXX			
review candidates;consult lenders;													XXXXXXXXXXXX		
addit. consultants as necessary;														XXXXXX	
enterprise assistance plan															XXXXXX
By Team of Experts with FSP Director															
Agreement on enterprises to be assisted and data needed;														XXXXXX	XXXXXX
monitoring data gathered															XXXXXX
Assistance Plan Carried Out															
Extend Vanuatu program									XXXXXXXXXX						
16.SECOND VANUATU SEMINAR AND OUTREACH															XXXXXX
Experience shared; promotion of models for additional businesses, and lenders											XXXXXX				

5/6

ANNEX C

	1994			1994			1994			1994		
	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
17.CYCLE SIX: EMU in a Fourth Country												
By Envir.Coord.& Consultg.Scientist(s)												
Selection of site of project action							XXXXXXXXXXXXXX					
Project plan									XXXXXXX			
By Enterprise Specialist and												
Technical Consultants												
Enterprise profiles/opportunities;									XXXXXXX			
review candidates;consult lenders;										XXXXXXX		
addit. consultants as necessary;												
enterprise assistance plan												
By Team of Experts with FSP Director												
Agreement on enterprises to be												
assisted and data needed;										XXXXXXX		
monitoring data gathered											XXXXXXX	
Assistance Plan Begun											XXXXXXXXXXXXXX	
Extend other island programs										XXXXXXXXXXXXXXXXXXXX		
18.PROJECT EVALUATION					XXXXXXXXXXXXXX							
19.CONFERENCE ON EXPERIENCE AND MODELS									XXXXXXX			
20.END OF CONTRACT FOR LT EXPERTS												XXXXXXX

ANNEX C

	1995			1995			1995			1995		
	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
END OF FSP GRANT			XX									
END OF SPREP GRANT ACTIVITIES							XX					
END OF PROJECT									XX			

TECHNICAL ANALYSIS: ENVIRONMENT

A. Determining Conservation Priorities

1. An Overview

The purpose of the PEP project is to serve the goal of conservation of biological systems of the South Pacific. Thus the project will test the value, workability and limits of enterprise development as a tool for achieving conservation goals. In order to fulfil this objective, PEP activities are being directed to ecosystems of high conservation need, and of those, ones reflecting regional problems, so that the tools and methods that will be developed will be most useful to the wider South Pacific community.

A first task of the project design was the identification of those biological communities that are of high importance in the region and require urgent attention in terms of conservation. To do this required using a classification system which was comprehensive for the entire study area and for which there was comparable data. However, limited knowledge of South Pacific ecosystems and variability between islands are major constraints in the level of resolution one can use in classification, Guidelines for establishing target ecosystems for PEP activities must allow for further refinement on a country-by-country and island-by-island basis.

After identification of the terrestrial and marine habitats present in the study area, the procedure for determining conservation priorities and potential target localities comprised four steps. These were:

- review of the distribution of these habitats in the proposed recipient countries,
- comparison of the intrinsic ecological values of the habitats listed,
- evaluation of the human use of the selected habitats, and habitats, and
- identification of the specific islands or countries where these habitats are thought be most vulnerable.

The concept of target ecosystem complexes has been developed to provide an efficient approach to PEP project implementation. The complexes occur at a scale which is most significant in terms of people using, affecting and managing natural resources. The selection of particular ecosystem complexes for PEP attention has been made on the basis of their containing natural features that are of highest ecological value, highest utility, and under greatest threat regionally.

Six representative ecosystems complexes have been identified for PEP attention, three are selected for initial work in Vanuatu, and an additional three for subsequent work in the outreach countries. The complexes selected are:

- lowland rainforest and freshwater,
- coastal wetland and nearshore marine,
- beach forest and nearshore marine,
- limestone forest and nearshore marine,
- atoll - lagoon - coral reef, and
- montane rainforest ecosystems.

2. Ecosystem Classification

The most commonly referenced classification system for ecosystems within the South Pacific region is that provided by Dahl (1980, 1986). The approach taken by Dahl in classifying both terrestrial and marine environments was in response to the task of trying to determine conservation priorities in Oceania and ascertain the need for greater protection of natural areas. Other classification systems have been proposed for application in the South Pacific region by Maragos et al (1991) and Pearsall et al (1991); these are currently under review by The Nature Conservancy. These systems provide a systematic and hierarchical basis for classification, but they have not been applied at a regional level. Consequently, Dahl's typology, which is accompanied by detailed information on ecosystem location and conservation status in the region, was used in determining ecosystems of particular conservation concern for the PEP project.

At the first level of classification of terrestrial and marine environments, Dahl delineates 20 biogeographic provinces within the South Pacific region; 11 of these are represented by the ten proposed PEP recipient countries. Biogeographic factors such as geographical isolation and climate have important effects on the biological communities present on islands, species mix and levels of endemism. These provinces are significant with respect to ensuring representative conservation of community types over the region.
Different island types vary significantly in terms of area, geomorphology, soils, coastal and marine landscapes and are a major determinant of the types of habitats present. Dahl (1980) describes five major types of islands which exist within the South Pacific region:

- continental islands,
- volcanic islands,
- raised coral islands,
- low islands, and
- atolls.

TABLE D.1: CHARACTERISTICS OF MAJOR ISLAND TYPES

ISLAND TYPE	MAJOR CHARACTERISTICS	COMMENTS
Continental	Islands of large size with complex landforms composed of sedimentary, metamorphic, and igneous rocks of continental origin. Slope-limited vegetation may be found in geologically active areas, where the steepness and instability of mountain sides result in specially adapted communities. Orographic rainfall (produced by clouds rising over mountains) may by high or low, producing wet and dry areas.	The only continental island present within the study area is Papua New Guinea. Altitude range is from sea level to 4,500 meters.
Volcanic	Islands built by volcanic activity and therefore with substrates derived from lava (usually basalt) and volcanic ash. Islands of recent volcanic origin may have specialized pioneer communities and are thought to have less fertile soils, and there may be many gradations between these and the mature ecosystems of weathered volcanic soils. Slope-limited communities may be present as well as zones of high and low orographic rainfall (the wet and dry sides of many islands).	Volcanic islands are frequently referred to as high islands. This is the most well represented island type found within the countries under study.
Raised Coral Reef	Islands or part of islands composed of raised coral platforms or limestone. Two island types have been differentiated - overlying non-calcareous soil derived from volcanic ash or alluvial deposits, or little or no overlying soil, frequently with exposed rock in rugged karst or pinnacle formations.	This island type is represented by whole countries, i.e. Niue, or as fragmented components of major volcanic islands. Islands which have been enriched by associated volcanic support greatest habitat diversity.
Low Island	Islands composed of sand and coral rubble accumulated on a reef platform at or near sea- level.	By nature soils tend to be infertile. Climatic disturbances can be extreme with islands populations being at times exposed to high levels of flooding and extermination with storm surges and changes in sea level.
Atoll	Atolls consist of a series of islands surrounding a central lagoon and built up from submerged volcanic rim.	By nature soils tend to be infertile. Climatic disturbances can be extreme with islands populations being at times exposed to high levels of flooding and extermination with storm surges and changes in sea level.

*Source: Dahl (1980, 1986)

The major features of each of these five island types are shown in Table D.1. Dahl's classification was modified for use in the PEP project design. Dahl identifies over 70 different biomes or habitats and distinguishes within them 600 "ecosystems." He identifies also the limits of his inventory, and suggests that there may be to 2000 ecosystems present because of the uniqueness of islands' biological communities.

For the project, 40 of the biomes or habitats (hereafter referred to as habitats) described by Dahl have been selected for review within the countries of interest.

In this paper not all habitats are given equal treatment with respect to the level of classification refinement or review. For example, coral reefs are distinguished as fringing reefs, barrier reefs, submerged reefs, etc, in the descriptive table showing habitat distribution. However, in further descriptions of human use of habitats or ranking of intrinsic values, such distinctions are not made and the different reef types are all grouped under "coral reefs".

3. Evaluation of Major Habitat Types

a. Distribution within the Study Area

Tables D2.1 and D2.2 indicate the island types and major habitat types present in each of the ten A.I.D.-assisted countries in the South Pacific.

The only true continental island is the island of New Guinea, of which the half that lies within Papua New Guinea (PNG) is greater in area than all the other islands in the study area combined. Compared to other countries in the region, PNG contains the greatest number of habitats and the highest diversity of communities within particular habitats. All the major habitat types identified in this project paper are found in PNG.

The volcanic island is the type best represented in the A.I.D.-recipient countries. The category includes the larger, geologically complex islands of PNG, Solomons, Vanuatu and Fiji, which support the highest diversity of major volcanic island habitats.

A much more limited range of terrestrial habitats occur on raised coral islands, low islands and atolls: beach forest, limestone forest, and mangroves are important, together with the surrounding marine habitats.

b. Ecological values

To select the habitats with the greatest, intrinsic ecological value, each habitat was scored against five criteria. This evaluation is partially subjective, based on the information available for the region with respect to ecosystem functioning and patterns of biodiversity.

Table D 2.1: DISTRIBUTION OF MAJOR TERRESTRIAL HABITATS IN THE STUDY AREA

MAJOR HABITATS	CONT. ISLANDS	VOLCANIC ISLANDS							RAISED CORAL ISLANDS						LOW ISLANDS				ATOLLS				
	PG	PG	SL	VA	FJ	TO	SA	CK	PG	SL	FJ	KB	TO	NI	PG	VA	TV	KB	PNG	FJ	TV	KB	CK
LOWLAND RAINFOREST	*	*	*	*	*	*	*	*															
MONTANE RAINFOREST	*	*	*	*	*		*	*															
BAMBOO FOREST	*	*			*																		
CLOUD FOREST	*	*	*	*	*		*	*															
RIVERINE FOREST	*	*	*	*	*		*																
SWAMP FOREST	*	*	*	*	*		*																
MONSOON FOREST	*	*		*	*																		
BEACH FOREST	*	*	*	*	*	*	*	*			*	*			*	*		*	*		*	*	
LIMESTONE FOREST	*	*	*	*	*			*	*	*	*	*	*	*					*	*		*	*
WOODLAND	*	*	*	*	*																		
MANGROVE FOREST	*	*	*	*	*	*	*		*	*	*		*		*		*				*		
BOG	*				*													*					
FRESHWATER MARSH	*	*	*	*	*	*	*	*															
SALT MARSH	*	*		*	*	*		*															
FRESHWATER LAKE	*		*	*	*	*	*	*										*					
LOWLAND RIVER	*	*	*	*	*		*																

MAJOR HABITATS	CONT. ISLANDS	VOLCANIC ISLANDS							RAISED CORAL ISLANDS						LOW ISLANDS				ATOLLS				
	PG	PG	SL	VA	FJ	TO	SA	CK	PG	SL	FJ	KB	TO	NI	PG	VA	TV	KB	PNG	FJ	TV	KB	CK
SAVANNAH	*	*		*	*	*																	
GRASSLAND	*	*	*	*	*	*	*	*							*	*		*					
HOT SPRING	*	*	*	*	*	*																	
CAVE	*	*	*	*	*		*		*	*	*												
ALPINE MEADOW	*																						
DESERT	*	*	*	*			*																

PG - PAPUA NEW GUINEA
SL - SOLOMON ISLANDS
VA - VANUATU
FJ - FIJI
TO - TONGA
SA - WESTERN SAMOA
CK - COOK ISLANDS
NI - NIUE
TV - TUVALU
KB - KIRIBATI

TABLE D 2.2: DISTRIBUTION OF MARINE HABITATS IN THE STUDY AREA

	COUNTRY									
HABITATS	**PNG**	**SL**	**VA**	**FJ**	**TO**	**NI**	**SA**	**CK**	**KB**	**TV**
ALGAL REEF	*	*	*	*	*		*	*	*	*
ATOLL REEF	*			*				*	*	*
BARRIER REEF	*	*		*	*		*	*		
FRINGING REEF	*	*	*	*	*	*	*	*	*	
LAGOON REEF	*	*	*	*	*		*	*	*	*
SUBMERGED REEF		*	*	*					*	*
SALINE LAGOON								*	*	
OPEN LAGOON	*	*	*	*	*		*	*	*	*
CLOSED LAGOON			*	*				*	*	*
DILUTE LAGOON		*								
BRACKISH LAGOON								*	*	
ALGAL BED	*	*	*	*	*		*	*	*	*
SEA GRASS BED	*	*	*	*	*		*		*	
ROCKY SHORE	*	*	*	*	*		*			*
BEACH	*	*	*	*	*		*	*	*	*
MARINE LAKE	*			*	*					
MARINE CAVE	*		*	*	*					
DEEPT WATER ENVIRONMENT	*	*	*	*	*	*	*	*	*	*

The criteria used are described below:

Taxa richness (TR): the number of native taxa expected to be present within an ecosystem. A relative measure of ecosystem complexity.
Endemic taxa (ET):the percent of endemic taxa thought to be present within an ecosystem. A measure of distinctiveness of the ecosystem type. With respect to the conservation of genetic diversity, ecosystems with high endemic richness will be more highly valued.
Critical habitat (CH): a measure of the ecosystem in providing critical habitat for rare or threatened taxa. The ecosystem may not be rich in rare taxa, but provides critical habitat for individual taxa that are highly ranked.
Ecosystem distinctiveness (ED): amalgamation of three attributes: (1) the level to which species found in a given ecosystem are not found in other ecosystems, (2) distinctiveness of topoedaphic substrate, and (3) distinctiveness of ecosystem pattern and process.
Associative importance (AI): the level to which an ecosystem may be of importance to neighboring ecosystems and contribute to overall ecosystem diversity within an area (ie. through physical or nutrient association, provision of reproduction or refuge sites, etc).

Individual habitats were scored on a scale from 1 to 4 for each criterion, with 1 equal to "low" and 4 equal to "very high". The basis of the ranking comes from habitat reviews for the region provided by Dahl and Pearsall and major principals of tropical ecosystems (Soule 1986). See Table D.3.

Tropical rainforest and coral reef systems are the richest of global ecosystems. In the South Pacific region the primary rainforest covering the continental land mass of PNG excels in the number of recorded taxa. Species-richness is significantly higher at the lower altitudes and diminishes steadily with increasing altitude. Within the lowland belt 1200 species of tree and over 2770 species of orchid alone have been identified.

In the marine environment, the coral reefs of the Indo-Malaysian archipelagos on the western margins of the Pacific are the centers of greatest diversity in most marine organisms, with gradients of decreasing numbers of species across the pacific from west to east and from the warm tropical waters to the more temperate areas to the north and south.

Processes related to geographic isolation and frequent, intense natural catastrophes have led to the evolution of unique island biotas which support large numbers of endemic taxa. Habitats which display the highest proportion of endemism are rainforest and freshwater ecosystems. Levels of endemism are outstanding for rainforests on large mountainous islands. For example, rates of endemism for PNG, Solomon Islands and Fiji have been quoted in excess of 50 percent for vascular plants (or 90 percent in the case of PNG). Within rainforests, endemism tends to increase on any one island moving inland from the coast and as altitude increases. As for freshwater ecosystems, because of the natural barriers existing between water bodies and catchments, many species of invertebrates and fish are found only in individual lakes, or rivers or portions of rivers.

TABLE D.3: ECOLOGICAL VALUES OF MAJOR HABITATS

MAJOR HABITATS	ECOLOGICAL VALUES				
	TR	ET	CH	ED	AI
LOWLAND RAINFOREST	4	4	4	3	4
MONTANE RAINFOREST	4	4	4	3	4
BAMBOO FOREST	1	1	1	1	1
CLOUD FOREST	3	4	4	4	2
RIVERINE FOREST	3	2	2	2	2
SWAMP FOREST	3	2	3	4	4
MONSOON FOREST	3	3	4	3	2
MANGROVE FOREST	2	1	2	4	4
LIMESTONE FOREST	3	3	3	3	4
ATOLL/BEACH FOREST	2	2	3	2	2
WOODLAND	2	1	1	1	1
SAVANNA	2	1	1	1	1
BOG	2	1	3	3	1
GRASSLAND	1	1	2	2	1
ALPINE MEADOW	2	2	4	4	1

MAJOR HABITATS	ECOLOGICAL VALUES				
FRESHWATER MARSH	2	2	2	3	3
SALT MARSH	3	2	2	2	4
DESERT	1	1	2	3	1
FRESHWATER LAKES	2	4	3	3	2
LOWLAND RIVERS	2	4	3	3	4
STREAMS	2	4	3	2	4
HOT SPRING	1	1	3	3	1
CAVES	1	1	2	3	1
BEACH	1	1	4	2	2
ROCKY SHORE	2	1	1	2	2
SEAGRASS BEDS	1	1	4	2	3
LAGOONS	3	2	3	2	3
MARINE LAKE	2	3	2	3	1
MARINE CAVE	2	2	2	4	1
CORAL REEF	4	3	4	4	4
DEEP WATER ENVIRONMENT	3	3	4	4	4

CODES FOR INTRINSIC VALUE RATINGS:

SR - SPECIES RICHNESS
ET - ENDEMIC TAXA
CH - CRITICAL HABITAT
TF - TAXA FIDELITY
A - ASSOCIATIVE IMPORTANCE
R - RESILIENCE

Rainforests and coral reef systems tend to contain many species which are rare: a high percentage of species have very localized, patchy distributions. This is particularly the case with high altitude rainforest habitats, where an island cloud forest has acted as a species refugium through geologic time.

Beach forest and foredune areas are limited in distribution and vulnerable to disturbance. They may support see turtle nesting sites, all species of which are listed globally as endangered. Seagrass beds and lagoons provide important feeding grounds for dugong and adult turtles and nursery sites for large numbers of fish and invertebrate species.

Coastal and wetland ecosystems play an important role in coastal zone productivity and contribute to the ecological stability of other associated habitats. Mangrove forests are widely recognised for high productivity; as essential nursery and spawning habitat for coastal fisheries; for shoreline protection and in trapping silt. Coastal saltmarshes are also important in coastal zone biological productivity.

c. Resource Values, Human Impacts and Vulnerability

Human uses of natural marine and terrestrial resources in the South Pacific range from subsistence hunting and gathering to large scale commercial resource extraction. A summary of human uses of the different habitats, the types of impacts known to be occurring, and locations where the habitat is thought to be under threat is provided in Table D.4. The assessment of threat is based on the natural extent of these habitats and the level of demand on, or degradation or conversion of the habitat.

There are few data on the distribution and extent of individual habitats in the South Pacific, and even less information available on rates of habitat loss or degradation. Without such knowledge it is difficult to accurately assess vulnerability. However, information on current trends in land use provide a relative measure of conservation concern about individual habitats.

Lowland rainforest The greatest threats to lowland rainforest are recent acceleration in habitat loss due to clearance of forested lands for agriculture and degradation of intensive commercial logging practices. This habitat is considered to be threatened wherever it occurs within the study area. As an example of the rate of forest clearance of forest for agricultural use is estimated at approximately 22,000 hectares per year for PNG. Intensive logging activities in the 1980's was estimated at 70,000 hectares per year in PNG and 6,000 to 8,000 hectares for the Solomon Islands (Durst 1990).

TABLE D.4: HUMAN USE, ASSOCIATED IMPACTS AND VULNERABILITY OF MAJOR HABITAT TYPES

MAJOR HABITAT TYPE	TRADITIONAL USE	MORE RECENT TRENDS IN USE	TYPES OF IMPACTS OCCURRING	AREAS OR COUNTRIES WHERE IMPACTS ARE MOST EXTENSIVE
LOWLAND RAINFOREST	Collection of nuts, medicinal plants Subsistence hunting for wild game Extraction of timber for village housing and boat building requirements Conversion of land for subsistence agriculture Land clearing for village settlement	Commercial harvesting of fruit bat and megapode birds eggs for export or tourist trade Conversion of land for cash crops (copra, cocoa, coconut, banana, rice, sugar cane, oil palms) Commercial timber harvesting Land clearing for urban development	Habitat loss and fragmentation Deforestation Depletion of wildlife populations Increased risk of species loss Reduced soil productivity Soil degradation and erosion Introduction of fertilizers herbicides Introduction of feral species	Western Samoa, Cook Islands, Fiji, Vanuatu
MONTANE RAINFOREST	Collection of nuts, medicinal plants Subsistence hunting for wild game Extraction of timber for village housing Conversion of land for subsistence agriculture Land clearing for village settlement	Conversion of land for cash crops (coffee, tea,); Commercial timber harvesting Mining Road links	Deforestation Habitat loss and fragmentation Depletion of wildlife populations, increased risk of species loss Reduced soil productivity Soil degradation and erosion Loss of catchment integrity and downstream degradation	Highlands of PNG, Cook Islands
BAMBOO FOREST	None	Non-commercial harvest of bamboo	Invasion to other forest types	None
CLOUD FOREST	Gathering	Some conversion as part of land settlement	Habitat loss and fragmentation Increased risk of species loss	Cook Islands
RIVERINE FOREST	Collection of nuts, medicinal plants, Subsistence hunting for wild game Extraction of timber for village housing and boat building requirements Conversion of land for subsistence agriculture	Conversion of land for cash crops (copra, cocoa, coconut, banana, rice, sugar cane, oil palms); Land clearing in and around expanding settlements or urban development	Habitat fragmentation Depletion of wildlife populations Bank erosion and downstream sedimentation Introduction of feral species	Fiji, Western Samoa,
SWAMP FOREST	Sago palm harvest Subsistence timber harvest	Drainage and conversion of land for agriculture (rice)	Habitat loss Increased risk of species loss	Vanuatu, Fiji

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MAJOR HABITAT TYPE	TRADITIONAL USE	MORE RECENT TRENDS IN USE	TYPES OF IMPACTS OCCURRING	AREAS OR COUNTRIES WHERE IMPACTS ARE MOST EXTENSIVE
MONSOON FOREST	Conversion for subsistence agriculture		Degradation by fire to savannah or grass land	Fiji, Vanuatu
WOODLAND	Conversion for subsistence agriculture Hunting		Outside PNG, woodland occurs where lowland rainforest has been cleared with re-invasion	None
SAVANNAH	Hunting		Area of savannah increasing with fire to other forested habitats Soil degradation	None
LIMESTONE FOREST	Cleared for settlement Subsistence agriculture Supply of local building materials	Commercial timber harvesting	Habitat loss	Tonga, Niue
ATOLL/BEACH FOREST	Cleared for village settlement	Commercial coconut crab harvest Tourist accommodation Urban and industrial development	Depletion of native fauna populations and increased risk of species loss Habitat loss Land reclamation Alteration of coastal morphology	Coastal areas throughout South Pacific
MANGROVE FOREST	Firewood Subsistence fisheries (shellfish, gastropods) Collection of medicinal plants/dyes	Crocodile harvest/farming Timber for house construction Commercial logging (PNG) Waste disposal site Reclamation for urban and industrial development	Land reclamation Habitat loss Introduction of pathogens Accumulation of agricultural runoff Heavy metal pollution Decrease in coastal productivity and nursery capacity	Vanuatu, PNG
GRASSLAND	Hunting Collection of roofing, thatching materials Subsistence agriculture		Degraded habitat which is expanding by fire	None
FRESHWATER LAKE	Subsistence net and line fishing	Waste discharge in isolated areas	Waste pollution	PNG (Highlands)
STREAMS	Water supply Subsistence fishing (prawns)	Capture for water supply and hydroelectricity generation	Habitat loss	

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MAJOR HABITAT TYPE	TRADITIONAL USE	MORE RECENT TRENDS IN USE	TYPES OF IMPACTS OCCURRING	AREAS OR COUNTRIES WHERE IMPACTS ARE MOST EXTENSIVE
LOWLAND RIVER	Subsistence fisheries Water supply Transportation	Tourism Hydroelectricity generation Effluent disposal from sugar mills, mining operations	Heavy metal pollution, net nutrient increase accumulation of agricultural chemicals from runoff	PNG, Fiji
FRESHWATER MARSH	Collection of thatching, Pandanus Fisheries harvest (eels, prawns)	Drainage Conversion for agriculture (rice) Conversion for expanding urban development	Habitat loss Depletion of native fauna	Throughout South Pacific where it occurs
BOG	Unknown - restricted to PNG	Unknown	Unknown	None
SALTWATER MARSH	Unknown	Drainage Conversion for settlement	Habitat loss	Unknown
ALPINE MEADOW	Limited subsistence hunting	None known	None known	None
HOT SPRING	Utilitarian, hot water supply	None known	None known	None
CAVE	None Known	None known	None known	None
DESERT	None known	Sand extraction (Fiji) Tourism	Sand removal Beach erosion Nearshore sedimentation	None
BEACH STRAND	Turtle harvest, Seabird rookery harvest Sewage facility	Tourism Sand mining (domestic)	Loss of breeding areas reduction in fauna populations Sand removal Beach erosion	Tonga Throughout smaller islands in the South Pacific for loss of turtle breeding habitat
MARINE LAKE	Cultural significance	None known	None known	None
MARINE CAVE	Known none	Known none	None known	None

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MAJOR HABITAT TYPE	TRADITIONAL USE	MORE RECENT TRENDS IN USE	TYPES OF IMPACTS OCCURRING	AREAS OR COUNTRIES WHERE IMPACTS ARE MOST EXTENSIVE
LAGOON	Subsistence fisheries (shellfish collection, bait netting, demersal linefishing) Turtle and dugong harvesting Solid waste and sewerage outfall Subsistence fisheries (Demersal, bait, mudcrabs)	Commercial Beche-de-mer harvest Clam mariculture Tourism Dredging of lagoon sands	Pollution (nutrient enrichment, introduction of pathogens, and hydrocarbons) from agricultural and urban runoff, sewage outfall Depletion of fish stocks and marine life	Pacific wide adjacent areas of high population density
SEAGRASS BEDS	Subsistence fisheries (shellfish collection, bait netting, demersal line and net fishing) Turtle and dugong harvesting Solid waste and sewerage outfall	Commercial Beche-de-mer harvest Clam mariculture	Pollution (nutrient enrichment, introduction of pathogens, and hydrocarbons) from agricultural and urban runoff, sewage outfall Depletion of fish stocks and marine life	Pacific wide adjacent areas of high population density
REEF	Subsistence fisheries (shellfish collection, demersal line and net fishing) Turtle harvest	Commercial coral and shell collection Commercial clam collection, Tourism	Depletion of fish stocks and marine life Increased risk of some species loss	Pacific wide adjacent areas of high population density
ALGAL BED	Subsistence fisheries	Commercial seaweed harvest	Unknown	Unknown
DEEP WATER ENVIRONMENTS	Subsistence pelagic fisheries	Commercial pelagic fisheries (purse-seine and gill-netting)	Reduction of populations of incidental species	Unknown

Montane Rainforest This habitat is under threat in Papua New Guinea, Cook Islands and Western Samoa (Dahl 1986). Elsewhere, montane forest is not readily accessible, and status appears to be good.

Coastal Wetlands Logging and indiscriminate clearing of mangrove forests are resulting in sever localised loss of this habitat in Papua New Guinea. On the mountainous volcanic islands, mangrove systems are less extensive but are being used as waste disposal sites and are subject to in filling for urban development. Other wetland habitats are also limited in extend, frequently subject to drainage and agricultural clearance and considered to be threatened. The swamp forests of Vanuatu are considered to be threatened (Dahl 1986).

Limestone Forest This habitat is restricted in distribution to raised coral islands. Extensive harvesting of timber and clearance for settlement on the more densely populated islands has raised concern about the status of these forests regionally.

Atoll - Lagoon - Coral Reef Although total species diversity is relatively low, clearance of these forests on the densely populated atolls places high percentage of total species number at risk. On these islands flora and fauna populations are generally small and particularly vulnerable to increased risk of extinction from chance demographic change, climatic catastrophe and introduction of exotic species. The forests are particularly threatened on the atolls of Kiribati, Tuvalu, the Cook Islands and Tonga where population densities are high and agricultural land is at a premium.

Lagoons and Coral Reefs Pollution of lagoons from waste effluent, high rates of fisheries exploitation, escalating activities related to shell and coral collection are all beginning to put excessive demands on these systems. The situation is particularly acute in the more densely populated low oceanic islands and atolls but also is of concern within localised areas of the larger islands.

3. Target Ecosystem Complexes

The PEP project will be targeted at particular, commonly occurring complexes of ecosystems rather than attempt to work on individual habitats in isolation. The approach recognizes that tropical biological communities from interwoven mosaics, often over small areas, in response to evolutionary processes influenced by a range of environmental conditions, including climatic variation, altitude and depth, hydrology, geographic isolation, and patterns of human activity. Of equal importance to the implementation of the PEP project is that the ecosystem complexes occur at a scale which has most meaning in terms of people using, affecting and managing natural resources.

The selection of target ecosystem complexes for the PEP project is based on the above three-state analysis, which considered (a) the distribution of island types and major marine and terrestrial habitat types in the PEP target countries; (b) a comparison of the

intrinsic ecological value of each major habitat type; and (c) the human uses, associated impacts and vulnerability of each major habitat type. The ecosystem complexes targeted are those considered to be of highest ecological value, highest utility, and under greatest threat regionally.

Six ecosystems complexes are identified for PEP project attention (see Table D.5). Three complexes are selected for the initial phase of work in Vanuatu, and an additional three for subsequent work in the outreach countries, the sites to be selected from among Tonga, Solomon Islands, Kiribati and Western Samoa.

The complexes selected are as follows:

A: Lowland Rainforest & Freshwater Ecosystems
B: Coastal Wetlands & Nearshore Marine
C: Beach Forest & Nearshore Marine
D: Limestone Forest
E: Atoll - Lagoon - Coral Reef
F: Montane Rainforest.

B. Method of Project Implementation

This section outlines the framework for implementation of the environmental review component of the PEP project. The starting point for the development of this framework is the six Ecosystem Complexes which have been selected for attention during the project.

It is recommended that the initial phase of the project should target the lowland forest, wetlands, and coastal strand and nearshore marine complexes in Vanuatu.

TABLE D.5: ECOLOGICAL ASSOCIATIONS TO BE TARGETED IN THE PEP PROGRAM

ECOLOGICAL ASSOCIATION	MAJOR HABITATS PRESENT	PRIORITY HABITATS	POSSIBLE TARGET COUNTRIES	COUNTRY SELECTED
LOWLAND FOREST	LOWLAND RAINFOREST MONSOON FOREST RIVERINE FOREST SAVANNAH WOODLAND LOWLAND RIVERS STREAMS GRASSLANDS	* * * *	VANUATU, FIJI, SOLOMON ISLANDS	VANUATU
COASTAL BEACH FOREST AND NEARSHORE MARINE	COASTAL BEACH FOREST BEACH STRAND SEAGRASS BEDS LAGOON CORAL REEF MANGROVE	* * * * *	OFFSHORE PNG, SOLOMON ISLANDS, VANUATU, FIJI	VANUATU
WETLAND AND NEARSHORE MARINE	FRESHWATER MARSH LOWLAND RIVER SWAMP FOREST MANGROVE FORESTS SALTWATER MARSH FRINGING CORAL REEF	* * * * * *	VANUATU, PNG	VANUATU
MONTANE FOREST	MONTANE RAINFOREST CLOUD FOREST SAVANNAH WOODLAND RIVER STREAMS GRASSLAND	* * * 	PNG, WESTERN SAMOA, COOK ISLANDS	OUTREACH SELECTION

ECOLOGICAL ASSOCIATION	MAJOR HABITATS PRESENT	PRIORITY HABITATS	POSSIBLE TARGET COUNTRIES	COUNTRY SELECTED
RAISED CORAL REEF ISLAND ASSOCIATION	LIMESTONE FOREST MANGROVE MARINE LAKE BEACH STRAND LAGOON CORAL REEF	* * * *	TONGA, NIUE	OUTREACH SELECTION
ATOLL-LAGOON-CORAL REEF	ATOLL BEACH FOREST BEACH STRAND (TURTLE ROOKERY) (SEABIRD ROOKERY) LAGOON CORAL REEF	* * * *	KIRIBATI, COOK ISLANDS	OUTREACH SELECTION

For each ecosystem complex, implementation will involve five tasks:

1. PEP Project Site Selection
2. First Review of Enterprise Proposals;
3. Feasibility Analysis (Ecological, Social, and Enterprise Feasibility);
4. Enterprise Development;
5. Monitoring & Evaluation.

1. PEP Project Site Selection

The first task will be to identify the locations at which the target ecosystem complex occurs in the country. From the locations found, one or more sites will be selected as most suitable for project attention. This suitability is based upon the location's ecological and social characteristics. The site(s) selected for the PEP project will demonstrate a priority need for conservation action in order for its ecological integrity and value to be maintained.

Ecological and sociological information on these locations will be collated from existing literature and local knowledge, regional institutes and organizations, and through additional field survey work by PEP project team members and consultants.

Information will be analyzed using 'sieve mapping', with different types of data placed on separate maps, which are then overlaid. Mapping layers should include:

- a base map showing topographical features,
- settlement, development and infrastructure sites,

and, as available and applicable to the Ecosystem Complex under study,

- geology and soils or substrates,
- vegetation/coral reefs,
- sites of known conservation significance,
- details of community organization (e.g. patterns of trade, organization of tenure)

The analysis will enable identification of sites which contain features of high conservation need and which are being used or have the potential of being used for human settlement or development.

During the period of potential site investigation, the Enterprise Specialist will be involved in promoting the PEP project and stimulating interest in its objectives. The

Environmental Coordinator will provide the Enterprise Specialist with any ideas for enterprise activities that might arise during the reqiew of a particular ecosystem complex.

2. First Review of Enterprise Proposals

This task is to provide an early screening of specific enterprise proposals, to determine their suitability for further PEP consideration. Appraisal of each proposal will cover the following:

- the degree to which it is compatible, physically and socially with the nature of the target ecosystem complex;
- the type of enterprise represented by the proposal;
- ecological constraints which would affect the enterprise which could not be overcome without technology change beyond the means of the proponents;
- likely difficulties in assessment of the ecological sustainability of the enterprise and in monitoring its performance.

The PEP project will develop and refine the tools with which to measure the above characteristics.

If the proposal is considered acceptable following this preliminary screening, the proposal will be subject to detailed feasibility analysis.

3. Enterprise Feasibility Analysis

The objective of this task will be to analyze the ecological features and processes of the selected Project Site, and define the key requirements for maintaining the ecological values of the Ecosystem Complex in the long-term.

The nature of the proposed enterprise will be analyzed to determine the expectations, likely impacts and types and levels of risks attached to developing such activity at the selected Site.

The ecological studies and enterprise analysis will be conducted concurrently with social analysis to determine the likely social effects and risks attached to the enterprise development. An interactive enterprise development approach will be employed by the project team. The Environmental Coordinator will oversee and coordinate the ecological assessments, bring together research findings of technical consultants, develop ecological management and monitoring options, and develop means of evaluating the enterprise's performance at various stages of operation.

The feasibility analysis report will recommend whether or not the proposal can meet the objective of maintenance of ecological values. Ancillary enterprise and/or conservation opportunities may also be identified through the studies.

4. Enterprise Development

During the development of the designed enterprise at the selected Project Site, assistance will be given to ensure that the enterprise meets the objectives that have been set for ecological sustainability. Ecological management procedures will be developed and implemented.

The business plan prepared for the prospective enterprise will cover a range of ecological management issues, including the following:

- the objectives for the enterprise in relation to the natural environment;
- specification of how the enterprise would meet these objectives;
- "environmental agreements" or similar contracts put in place to encourage adherence to environmental performance specifications;
- the specific monitoring protocol for the enterprise.

5. Monitoring & Evaluation

An essential component of project is determining the project's success in using enterprises to enable conservation of biological diversity. This will be determined by undertaking monitoring during the life of the enterprise. The project will include an environmental audit operation throughout its life.

Required auditing actions will include monitoring adherence to the conservation objectives laid out in the enterprise's business plan; the environmental management procedures; environmental performance specifications. The project will include comprehensive evaluation and documentation of each enterprise's successes, re-directions and failures.

This task will enable the evaluation of the model and models developed in the project. It will provide important guidelines for the future management and development of particular types of enterprise and the targeted ecosystem complexes.

Annex E

TECHNICAL ANALYSIS: ENTERPRISE DEVELOPMENT

This annex to the Project Paper for the Profitable Environmental Protection Project contains the following papers illustrating the feasibility of developing sound environmentally oriented enterprises and setting forth procedures for project implementation.

I. SMALL ENTERPRISE DEVELOPMENT AND CONSERVATION: ISSUES

II. DEVELOPMENT OF ENVIRONMENTALLY RESPONSIBLE ENTERPRISE: CONSTRAINTS

III. ENTERPRISE TYPES AND MODELS

IV. PROJECT PROCEDURES FOR ENTERPRISE DEVELOPMENT

Although the design team did not personally investigate the situation of enterprise in Vanuatu, the country where the projectd will begin, the team's review of literature and discussions with the very experienced FSP Country Director for Vanuatu provided insight into the business climate there. The team has concluded that the project is feasible at its first site.

There is an active business community, and business development is encourage by two major commercial banks. The WestPac and ANZ banks have pro-active programs in Fiji, Papua New Guinea and Vanuatu. Development banks of the countries have participated in conferences on enterprise development. The team concluded it is reasonable to suppose that financing mechanisms will be available to enterprises being helped by the project with proper negotiation.

The Government of Vanuatu recently participated in a conference at Port Vila promoting private sector initiatives and, as far as is known, will not be an obstacle to project implementation. There apparently are no serious cultural limitations on entrepreneurship.

The natural resources of the country are still largely intact, thus offering a wide latitude for locating enterprises throughout the ecosystems of the country.

In the markets for export within and outside the region, Vanuatu appears to be competitive with other nations of the South Pacific, with perhaps somewhat greater opportunities, given its historic connections with both British and French spheres of commerce.

In sum, if the design guidelines of this paper are followed, the PEP project should be able to accomplish its objectives using Vanuatu as its regional center.

I. SMALL ENTERPRISE DEVELOPMENT AND CONSERVATION: ISSUES

A. Small Enterprise Objectives

Genuine local economic development is based on sustainable livelihoods. People need to achieve their basic needs in the way of adequate food, shelter, clothing, clean water, education, and health care. The security of such needs is not possible if the livelihoods destroy the natural resource base upon which their long-term viability depends. Long term economic gain, to the extent it depends upon small enterprise, must involve small businesses that can concurrently achieve enterprise objectives (income, reinvestment, market and management stability) and social objectives (profits sufficient for investment in basic needs security) and conservation objectives (natural resource base not damaged, regenerative capacity retained).

Accommodation between enterprise demands, economic and social well-being and conservation needs is not simple. Few businesses have achieved the full measure of each while trying to do all three. A new enterprise will succeed, based on a hard look at experience to date, insofar as social and/or environmental objectives do not interfere with the normal business demands made upon it. With few exceptions, businesses responding primarily to their social or conservation objectives fail. This does not mean that small businesses can not have "non-business purposes", only that these purposes can not cost more than the enterprise can afford. It merely presents the challenge to the PEP project.

Typically, the businesses supported by development assistance are small-scale, decentralized, village and village cluster - based enterprises. In general, they will face an uncertain financing and marketing environment and will encounter hazards unknown to more conventional businesses. More training, infrastructure support, and hand holding are needed to make this kind of enterprise succeed. If, after five years, 25% of the enterprises assisted remain viable, the support program should be considered a real success.

Any production oriented business is a mix of the entrepreneur, a technology, a product, and a market. The rule of thumb is that no more than one of these elements should be 'new' while getting a new enterprise off the ground. A first time entrepreneur should not try to break into a new market with a new product produced with a new technology. The odds are he or she will not succeed. Most of the enterprise ideas encountered by conservation NGOs wanting to promote enterprise which support conservation objectives unfortunately require at least two, very often three, and sometimes four 'new' elements.

The staff who actually "do" an enterprise project in the field have to be especially knowledgeable about solutions to the problems that will be caused by this problem. They will need a full tool kit of credit schemes and enterprise support techniques. They will have to be experienced enough to know why small enterprise development programs fail so they can plan for the pitfalls. "Packages" have to be modified from day one if they are to have any chance of success.

Fortunately, the conservation community has the opportunity to learn from what appear to be successful micro and small enterprise development programs in several parts of the world. The Grameen Bank in Bangladesh is a poor people's borrowing facility with over 500 branches. It pioneered the concept of replacing property collateral with lending to groups of people who "guarantee" loan repayment for each other. At last, poor people don't lose their most precious assets, like land, if their micro business venture does not succeed. ACCION International has demonstrated how "barefoot" bankers can manage large-scale loan programs in urban areas.

In Thailand, the Population and Community Development Association has shown how family planning, small enterprise, and conservation can be part of the same development package. PDA has actually set up a small venture capital company so it can partner with business interests in setting up small rural industries sensitive to natural resources management issues. Womens World Banking has explored the means by which women, the most active and capable micro-entrepreneurs, can get access to credit and technical assistance. The World Wildlife Fund has directly linked conservation and economic development through its Wildlands and Human Needs Program and its experience is very informative. The Leet's Trickle Up Program has shown how $100 small grants made to micro-entrepreneurs (mostly women) can start a self-reinforcing development process. This, with almost no bureaucracy! These programs and many more can provide insight into the means by which conservationists can develop programs that help people to establish sustainable livelihoods. Currently there are several "Green Trade" initiatives that attempt to link international markets with local production based on regenerative principles.

The following list provides some reflection on small enterprise development issues. It is culled from programs I have evaluated or observed. When I use the term "successful enterprise", I mean a business, however small, that is going to maintain its capital base (however small!) for at least 5 years.

B. Small Enterprise Support Program Problems

1. **Whole population viewed as entrepreneurial talent**: In any given group, a small percentage of individuals appear to have the natural talents and inclinations to be successful entrepreneurs. In my experience, it averages about 30%, but depends on the country and the setting (urban or rural). Taking the time to find out who appears to have genuine PECs - personal entrepreneurial characteristics - is a very difficult but rewarding process. The easiest way to do it is to graphically outline and describe the consequences of business failure instead of building unrealistic expectations. In Nepal, one group made videos of interviews with both successful and failed small business loan holders. Using portable equipment, they showed the video in villages where a new "loan window" was to be established. About 25% of the potential new loan applicants self-selected out of the program based on this honest presentation of the consequences of involvement, and the remainder appeared more successful. The point is - if you work with the general population you have to expect at least a 50% short term failure rate, so 50% success would be the benchmark target before considering all the other variables.

2. **Failure to recognize the difference between growth enterprises and income generating operations:** Many small enterprise support programs actually are creating income generating operations akin to tiny 'mom and pop' shops. Little growth is expected, reinvestment is little or nil, and record keeping is the primary skill needed. The 'IGOs' are wonderful, and they don't need the kind of support required for small businesses which, no mater how micro, will experience the varied challenges of growth. Being prepared for that is the key. Knowing the difference is the important point.

3. **Emphasis on production rather than market potential**: The emphasis in small enterprise support programs has been on production. It is the fun, technical, satisfying part of the job. Identifying the real market, the specific marketing channels, the actual buyers and determining their ability to pay in the near and long terms is overlooked or not done because it is such genuinely hard work. Everything should start from market specifics and not from anecdotal market assessments and hopes. Technology choice, no matter how simple, quality standards, working capital requirements and technical assistance needs should all emerge from solid research into the market, even if it is a small, disaggregated one.

4. **Enterprises are technology, rather than market driven**: Technology driven businesses are a close cousin to the above described problem. Typically a technology is developed or adapted in the field. It produces something somebody feels is valuable and marketable and so a business investment is proposed around the technology. My experience is that the technology's performance is often exaggerated, that it is years rather than months away from being a viable foundation for businesses, and that its creators are irrationally defensive about its potential. Technical considerations have clouded business management and marketing plans.

5. **Financing mechanisms can't keep up with enterprise cash flow needs**: For some reason, small businesses are always running low on cash for raw materials, equipment, or to seize some important opportunity. Traditional financing institutions and NGO-based loan programs find it very hard to keep up with a short-term cash flow crisis. For the want of a few hundred or thousand dollars, the business folds. In my experience, this is the single greatest cause of small business failure in developing countries. We will have to find a way to deal with this. The best way is to start with accurate knowledge of traditional financing systems and use that knowledge to design the credit scheme.

6. **Poor analysis of financial viability**: The relationships between fixed and variable costs, product pricing, cash flow, and income are essentially the same for a $1000 or $500,000 business. Financial analysis is, unfortunately, scale neutral. Financial viability analysis is expensive and requires well developed skills. But a good 'what if' analysis is probably the single most important factor, next to the entrepreneur, in predicting a successful business. My solution to this was to write a template for the LOTUS spreadsheet program for amateurs (development generalists). The program is called SEAS - the Small Enterprise Analysis System. It permits the rapid financial analysis of micro and small enterprises so business ideas can be tested for the strength of key relationships and for their sensitivity to such

factors as raw material, energy, financing, and marketing costs. There are other good programs and small enterprise analysis guides available that will help clarify business issues.

SEAS does not give the user easy answers, but it does raise red flags regarding how close a business will be to the margin which is that point at which a business is too sensitive to factors outside its control - energy costs, transportation, financing costs, etc. The majority of small business programs I have observed are supporting marginal, high-risk, high failure rate businesses with little real ability to effectively compete against more organized, larger scale enterprises. Happily some succeed but many do not.

They do not for many reasons, one of the most prominent being that they become de-capitalized because their real income is so meager, or marginal. Reinvestment in depreciable assets is sacrificed for immediate income, the asset is poorly maintained, fails, and the business needs are large inflow of cash to replace it.

I **am not** suggesting to send people out into the field with lap top computers to analyze micro enterprises. SEAS is a tool to test classes of enterprise ideas and for larger businesses to which smaller ones provide raw materials, a classic SED situation.

7. **Maintenance of quality control standards always an issue**: Product quality standards seem to suffer most in small-scale enterprises. Keeping to market standards is hard, especially if there is competition from the more formal business sector. Even with strong initial technical support, standards deterioration appears to set in unless there is continued investment and upgrading in this area. Cut timber and processed food products are especially vulnerable to this problem.

8. **Cultural factors undermine business discipline**: Family and cultural group relationships and obligations require the business to provide cash or goods which move its bottom line too close to the margin. In Sri Lanka, one program actually tried to estimate the financial value of these considerations which resulted in more accurate analysis of business potential and consequently more successes. Telling new business owners that cultural obligations must not be observed in the interest of the business has never, to my knowledge, worked for long.

9. **Hidden subsidies are part of the support infrastructure created by outside assistance agencies**: Most small enterprise support programs have to create intermediary entities to give their clients access to markets, financing, training and information. They often subsidize these entities, not requiring any payment for the services provided because their clients are so close to the margin. But eventually, usually in three years, the sponsor has to pull out. There is a mad dash to make the intermediary organization pay its own way, but it can't. This has an enormous impact on the clients who quickly drift toward bankruptcy or at the least, more marginal operations.

10. **Collateral is not removed as a key barrier to small business borrowing:** All over the world, poor people are persuaded or forced to borrow money. Their only asset is their land. If they can not pay back the loan, they stand to lose this most precious of possessions. Some enterprise support programs induce risk taking, but them do not provide sufficient follow-up. Borrowers seeks loans from traditional sources requiring collateral, and the property loss issues emerge again.

11. **Women are not sufficiently involved in small enterprise program planning and execution:** I can not back it up with statistics, but I can say that at least 70% of the successful micro and small enterprise programs I have observed either were managed by or targeted towards women.

12. **The staffs of organizations funding small enterprise development programs have little entrepreneurial experience:** The staffs of community development and environmental NGOs are overwhelmingly from social science backgrounds (90%) is not unusual. While intentions are good, they simply do not, (can not) fully appreciate the process of risk evaluation and mitigation which is central to establishing a successful business. Real business "savvy" is needed.

C. Conservation

The focus of many conservation oriented small enterprise development programs is to cause people stop making a living by damaging the ecosystem - to stop felling tropical timbers, clearing mangrove swamps, fishing with explosives, and over harvesting endangered wildlife stocks. The programs attempt to offer alternative employment through some kind of small business. The logic is that, given the choice, people will choose work that doesn't harm the environment if they can make adequate income. The jury is still out on this, but it is safe to say the issue is more complicated than had been appreciated. At base, these programs have a central environmental objective, and that is to establish a conservation ethic. Some observations regarding such programs can be summarized as follows:

Conservation objectives can be realized if:

- enough people develop a conservation ethic sufficient to adjust their material expectations and lifestyles in favor of environmental protection;

- there is adequate profit realized from conservation practices to support material expectations and lifestyle needs;

- regulatory mechanisms are strong enough to control individuals and enterprises from illegal harvesting of the natural resource base;

- the policy environment in general supports conservation behavior, and places sanctions fairly on violators.

- science based knowledge is sufficient to guide individual and collective action.

The US conservation movement is really just beginning to grapple with these points. It has been, until recently, pursuing species protection, and its major tactic was to establish reserves, hiring guards to keep people out or to control their actions. As late as 1985, huge fences were being proposed to limit people's access to threatened flora and fauna. This obviously was unsuccessful, and realization dawned that saving particular plants and animals, or even whole classes, meant meeting at least the basic needs of the people who interact with the threatened species. Thus, the environmental movement finds itself in the domain of rural community development, dealing with poverty and social justice issues and all the rest, and discovering it hard going.

D. Conservation Program Issues

Experience with rural-based conservation programs in developing countries is short. With a few exceptions, it is only in the last seven years that European and US environmental NGOs have gained any significant overseas experience with anything other than setting up national parks and reserves. The main obstacles they report to date are:

1. **Local people never fully engaged in or convinced of the conservation rationale**: Local people were 'trained' or exposed to the logic of the program, but they were never brought in on the planning or execution. They were expected to fulfill a role. Most often, their behavior did not fulfill the program's role expectation. The people, for a variety of reasons, felt no 'ownership' of the idea or the process. The investment of time and resources to successfully bring people 'in' is usually highly under-estimated. And once in, people have to be kept in which requires additional investment. In the end, people have to truly believe that conservation is an essential element of their survival strategies.

2. **Benefits of short-term, unsustainable exploitation too great**: Some programs failed because they didn't recognize that the competition would actively try to entice people away from participation in conservation activities. When alternative harvesting programs were introduced to bring more value added to the people, the competition either drove them out of business (small coffee processing, Indonesia) or offered the harvesters a market price sufficiently high to force reconsideration of their participation in the conservation program (fuel wood collection and marketing, Nepal) The situation is dynamic. Conservation programs have to keep up by changing their programs to meet rapidly changing conditions. The same battles have to won over and over again.

3. **Vested interest observed harvesting conserved resources**: The most common complaint is that someone with influence and resources illegally harvests the resources allegedly under protection of the conservation program. This results in a massive loss of faith in the program (selective logging, the Philippines), and creation of a sense that one better get while the getting is still good (fur trapping, Quebec,

Canada). If the resource can not be protected or if resources can not be brought to bear on violators, there appears to be little hope of long term success. Good policy can help, but enforcement is the key. Local perception of the value of a natural resource and that of the program sponsors must mesh - perfectly, or the resource is likely to be destroyed with the help of outside interests (Elizabeth Park, Solomon Islands).

4. **Support infrastructure is over built and too expensive**: This was pointed out as a problem under small enterprise, above. NGOs directly or through support to local governments build intermediary organizations (forest dwellers, cooperatives, rangers and stations, patrol guard troops) which simply run out of resources and wither. If they are essential to the conservation program, the whole system begins to fall. The only remedy is longer horizon planning, reduced costs, and private / public sector cooperation. Systems which or nearly pay for themselves should be favored. If there are aren't any, better to not build one which will certainly fail.

Practitioners from both the conservation and development communities need to pool their resources and experience to overcome these constraints to urgently needed programs to support the whole concept of sustainable livelihoods.

II. DEVELOPMENT OF ENVIRONMENTALLY RESPONSIBLE ENTERPRISE: CONSTRAINTS

In the context of the PEP project, the notion of enterprise is used to encompass a range of activities that are privately owned, that within a reasonable time frame well be self-sustaining and that are sensitive to their activity's impact on the environment. Three possible constraints must be addressed if the project is to succeed in its primary thrust to develop models for environmentally oriented enterprise development through interaction with and support of representational enterprise activities:

- First, finding opportunities which can satisfy both environmental and entrepreneurial goals.
- Second, identifying "entrepreneurs" (either individuals or groups) that can successfully implement such entrepreneurial activities.
- Third, providing the guidelines and examples of intermediation between critical factors to achieve profitable environmental protection.

A. Opportunities

The PEP project will approach the identification of environmentally responsible enterprise opportunities from two directions. The first goes to the identification of particularly critical eco-systems and associated social structures. These associated systems or ecological management units will become the framework within which enterprise opportunities will be identified.

The second goes to an analysis of the existing enterprise environment, current market indicators, other business successes or failures elsewhere, etc. When potential enterprise opportunities are identified, the PEP team will then review these opportunities in light of environmental and social impact as well as enterprise potential.

Key to the project approach is the need to broaden the range of opportunities to investigate and test. Those environmentally responsible enterprise opportunities that are often referred to as being successful and having further potential for the South Pacific most often primarily involve export outside the region and have little, if any, value added through processing, transformation, or even quality grading. The project will seek to work with enterprises that are active beyond the primary level.

B. Entrepreneurs

Without some level of entrepreneurial talent, no enterprise activity can organize itself to meet changing conditions and thus survive. Leaving cultural and historical caricatures aside, the qualities being identified as entrepreneurial are goal-orientation, resource management capability, sensitivity to opportunity, and strong negotiating skills.

One of the critical issues related to the identification of entrepreneurs in the South Pacific context concerns the strong traditions of clan ownership and management of resources and conventional wisdom concerning an apparent lack of entrepreneurial talent generally.

In the project, entrepreneurial activity is in no way exclusive to single ownership or small partnerships. The project will be testing approaches to enterprise development which will include group ownership and management. It is anticipated that groups with which the project will work will internally identify individuals who will act as initiator, the "entrepreneur" for purposes of the group.

There are increasing instances of individuals educated outside of the village (or country) returning to their villages to act as motivator of projects intended to protect communally owned resources and create a source of income for group purposes while reinvesting in order to sustain the activity. These individuals can be critical to ensuring that any associated group fully understands and agrees with the utility and purpose of any enterprise under consideration.

In many places in the world, the supposed lack of business initiative among rural communities indigenous peoples reflects the biased perceptions of outsiders as to what constitutes entrepreneurial behavior. Such an attitude disregards the concrete accomplishments created through the natural expression of entrepreneurial initiative of a given culture. Despite conventional wisdom concerning the lack of entrepreneurial talent, on closer investigation it is anticipated that many examples of national peoples who have found the means of creating and sustaining successful business activities will be found and built upon.

C. Critical Factors in Intermediation

The project will attempt to formulate an effective methodology for environmentally protective future enterprise development as well as establishing or supporting a small number of "model" businesses to test the assumptions of that methodology.

In order to accomplish its purpose, the project team will have to address the difficulties that the business types will encounter by participating in problem solving directly with the model businesses. Several problems in particular will require PEP team intervention.

1. Lack of enterprise experience, particularly among members of community managed enterprises.

Technical assistance is often as basic an input to a successful enterprise as financing or product research. In the course of its first phase of methodology testing, the PEP project will create linkages as necessary between the proposed enterprise activity and agencies (whether NGO, governmental, or private) prepared to work with the community group to the point where they are able to function independently. The project would continue to act as adviser to the group and its associated agency through the life of the project and into any eventual second phase.

2. Lack of business support structures for single-owner or partnership (e.g.bank credit, supplier or down stream client support).

The Enterprise Specialist will ensure that the business community is informed of the progress of the project from the outset, with particular attention to commercial financial institutions. More importantly, the PEP project should attempt to enlist the business community's participation in the project in a variety of ways.

Important business entities should serve as advisors to the PEP team from its first days at the first target site in Vanuatu. These leaders should be used on an ongoing basis to identify unproductive approaches, provide institutional memory of initiatives in the past which have had instructive successes or failures.

The on-going provision of these services depends entirely on whether the businesses continue to follow sound business practices in addition to responsible environmental approaches to enterprise development. Only test businesses which do so can anticipate support from serious and influential business institutions.

3. Added constraint of environmental responsibility detrimental to the health of developing enterprises.

Certainly, every additional constraint to building businesses makes the task more difficult, particularly when in many cases these activities will often be breaking new ground. However, the creation of mechanisms for the creation of wealth through entrepreneurial activity is one of the most adaptable and hardy form of human organization. The focus on the environment will be one of many constraints that will define the enterprise types and the ultimately selected test enterprises.

4. Once enterprises are created, there is no way to ensure that they will continue to operate along environmentally responsible lines.

The same independent action and self-reliance which makes enterprise development an attractive mechanism for fostering long-term environmental protection can also lead an enterprise into other, less responsible activities.

The project team will work to help entrepreneurs see that the continued availability of resources is one aspect of the "profit" which can be gained from enterprise development. Whether the availability of the resource impacts on the continued operation of an entrepreneurial activity, or simply on the patrimony of an individual's or group's clan, the notion of its importance will be a fundamental aspect to the interaction between PEP and entrepreneurs. The Enterprise Specialist will ensure that benefiting from assistance either directly from the project or indirectly through connections established by the project is contingent on establishing and maintaining an environmentally sound approach to enterprise management.

Inputs of financing, technical or managerial assistance are required for most enterprises not once, but periodically over the life of the activity. If such assistance is only available for enterprises conforming to environmental guidelines, **and** the activity remains profitable, most enterprises can be expected to continue their responsible participation in their chosen activity.

III. ENTERPRISE TYPES AND MODELS

A. Enterprise Characteristics

1. Resource utilization

The first determination in selection of enterprises must be the nature of the impact, if any, on the environment by the operations of the enterprise type and the individual enterprise. A convenient framework divides enterprises into protective, productive, and linked and associated enterprises. A fourth category would be those with little direct association with the use or abuse of environmental resources.

a. Protective: This category includes nature parks, animal and bird reserves, leasing of reefs, resort facilities. These examples are also often referred to as "eco-tourism".

Leasing or charging fees for others enjoying without disturbing unaltered natural beauty requires little capital investment, and only a modest level of operations and financial management skill. As the facilities become more sophisticated, as in a resort, the managerial requirements increase quickly. Nonetheless, such a facility might be a particularly good one for community ownership, since the community could hire a manager or consulting firm to operate the facility. The community could also participate in ways which were compatible with current lifestyles such as guiding visitors through the parks, providing traditional foods, sharing cultural history, etc. What will be required, however, are strong national-level marketing programs to ensure that the income from such facilities are adequate to discourage alternative and resource insensitive utilization of the natural resources.

b. Productive: This category includes timber products (such as the "wokabout somil" logging operations Melanesia); harvesting of nuts, shells, and insects; rattan furniture manufacture.

This category is more likely to include significant capital investment and managerial skill. Developing this sector provides a great number of opportunities, particularly in the domain of value-added operations. It will take a significant amount of development time and financing before multiple-process finished products are commonly shipped from the South Pacific. However, basic steps (some as simple as grading produce before sale) can be taken in order to recover more of the final profit margin at the source of production.

c. Protective-Productive linked enterprises: This category will include environmental consultants to other businesses, fabrication of packaging materials for shipment of goods within or outside of the region, transportation of goods, transportation of eco-tourists.

This category is attractive in that it involves a broader range of enterprises in environmental protection issues than those who have whole or partial ownership of the resource. It will also attract expertise from outside the region to contribute to the overall development of the protective-productive sectors.

2. Market orientation

a. Land/marine export - international

This seems to be the model most often cited for businesses in the Pacific. It is characterized by little value-added, low processing, and meant for the deep, but buyer-dominated external markets. An example as it is operated today is butterfly farming.

This approach certainly will continue to be central to many businesses in the South Pacific, and the project should find the means of diversifying product lines, better understanding the demand for the product, improving the marketing/sales arrangements, and exploring possible resource (financing) arrangements to rationally develop the business concept.

b. Land/marine export - international - intermediate processing

This is a variation of the first model. This can be considered a second phase of model #1 or be devised from the outset as an activity involving intermediate processing. A basic example is drying or otherwise preserving produce for export.

This is often best accomplished in collaboration with external groups which historically have done intermediate through finish processing. This provides access to equipment, technology, and possibly credit.

c. Land/marine export - regional

This approach relates to the International export approach, but investigates comparative advantages and possible barter arrangements to develop markets in regional context.

d. Land/marine production - domestic

In foodstuffs, the project would need to investigate means of returning locally produced items to the local market in a profitable and long-term manner. Although the domestic markets are described as weak, they apparently manage to support an tinned food import market. For hard goods, the same review of the various market demands being satisfied by imports should be investigated.

e. Service-based businesses - private interest

This could include any of the support services associated with productive and environmentally responsible industries. Some of the obvious possibilities include eco-tourism support.

Less obvious options could be investigated such as some form of employment agencies with rosters of environmental engineers or consultants to be available to forward-looking businesses or agencies doing the never-ending studies.

f. Service-based businesses - public interest

The project should consider businesses which are or might be mandated by the public sector and privatized under the guidance of the PEP project. This might include services providing park rangers, monitors of various export activities, reforestation teams and/or supervisors.

3. Differing entrepreneurial skill levels

The quantity and kind of information provided directly by the project will vary according to the skills of the owner manager of the enterprise. In all cases, technical assistance in process and procedure areas will be available as will professional assistance of a marketing (the concept focussing on sales) specialist to participate in setting up a sales program. The project will identify and support working models of profitable environmental protection, but is not designed to teach the fundamentals of finance or management and become a training component of a long-term business development process.

Therefore, the project, whenever possible, will focus on enterprises or entrepreneurs that are already operating or that have experience in targeted commercial sectors and which are able and willing to adopt more environmentally sensitive techniques.

a. Very limited enterprise skills or experience

This skill level would probably be unacceptable in all but the cases where a community expresses interest in developing an enterprise using its natural resources and initiates a dialogue with the project. In these cases, the project could decide to participate in identifying an organization or agency that is qualified and acceptable to the community to act as organizer and advisor during the first phases of the proposed enterprise. Once the relationship is established, the proposed activity would be evaluated as would any other possible enterprise.

b. Solid basic business skills and business experience

This category will probably produce the majority of the cases to be reviewed by the project. It is anticipated that this group will include many of the entrepreneurial Pacific peoples who are already involved in a variety of business activities.

It is assumed that at this level, the entrepreneur will directly assimilate information provided by the project. This level of entrepreneur will participate with the Enterprise Specialist in an evaluation of her/his business activity, if one already exists, as well as in a financial projection and venture plan. Both the enterprise and environmental specialists will provide keys to how responsible environmental protection can promote a profitable enterprise. There will also be an introduction to the local banking system as needed by the entrepreneur. The project will ensure that the business owner/manager understands the responsibilities and planning associated with borrowing capital, and that the banker(s) and the client find a common ground for discussion.

c. High level of enterprise skills and experience

This group of potential participants will include experienced Pacific Island business people, university trained professionals with enterprise experience, as well as individuals and firms from outside the region. Multinational firms should be actively encouraged bring to bear their wide-reaching networks, extensive professional skills, and resources into the region as partners in profitable enterprise development.

It is anticipated that the associated businesses will access relatively sophisticated technologies, will include activities which require a high level of financing, and will involve the creation of direct jobs and other income-generating opportunities through linkages with the primary enterprise. The project will be primarily responsible for providing information concerning environmentally responsible business opportunities that have been identified.

IV. PROJECT PROCEDURES FOR ENTERPRISE DEVELOPMENT

A. Site Investigation and Project Stimulation

1. Integration of an Enterprise into the Business Environment.

For an enterprise development initiative effectively to support self-sustaining enterprises, the initiative must understand and be understood by the local business community. The Enterprise Specialist will identify key business leaders (potential suppliers, wholesalers, transportation firms), sources of financial support (banks, other credit schemes, venture capitalists), regulatory agencies, legal and audit firms, etc. S/he will ensure that the project team understands the dynamics of this business community, and ensure that the PEP project and its goals, in turn, are understood by the national, regional, and local institutions of both the private and public sectors.

The Enterprise Specialist will also survey resources that might be available to advance project goals from development agencies, project implementation organizations, government programs, or existing private sector initiatives. Particularly in the case of village-group enterprise activities, mid-to-long term technical assistance may be vital to the enterprises' success. Again, it will be necessary to encourage such agencies and organizations to "buy-into" the program. In order for that to take place, they should be brought into project development from the outset for advice and consultation. Although a project can provide training to bring fledgling enterprises into the general business arena, resident private sector involvement is critical for an environment-oriented sector to become established and to survive.

2. Review of Active Business Types

The Enterprise Specialist will begin to review the various enterprise sectors operating in the possible target sites. An illustrative list of various general category types is found in Section III above. The list should not be used to exclude any configurations that appear applicable to the site. The Enterprise Specialist will begin to catalog business types and possible specific business opportunities for discussion and review with PEP team members.

3. Review of Specific Business Opportunities.

In order not to raise the expectations of individuals and groups within the target sites, it must be made clear to individual entrepreneurs of communities that the first review of business opportunities represents a very preliminary and largely theoretical exercise. Yet, questions must be raised in two areas, the first to ascertain fundamental enterprise issues such as the level of effective demand, the managerial and technical capacity of the owner(s), and resource availability; the second to cover environmental issues such as the impact of alternative technologies involved in producing the good or service, the renewal or carrying capacity of the resource system(s) which supports the enterprise, and the possible creation of environmentally destructive secondary or linked activities.

Prioritizing those enterprises that fit into the project's scope of activity will only occur after initial field work is accomplished. The Environmental Coordinator will have had the opportunity of confirming the characteristics of the target EMU and established a listing of most critical environmental features.

The environmental and enterprise specialists will develop a list of "products" or natural resources available in a sustainable manner from within the target EMU. The term "product" will used in such a way as to include such things as the viewing value in fees of particular areas as well as the provision of services associated with environmental protection.

B. PROJECT TEAM REVIEW

A further refinement of the business identification process follows site investigation and project stimulation.

1. Identification of sector targets and enterprise impact types

After the initial investigation period, a set of enterprise sector types are selected for review and refinement. The first screen for selection is based largely on environmental considerations. The second will screen out those sectors and types that are clearly lacking in the basic elements of successful enterprises.

2. Identification of required technical consultants

As the process of selecting an enterprise for project attention moves forward, industry specific questions begin to take on more importance in evaluating the chances of success of a "test" enterprise. The project design has anticipated the need for highly technical advice on production procedures, relative advantages of several technologies, warehousing and storage or any combination of these. The Enterprise Specialist will draw up the scope of work and qualifications for technical consultants brought to the project site to assist entrepreneurs, and ensure that all participants are prepared to take fullest advantage of the consultant's expertise.

3. Preliminary financial statements

The test enterprise can be either, (a) an existing large or small activity interested in growth and development as well as in demonstrating a consciousness of the importance of protecting national natural resources or (b) a new community based enterprise activity interested in maintaining cultural values as well as creating wealth for the group.

In the case of the individually owned or larger enterprise, financial information from past activity will form the basis of a review of the business' financial health and projections for future performance. To be eligible for assistance, the business owner(s) would have to be able at least to recognize the basic elements of each of the financial reports, and understand the reason for their importance.

For the community enterprise activity, pro forma financials will be created based on likely, worst, and best case scenarios and as accurate projections as possible of financial elements. If there is not a clear group leader or "entrepreneur" providing the managerial and financial guidance for the group, an advisory service will have to become part of the overall enterprise development formula. The project can be proactive in identifying such an advisory service.

4. Preliminary Sales and Marketing Study

The Enterprise Specialist will have garnered information on several of the potential test enterprise areas through information networks. Included will be information concerning "live" market information. That is, rather than seek aggregate market information, detailed, buyer-specific data, with prices, grades, intermediaries, etc., the Specialist will develop a fairly solid notion of such basic information and obtain long-distance information from the buying centers through information networks, technical advisory committees, and consultants at the market sites. This basic information will form the basis of preliminary viability for the specific test enterprises.

5. Validation of Enterprise Claims

Since initial conclusions concerning the viability of an enterprise depend on the statements made by the individual(s) who are or will be the owners and managers, it is necessary to validate those claims. This is a standard and absolutely necessary function and must be done before any final determination can be made.

6. Recommendation

The Enterprise Specialist will keep other members of the team apprised of the advancement of the enterprise evaluation so that the Environmental Coordinator can view the inputs, operations and outputs of the proposed enterprise in an environmental protection framework. The Enterprise Specialist and the Environmental Coordinator will each prepare as complete an evaluation as possible for discussion and review.

On the basis of the findings of this review, a recommendation will be made whether to proceed with the proposed enterprise, whether more work needs to be done, or whether to terminate further review of the enterprise as being inappropriate for the goals of the project.

B. PROJECT FEASIBILITY ANALYSIS

1. Community Liaison Survey

The community survey component can only be an effective tool to the extent that it is carried out through close collaboration among the Environmental Coordinator, the FSP Country Director, and the Enterprise Specialist with appropriate inputs from a social scientist and local community leaders.

In the case of community-based enterprise activities, the Enterprise Specialist must come to understand the functional interactions that exist among members of the community group. Notions of what kinds of income-generating activities are currently being carried out, how and by whom, will lead to guidelines for what type of new activities are likely to be culturally acceptable.

Particularly in rural environments, an understanding of practices and attitudes of the community will impact on the evaluation of individually or group owned enterprise activities. The project's objectives of facilitating the optimal use of natural and human resources would not be served by supporting individually owned activities that strongly conflict with the norms of the community within which they operate.

2. Development of Guidelines for Ensuring Responsible Natural Resource Management on the Part of Supported Enterprises.

One of the primary long-term benefits of using enterprises as the mechanism for environmental protection is that a viable enterprise operates independently and does not require the perpetual support of outside agencies. That very characteristic makes enterprises less amenable in the long run to continued guidance or control by outside parties, such as the project team.

Although it is unrealistic and counterproductive to attempt to control test enterprises completely, it is reasonable to want to ensure a certain period of compliance with project principles by tying the various forms of assistance which the project may provide directly or indirectly to compliance with jointly agreed operational methods and procedures.

Assistance, such as marketing advice which may come directly from the project, will be relatively simple to link to performance. Assistance administered by a private sector institution such as commercial bank lenders will require a thorough understanding between the Enterprise Specialist and the institution at the outset of any relationship. These operational understandings will be a significant task for the project to accomplish, since they will determine whether prioritizing environmentally responsible enterprise development can extend beyond the narrow limits of the project out into the community.

3. Detailed financial analysis

Any enterprise being considered finally as a test activity will require as thorough a financial analysis as possible. The standard financial documents (balance sheet, income statement, cash flow) will be prepared on the basis of past activity for existing enterprises, and as predictive tools for both existing and start-up activities.

Problems frequently encountered will be the lack of hard information concerning past activities, and the difficulty in identifying performance standards with any relevance to the particular enterprise and its operating environment. For the first test enterprises, it is likely that each case will be very different, and will require individual performance criteria. Nonetheless, the Enterprise Specialist will make whatever modifications necessary to standard financial analysis tools to provide the

team with a reasonable picture of the sustainability of any enterprise being considered by the project.

4. Detailed sales and marketing plan

Before a final recommendation can be made concerning the selection of a test enterprise, the preliminary marketing study done during the first review must be expanded and detailed by a short-term specialist working with the project team.

It is noteworthy that individuals interviewed concerning environmentally responsible enterprise development invariably cite their difficulty in finalizing a business concept as being due to incomplete knowledge of market, and more specifically, sales information.

The consultant will be a professional in whatever sector the proposed businesses are addressing. S/he will have private sector experience in that sector, and will prepare a schedule of activities based on information from the Enterprise Specialist before incurring any costs. The consultant may require travel within the region or outside, as necessary. The consultant will not limit herself to generic product questions, but will review a variety of issues such as required product quality, grading, packaging, existing and emerging competition in relation to the scale of effective demand, possible financing from one or more platforms of the marketing series. The object of the exercise is to pave the way to a contract and beginning the enterprise's revenue stream.

E. "Package" business concept

Particularly in the community-based enterprise activities, the PEP team may find that a variety of related or linked activities will occupy and provide income to individuals from the same group. An example might be an "eco-tourism" facility which may require a) a builder-owner-operator of the physical facility; b) one or more individuals to act as guides for the viewing of the nearby areas of interest; c) one or more individuals involved in the service functions required for lodging operations.

The nature of the community under consideration will determine how such a package of services can be handled. Options include linking the different businesses, focusing on the facility operator as contractor for the supporting services, or treating each activity individually. Each of these situations will require an individual determinations. The PEP team, however, will not exclude any configuration which may productively reach project goals.

6. Recommendation

The end of this process is a presentation made to the PEP team, and a recommendation on the selection(s) for the test enterprise(s). After a similar presentation by the Environmental Coordinator, a decision is reached by the team.

D. BUSINESS PLAN

The business plan will provide the full range of information generally expected from any well-considered enterprise proposal. Items which merit particular attention are listed below. Unique to the PEP project will be a complementary Environment Plan which will focus on the environmental aspects of the enterprise activity or activities under consideration. This Environmental Plan will project the impact of the enterprise type as well as the test activity, and will serve as a base-line projection against which the test activity will be evaluated from the environmental perspective.

1. Training program

The business plan will include the technical assistance or management training which the entrepreneur(s) will receive in order that the activity become self-sustaining within a medium-term time frame. This training will be provided initially by PEP project staff, either expatriate or national, or consultants in the areas of environmental protection, marketing, production technologies, etc. Local counterpart training will accompany all phases of the program.

To the extent that on-going or progressive training will be required, part of the business plan will be to identify longer-term sources of the training. If this training is critical to meeting the objective of responsible environmental development, and is not available over the long term, the project staff will either locate appropriate (type,location, cost) source of such training, or the enterprise proposal will not be selected.

2. Monitoring program

Monitoring of the enterprise activity is another area requiring particular collaboration between the Enterprise Specialist and the Environmental Coordinator. The monitoring process must be extremely thorough and include the review of enterprise aspects affecting business development as well as natural resource management. Results of the monitoring program must be evaluated by all project team members, and feedback provided to the test enterprise(s) in a clear and timely manner.

F. Implementation and Evaluation

The PEP team will implement the test enterprise as per the business plan, and evaluate progress in the areas of environmental protection and enterprise success. It is critical that the team keep test case success as a top project priority, while putting all findings in the context of improving the overall methodology. There is often a tendency in project activities for project implementors to focus on thee success of the test case, and avoid the analysis and refinement of the basic project premise. Successful test cases will serve as models for profitable environmental protection.

FINANCIAL AND ECONOMIC ANALYSIS

In order to perform normal cost benefit analysis, the type which attempts to generate a percentage return, it is necessary to assign numerical values to the benefits contemplated. When the majority of benefits are associated with the protection of the environment, it is generally accepted that a meaningful assignment of dollar value is questionable. In the case of the PEP project, where the actual model enterprises or their associated Environmental Management Units are not yet identified at this stage, any attempt to monetarism benefits would be unprofessional.

Nevertheless, presented below is a discussion of the qualitative benefits which might be expected to accrue from projects like PEP which attempt to protect the environment.

Section B. of the analysis deals with financial and economic benefits at the test enterprise level. It points out the need to establish these benefits during project implementation and identifies the resources required to do so.

A. BENEFITS OF PROTECTING THE ENVIRONMENT

Some of the economic benefits that may be attributed to activities that protect the environment are as follows:-

1. Hydrological Stabilization

Natural vegetation cover in the South Pacific regulates and stabilizes water run-off. Tree and vegetation rooting systems, penetrating deep in the soil, make the soil more permeable to rain water. Run-off is thus slower and more uniform than on cleared land. Thus, streams in forested land tend to flow longer during dry seasons and flooding is reduced during rainy seasons.

2. Soil Protection

Exposed tropical soils degrade quickly due to leaching of nutrients, burning of humus, laterization of minerals and acceleration of topsoil erosion. Good soil protection by natural vegetation cover can prevent landslides, protect riverbanks and coastlines and prevent the destruction of coral reefs and fisheries by siltation. For example ginger cultivation in the South Pacific, often taking place in areas of steep incline , has produced marked erosion of top soils and siltation of the waterways below. It is not uncommon for ginger farmers to abandon a parcel of land after only three growing seasons. The impact of siltation on the fishing and water transportation industries has also been negative, making such things as jetty construction and maintenance more costly.

3. Climate Stabilization

It has become more and more accepted that tropical rainforests, of the type found in the South Pacific region, help stabilize the world environment and prevent any permanent shift in global climate. This benefit accrues to economies beyond the borders of the nations in which the rain forests are located. In addition, there is growing evidence that tropical rainforests help maintain the rainfall in their immediate vicinity by recycling water vapor back into the atmosphere and by promoting atmospheric turbulence due to the "canopy effect" of the forest cover. The destruction of tropical rain forests is believed to lead to a reduction in dry season rains in adjacent areas. This may be particularly costly in the case of adjacent rain-fed agriculture. Forest cover also helps to minimize extreme ambient temperatures in surrounding areas, which may often be a benefit to agriculture and tourism enterprise.

4. Genetic Resource Protection

People are known to make use of some 15,000 species of wild plants and animals for foods, medicine and utilities, many to a commercially important degree. Several thousand more species may be of potential use. All domestic plants and animals were originally derived from the wild and many can only be maintained and improved by regular recrossing with wild forms and relatives. The short and long term values of these genetic resources are enormous and most improvements in tropical agriculture and silviculture depend on their preservation.

5. Environmental Balance Maintenance

The protection of natural areas from uncontrolled exploitation may help maintain a more natural balance of the ecosystem over a much wider area. Protected areas afford sanctuary to breeding populations of birds which control insect and mammal pests in adjacent agricultural areas. Bats, birds and bees which nest, roost and breed in areas protected from uncontrolled exploitation may range for outside these areas to pollinate fruit trees, etc.

6. Tourism Support

Tourism is a major industry in the South Pacific region. Its continued existence and potential expansion is highly dependent on the maintenance of the natural beauty upon which it is based. Any region's economic viability, in an era of global competition, is highly dependent on it having comparative advantage. The South Pacific's pristine beauty, its abundance of flora and fauna and its welcoming climate definitely represent one of its most valuable resources. This tourism resource, if lost, could place the Region without a meaningful comparative advantage over other regions of the world. This might very seriously threaten the economic future of the Region.

The tangible benefits of preserving tourism resources are several. At the national level, tourism brings in valuable foreign exchange. This foreign exchange is particularly essential to island economies which are obliged to import many products for the functioning of their economies, products which are normally produced domestically in larger economic systems. At the local level, tourism stimulates profitable domestic businesses such as hotels, restaurants, transportation systems, souvenirs and handicrafts. These businesses provide employment, increased incomes and support a tax base necessary for the functioning of the public sector. Given the South Pacific Region's natural comparative advantage in the tourism sector, and a lack of comparative advantage in other sectors, the benefits derived from the protection of tourism resources alone may be enough justify the PEP project economically.

B. FINANCIAL AND ECONOMIC BENEFITS AT THE TEST ENTERPRISE LEVEL

This section deals with the financial and economic analysis which will take place during project implementation at the test enterprise level. Certain financial and economic analysis will be conducted in conjunction with other analysis under the project. Most of the enterprise financial analysis will be performed by the long term enterprise specialist, while the short term natural resource economist will probably take the lead on the economic analysis for the test enterprises.

First, some sort of rough economic analysis will need to be performed on prospective enterprise types to rank order them in terms of their potential economic benefits in protecting the environment. The natural resources economist will be tasked with categorizing the universe of potential enterprises as to the benefits they would contribute to the economy. In this way their economic contribution can be used as a criteria for the final selection of the smaller number chosen to be test enterprises.

Second, those smaller number of enterprises identified as potentially having the highest probably economic benefit economically should be screened for their financial viability. It should be verified that they can be run as businesses at a profit. Initially, this will be done in a crude manner, probably by the long term enterprise specialist.

Once a group of test enterprises has been chosen, the next step will be to do detailed financial analysis of each enterprise. Normally the analysis will consist of an Income Statement, Balance Sheet and Sources and Uses of Funds Statement. In the case of enterprises that are already up and running, but lack financial data, statements will be prepared to try to construct the financial history of the enterprise. Existing statements will be audited to verify their utility. In the case of new enterprises, pro-forma or projected statements will be prepared.

Once the project starts working with the chosen test enterprises, it will be an on-going task to identify, collect and analysis data pertaining to the economic benefits they produce. This will probably be the main responsibility of the natural resource economist. This is a particularly critical task for the project. In order to show that profitable enterprises can contribute to conservation, it must be demonstrated that they produce economic benefits. The more that the benefits can be clearly linked and quantified, the more convincing the argument. Skeptical public servants, donors and NGOs, never lacking worthwhile competing uses for their scarce funds, will need to be shown in explicit terms the priority that should be given to the promotion of profitable enterprises that protect the environment. This will require convincing economic analysis.

SOCIAL SOUNDNESS ANALYSIS

I. Socio-Cultural Context

The socio-cultural context for this project varies greatly within and among the countries selected for project activities. In each country, however, a dynamic tension exists between traditional attitudes about family and clan responsibilities and contemporary individualistic perspectives which may be more supportive of entrepreneurial behaviors. Similarly, in each country there are traditional configurations of land tenure and use rights, along with ownership and/or control over non-land natural resources, which must be factored into the identification of environmental management units and subsequent assistance to enterprises.

Existing patterns of natural resource management developed under traditional configurations may have functioned well in the past under less intense population pressures. But adapting those practices to the current situation of continually increasing pressures requires a change in attitudes about natural resources, from viewing those resources as an immediate source of income to understanding them as a source of capital which must be preserved to assure sustainable benefits. To effect this changes requires working within a context designed to integrate customary knowledge and wisdom into more sustainable management practices.

Determining which incentives will be the most useful in stimulating the desired behavior at the community level should begin with analysis of how current government social and economic policies are affecting the behavior of the villagers toward biological resources.[1] This change is the challenge of the current project, both in terms of working with specific enterprises and in terms of developing tools and materials for environmental education at all levels.

A. Attitudes toward Entrepreneurship

Foreign investors and resident minority groups have dominated export businesses in the South Pacific. Efforts to broaden this sphere to include more people in export development are among the priorities for governments in the region. Working with often small, sometimes new, and sometimes community-based, enterprises--particularly those headed toward an export role--necessitates recognition of the following issues.

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[1]McNeely, Jeffrey A. Economics and Biological Diversity: Developing and Using Economic Incentives to Conserve Biological Resources. International Union for Conservation of Nature and Natural Resources, Gland, Switzerland, November, 1988.

1. Clan and Extended Family

As stated above, customary values of identification with and responsibility to an individual's clan and/or extended family are deeply-rooted in the belief system of most South Pacific peoples. The origins of these ties are based on extended families sharing relatively small land areas, but contemporary identification reaches beyond geographical boundaries to include those who have migrated to urban areas or overseas and maintain ties to kin groups through regular remittances and participation in the group decision-making process.

2. Attitudes toward Wealth

Western attitudes toward the accumulation of wealth are significantly at odds with traditional South Pacific attitudes which view resources as something to be redistributed as part of a complex system of social relationships. Business stocks and profits may be subject to community consumption rather than reinvestment. It is not unusual for work patterns to be erratic and for various family and ceremonial time demands to take precedence over regular work schedules. This causes few problems within traditional systems geared toward community solidarity and shared resources, but can have a serious dilatory affect on enterprises geared toward profit maximization.

Cultural attitudes and values are never static, and certainly changes toward individualization are occurring in many areas. Nonetheless the continued tension between communal and individual perspectives is illustrated by examples such as the increased incidence of "secret" bank accounts used by individuals to retain a portion of individual earnings and the growing popularity in Papua New Guinea of "individual sized" products which can be consumed easily and therefore do not need to be taken home and shared. The latter are apparently particularly popular with single adults living in extended family units.

Working in a cultural context where the accumulation of wealth is not traditionally seen as desirable has several implications for the PEP Project. First, economic gain should not be defined solely in terms of cash income -- a non-cash economy still functions to some extent in several areas. Information about non-cash exchanges should be elicited during community interviews. Second, it must be recognized that the motivation for earning cash income may be linked to the perceived need for cash for specific purposes, such as school fees, clothing, or imported food stuffs, and not by the desire to earn as much cash as possible to increase net worth. Third, in some instances it may be functional to consider factoring in the allocation of a portion of business earning to communal consumption as a cost of doing business.[2]

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[2]David Richards, personal communication, August, 1991.

3. Understanding of Business Principles

International business principles are primarily based on management structure and operations foreign to the community systems described in the previous paragraphs. There is increasing interest among people in South Pacific societies to participate in export markets successfully, but there are few persons with a strong background and understanding of business development principles. It is not that entrepreneurs do not exist, but that the type of entrepreneurial activities they engage in may need to be adapted to "modern" business realities. Project consultants must be prepared to help them along.

Receptivity to change of attitudes about how to do business is increasing as demand for jobs increases. In many countries in the South Pacific over 40 per cent of the population are under 15 years of age. The current demographic distribution together with overall population increase mean that unemployment rates are growing dramatically; current estimates are up to 30 percent in Papua New Guinea. Coupled with the dynamic demographic picture is the fact that young people are more influenced by outside factors than earlier generations thus, employment generation possibilities resulting from the PEP Project's work with enterprises should enhance local acceptance of the project objectives. Among changes monitored should be numbers of jobs created for women and men with an analysis of potential for further employment generation factored into decisions about priority enterprises for subsequent phases of the Project.

B. Land and Sea Rights

The predominant land tenure systems in both Polynesia and Melanesia are based on customary clan ownership. The manner in which this functions varies from a system in Tonga, where the King owns all land and assigns use to nobles to administer on behalf of their constituencies, to freehold systems where tracts are subdivided by inheritance resulting in parcels too small to support economic activity such as in Tuvalu. Often both types of systems include complex leasing rights for periods up to 75 years.

Rights to other resources, such as trees and coastal and reef resources may or may not correspond to land rights. In some instances such as Vanuatu, user rights do not necessarily correspond to geographic claims. Most land is held and allocated through male lineages and few women have direct control over land resources. Table summarizes these patterns for each of the countries. Identification of environmental management units for the project will need to include consideration of land tenure and use patterns.

TABLE 1: Selected Country Characteristics

COUNTRY	LAND/SEA USE	LITERACY AND EDUCATION	POPULATION
Vanuatu	mixture of geographic & use-specific user rights allocated to tribal groups, clans and/or individuals--user rights do not necessarily correspond to geographic claims-village chief must be consulted on all decisions		3.3% growth p.a. 1987 census est. 135,600
Solomon Islands	88% customary ownership (Wantoks) -- remainder govt & freehold -- includes reef tenure with 75 yr. maximum -- 12% alienated land		3.5% growth p.a. 1987 census est. 275,000
Papua New Guinea	97% clan holding -- remainder free hold or govt -- rights extend seaward to the reef -- forests can be sold	63% 1982 enrolled in grades 1-6 females fewer in rural areas, majority in urban area -- entrants to grade 1, 1982 m=47%, f=36.5% -- 64% between 7-12 not in school in 1980	2.8% grown p.a. varies from 4.9% in island region to 2.8% in highlands 43% of population under age 15 1980 census est. 3.1 million
Kiribati	clan owned (Te kainga) land, trees owner individually		doubled in last 10 years 1990 census shows current increase of 2.1% p.a. with 41% under age 15 1990 census est. 64,000
Fiji	83% customary land ownership (Matagali) -- 28% leased out	97% between age 6-11 enrolled in school with 87% literacy reported in 1986 -- females about 10% less among Indian population	21% increase between 1976-86 current average growth 2% p.a. 38.2% of population under age 15 1986 census est. 740,000

COUNTRY	LAND/SEA USE	LITERACY AND EDUCATION	POPULATION
Tonga	King owns all land and assigns to different nobles to administer on behalf of their constituencies in the form of plots -- registered land is leasehold via lifetime leases	% of enrollment males females primary 52% 48% sec. 51% 49% tech/ voc. 13% 87%	3% growth p.a. last census est. 100,000
Cook Islands	tracts extend from mountain peaks to mean high water line -- the Crown owns reefs and submerged land -- clans (Ngati) own most other tracts -- land cannot be sold -- leases up to 60 years		0.3% decline p.a. 1985 census est. 17,600
Western Samoa	communal stewardship vested in family's Matai (chief) -- 80% under customary title with alienation of customary title forbidden	statistics show 90% literary but recent testing has caused concern re rate of failure to perform satisfactorily at ages 11-12	o.6% growth p.a. last census est. 160,000
Tuvalu	islanders hold land through free hold system -- subdivision by inheritance has resulted in parcels too small to produce		1987 census est. 8,600

In addition, customary management units may include combinations of ecosystems ranging from the mountains to reef areas in more or less "pie-shaped" arrangements on smaller island, more common in Polynesia, to horizontally defined areas primarily focusing on one type of resource use, such as agriculture or fishing. The latter is more common on larger islands, predominant in Melanesia, and has resulted in more active trading activities among clans controlling the various resources. These patterns are diagrammed in Figure 1, which illustrates how indigenous property rights in Pacific Island societies go beyond land holdings to include marine tenure. As pointed out by Cordell[3], marine tenure systems are not static concepts related to past practices, but dynamic components of community economic routines related to new conditions.

Land tenure systems significantly favor indigenous populations, and in some instances, e.g., Fiji, political pressures are growing to strengthen this favored status. Non-indigenous populations, the Indians in Fiji and the Chinese in Melanesia for example, have a critical role in the business community in the South Pacific. Yet they face the

[3]Cordell, John. "Negotiating Sea Rights," in Cultural Survival Quarterly, 1991.15(2), pp. 5-10.

challenge of doing business in a situation in which long-term rights to their property are tenuous at best.

Land ownership patterns pose challenges to the natural resource management aspect of the PEP Project related to questions of sustainable use of non-land resources. Durst[4] discusses this in his examination of forestry resources:

> Complex land ownership patterns and continuing disputes over land and forest resources pose significant challenges for small-scale, community-based forest management in some areas of the South Pacific. To avoid disputes, clear tenure of forest resources, and agreements on benefit distribution between and within communities, must be established before harvesting operations can proceed.

Similar issues of resource tenure can be expected to influence investment decisions of both lenders and business persons as potential participants in the PEP Project.

II. Cultural Organization of Work

Traditional loyalties to clans and extended families within numerous ethnic and language groups constitute a common factor among South Pacific countries . One cannot automatically infer from this, however, that all tasks and functions within a given community are organized along these lines. Rather, tasks and functions are performed by various fluctuating groups and/or individuals depending on tradition, need and necessary skills.[5] Benefits from economically productive tasks may subsequently be subject to demands from other clan and/or family members, but analysis of these social-cultural linkages as part of the project's enterprise selection process will need to hinge on clear understanding of how enterprise-related tasks are organized as a separate question from how benefits from the enterprise may be allocated.

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[4]Durst, Patrick B. "Forestry in the South Pacific: Opportunities for U. S. Support in a Changing Environment," p. D-14, paper prepared for USAID/RDO/SP, November 20, 1990.

[5]Epeli Hau'ofa, University of South Pacific, personal communication, August, 1991.

The potential for working with cooperatives or other existing community groups in the actual development of an enterprise or package of enterprises should be consistently explored as PEP project activities are designed. In some areas, cooperatives have been very successful, particularly women's cooperatives, in other areas, less so but project decisions should be based on community-specific information rather than preconceived ideas. There is a potential conservation advantage in working with community groups to establish strong village-based institutions which can be a critical influence in changing behavior toward practices which contribute to the conservation of biological resources.[6]

C. Women in Development

Information on the participation of women in small and export enterprises in the South Pacific is sketchy at best. Traditional sex-role patterns, reinforced in some instances by fundamentalist Christian missionaries, are based on a patriarchal value system. This has, of course, emphasized women's roles and responsibilities at the household level and given them a secondary role in formal decision-making processes. There are, however, women in leadership roles and a few women are traditional chiefs in some countries. Indicators such as names on boards of directors lists also show women taking an active role in decision-making in many institutions.

As in many areas of the world, village women often play a central role in agricultural production, mariculture and forest extraction. The enterprises that will potentially participate in, or be developed by, the project include a range of activities that would rely on women as the primary labor force, based on traditional task allocation patterns. Women play a critical, and often primary role in forest resource management. They deplete the forest for fuelwood, harvest the forest for extractive products, and are actively involved in conserving the forest in many countries. Women use marine resources for food and cash products. Marine, coral, shells and other items are often used for sale to tourists. Natural resources are an important raw product for the production of handicrafts. Private sector efforts to promote ecotourism often rely heavily on women to fill tourism jobs.

It will be a key element of the PEP project, therefore, to assess carefully gender differences at several levels. First, in assessing role and task differences between men and women at the community level prior to identification of selected enterprises. Special attention should be given to include women as participants in planning interventions and to include enterprises that are managed by and/or employ women. Such considerations are important not only from the point of view of providing profitable alternatives for all community members, but for their potential to improve the probability for the development of conservation-sensitive activities within communities.

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[6]Ibid. McNeely, Jeffrey A.

Second, any work with entrepreneurs should focus on both males and females. Some enterprises such as the walkabout sawmill may be primarily operated by men--in Papua New Guinea for instance, women are afraid to go into the forest alone. They may, however, be involved in other aspects of the enterprise. The PEP project should understand the contributions of all family members to a given enterprise.

Third, as employment-generating enterprises are developed, careful sex-disaggregated data should be collected to provide information about who actually is employed in those enterprises. This information will be useful in later phases of the project in making decisions about types of interventions to make in other places.

Finally, as the project works with lenders to encourage adoption of the PEP model to screen borrowers, attention should be given to encouraging loans to both male and female applicants.

II. Beneficiaries

The beneficiaries for the PEP project are at several levels; some will derive more benefits early on in the project, others at later stages. The current design is focused on the first phase of a larger program, with the expectation that broader application of the models developed and experience gained will occur in later phases.

In the most immediate sense, benefits will accrue to the scientific and development community by enhancing understanding of how natural resources can be used to support rather than inhibit economic activity and vice versa. This information is vitally needed by country, regional an community planners.

Since the project is designed to work carefully from a community base, benefits should include increased cash and non-cash economic gain and improved conservation practices. Efforts to look at multiple enterprise "packages" in some communities will promote the development of groups of activities which can be sustainably maintained.

The project is designed and will be implemented as a regional project, even though work will initially be focused in one or two countries. No bilateral aid is involved. Because of close existing relationships between The Foundation for the Peoples of the South Pacific (FSP) and country governments and the close linkage between this Project and other FSP efforts in those countries, host country commitment is expected to be high.

III. Participation

Participation of community-level beneficiaries was limited during project development since the first phase of the PEP Project is designed to develop and test an intervention model for large, small and community-level enterprise development and conservation. Two members of the design team did visit businesses and lenders in Papua New Guinea

and country directors from Offices of the Foundation for the Peoples of the South Pacific were brought in to consult with the design team. Collectively those directors represent a long and successful history of working in South Pacific communities at the grass-roots level.

The Project does provide continual opportunities for beneficiary participation in further development of phase 1 and an increasing leadership role as future phases evolve. The community assessment and decision-making components of activity implementation will provide such opportunities for both women and men.

IV. Socio-Cultural Feasibility

The strength of clan groups supports and relies on traditional leaders at the community level -- leaders who can effectively support or block the introduction and acceptance of new attitudes, ideas and behaviors. Work at the community level by the PEP project should begin by understanding local leadership and decision-making systems and focus on involving both men and women leaders in planning for interventions with specific enterprises. It should be noted that there are instances where the influence of traditional groups has diminished in recent years. But in such situations other groups such as the church and women's organizations are likely to have assumed similar influence and responsibility in certain spheres of community life. Since a basic long-term goal is facilitating more sustainable natural resource management, which may mean basic attitudinal adaptation, the long-term success of the project will depend heavily on community involvement.

The selection of ecological and social management units for the project will be based on a model designed to integrate biological and human use factors. A multi-disciplinary team including a social science consultant at critical points will work with communities in the selection process.

Lack of a "commerce" perspective in some South Pacific societies means that the policy environment has slowed economic restructuring. Undoubtedly, the PEP project will encounter situations where existing policies constrain business development. One example is land tenure systems which are discussed in more detail in the following section of this analysis. The PEP project will be in a key position to identify policy-related constraints, and although directly addressing those constraints is not within the project's purview, the project team should be prepared to request appropriate technical assistance from other sources or at the very least to pass on information about relevant issues to entities working in the environment and business policy arena.

V. Impact

In the first phase of the project, the direct impact on persons at the community level will be confined primarily to those persons living in the communities participating in

enterprise development efforts. But this impact has the potential for a significant spread effect within the community because of the training component and because of the behavioral modeling on the part of participating business persons and the project team. This will be enhanced by the incorporation of initial participants as technical consultants for later phases of the project.

Ultimately the project should have a positive impact on the global environment through improving conservation of biodiversity. The benefits of this impact will accrue to present and future generations.

VI. Issues

There are several issues that were discussed at length during the project design process, and for which a response has been integrated into the design. Primarily these issues have to do with elements for ensuring community involvement in the project. First, the project team will address issues or community motivation by giving priority to enterprises which are high priority for the community in terms of constraints community members themselves identify.

Second, as much as possible, the project team will become involved with an information exchange process with participants in the PEP project to make sure they are knowledgeable about incentives, costs and benefits and any accompanying disincentives

Enterprise options will be chosen with viability within a given community and capacity of people there to carry out the options with assistance from the PEP project. Technical assistance and training with promote strengthening or acquisition of required skills among participants.

One key related issues is the rate of population growth within the South Pacific and the resulting age distribution, as discussed in Section B of this Annex. Sustainable resource management with the conservation of biodiversity in the region can succeed only if population pressures do not exceed resource potential.

INSTITUTIONAL ANALYSES

A. Foundation For The Peoples Of The South Pacific (FSP)

B. South Pacific Regional Environment Programme (SPREP)

A. THE FOUNDATION FOR THE PEOPLES OF THE SOUTH PACIFIC

Organization

The Foundation For The Peoples Of The South Pacific (FSP) is a non-profit organization with headquarters in San Diego, California, and development programs in the Melanesian, Micronesian and Polynesian nations. Founded in the early 1960s, FSP is the oldest and largest U.S. PVO working in the South Pacific region.

FSP and its affiliate organizations in Canada, Australia and the United Kingdom work through in-country offices and local partner "Trusts" throughout the Region. Program emphasis is on the sustainable use of natural resources, women in development, health and nutrition, income generation, family food production and local institution building. FSP's policy is to turn over its programs, when they become sustainable, to partner institutions operated by the Pacific Islanders themselves.

FSP's Regional Office in Suva, Fiji, supports an extended network of country offices and field programs in Papua New Guinea, Fiji, Solomon Islands, Kiribati, Tuvalu, Tonga, Vanuatu and Western Samoa. As the operational center for the activities of the FSP family, the Suva office administers cooperative regional programs with such organizations as the Agency for International Development (A.I.D.), United States Forest Service, the South Pacific regional Environment Program (SPREP), and the new cooperative program with the World Wide Fund for Nature, International. Field programs are developed and implemented with the support of an international network of experts from all fields related to responsible and effective community development and sustainable natural resource management.

Financial Status

Between 1965-1975, the FSP annual budget grew to one million dollars of U.S. and international funds raising for a wide variety of programs. From 1975-1985, the annual budget grew to more than three million dollars as FSP qualified for and managed A.I.D. Operational Program Grants (OPG) in a number of South Pacific nations.

In 1985, in recognition of successful FSP fiscal management, the A.I.D.-funded programs were consolidated into an Matching Program Support Grant (MPSG). Since that year, the annual FSP budget has remained at the three million dollar level. The portion of the budget funded by sources from outside A.I.D. grew from 29 percent in 1985 to 50 percent in 1990, as grants became available to FSP affiliates in Australia, the United Kingdom, Canada and the Pacific Islands.

The attached table, "PVO Financial History And Grant Period Projections" was submitted as part of FSP's successful Matching Grant Proposal in mid-1990. Also attached is a copy of the introductory page of the recently completed audit of FSP by Coopers & Lybrand.

A.I.D. has made the following grants to FSP:

Purpose	Grant/Contract Number	Start Date	End Date
Headquarters	879-8018	01/01/88	12/31/90
Regional Office	879-7005 MPSG	01/01/87	12/31/89
Fiji	879-7005 MPSG	01/01/87	12/31/89
Solomon Islands	879-7005 MPSG	01/01/87	12/31/89
Tonga	879 7005 MPSG	01/01/87	12/31/89
	879-6026	10/30/86	03/31/90
	879-9-87.3	02/01/87	12/31/89
Kiribati	879-0356-6-55-8059-00	09/15/88	09/30/90
	879-9008	12/19/88	09/30/89
P.New Guinea	879-7014	04/01/88	03/31/90
	879-9-89-2	09/25/87	12/31/89
Vanuatu	879-1001-G-SS-4006	04/01/88	09/30/89
	QTR - 9165	09/14/89	09/14/93

A 1989 assessment of FSP finance by the A.I.D. Office Of Private And Voluntary Cooperation noted, "finances receive the attention of very skilled people" within FSP, and "FSP has computerized its accounting system, has instituted monthly financial reports to the field...internal financial reports (revenues and expenditures) for use as management

tools at headquarters...a comprehensive field accounting manual which includes FSP's Chart Of Accounts, copies of all FSP forms and budget worksheets...".

FSP procedures require program reports from the field in accordance with specific grant requirements (quarterly, annually, semi-annually). Fiscal reports are compiled at headquarters based on monthly field financial reports.

Management

FSP is directed by Stanley W. Hosie, Executive Director. One of the most senior PVO Executive Directors in the United States, he has held his present post with FSP for 26 years. He is a member of the Board Of Directors of Interaction and is also a member of the AID Advisory Committee on Voluntary Foreign Aid. Having negotiated Country Agreements in all Pacific Island countries within which FSP has or has had programs, he has administered over forty million dollars of AID grants since 1975.

Over-all Project Management responsibilities for the PEP project will reside at the San Diego headquarters with Program Director, Bruce Grogan. As Project Manager, Grogan will be supported by the Director of Finance. Appropriate levels of authority will be delegated to FSP country directors and to the designated on-site manager in order to insure that the day-to-day implementation of the project occurs as expeditiously and cost effectively as possible.

The Project Manager holds two Masters degrees from Yale University, one in public health and the other in forestry, and is both an Associate of the Yale/WHO Collaborating Centre For Health Policy Research and a Lecturer at the Yale School Of Epidemiology and Public Health. Previous experience includes numerous consultancies, Executive Directorship of the Vermont-Honduras Partnership of the Partners Of the Americas Program, several positions in the private sector focusing on the creation of new international business endeavors and as Assistant Manager for Environmental and Regulatory Affairs for the Weyerhaeuser Company. He has served on a number of state and regional committees and task forces addressing environmental issues.

Based on FSP's experience implementing development projects similar to PEP, their established presence in the Region, and their history of working with AID, it is reasonable to assume that it can manage the contemplated role in management of the PEP project.

FSP Headquarters. The San Diego home office of FSP will serve as the administrative and management center for the implementation of the PEP project. The Project Manager for FSP will be based in the headquarters office and will have overall responsibility for the successful implementation of the project.

Twenty-five (25) percent of the Project Manager's time will be dedicated to the PEP project, to:

(a) recruit full time and short term experts, either as individuals or as provided through sub-grants by other organizations having technical expertise in the environment or in enterprise development;

(b) assist the FSP Country Director in the early establishment of the base of operations in Port Vila, Vanuatu, prior to the arrival of the full-time advisors and their dependents;

(c) support ongoing implementation of the project;

(d) serve as the Secretary for the Washington-based Project Advisory Group;

(e) serve as a distribution point for information relating to the programs and activities of other NGO's as they relate to conservation and development in the region;

(f) facilitate the discussions between organizations active in the South Pacific Region and having similar interests which may have the potential for coordination with the activities of PEP

(g) serve as the project interface with other organizations which have made an investment in the project; and

(h) monitor project results.

The potential exists for other organizations to contribute to project development and refinement in several ways. Certain organizations may be interested in co-funding a particular activity within the PEP project parameters as defined. Others may be interested in funding an activity related to those initially incorporated in the project. Another option may be for an organization to contribute to the total value of the investment in the project through the provision of certain "in-kind" services. Cooperative and integrated planning between organizations is also likely to occur. One of the functions of the Project Manager will be to identify potential sources of additional support.

Organizations that have already expressed an interest in assessing potential cooperative efforts with the PEP Project include:

Conservation International
Cultural Survival
Environmental Enterprise Assistance Fund

Green Cross International
Greenpeace, International
The Nature Conservancy
United States Forest Service, through its Forestry Support Program and the Institute of Pacific Island Forestry
Volunteers in Technical Assistance (VITA)

World Forestry Institute
World Resources Institute
World Wide Fund For Nature, International
World Wildlife Fund US: Wild Lands and Human Needs Program

Australian International Development Assistance Bureau (AIDAB)
European Commission (Brussels)
Overseas Development Administration (United Kingdom)

FSP Regional Office. FSP's Suva office will maintain direct links, on behalf of the project, with locally-based offices of international donor agencies. Additionally, the office will serve as the day-to-day liaison with RDO/SP.

FSP Vanuatu Country Director. The Vanuatu Country Office, under the direction of the FSP Country Director will:

(a) carry out on-site responsibilities for securing and equipping office, housing and administrative support prior to the arrival of the advisers and their dependents;

(b) liaise with local governmental and regional bodies as required for successful project implementation;

(c) provide on-going administrative support to the PEP on-site project manager in the form of, but not limited to,handling all project-related travel arrangements, coordinating the submission of all required reports for the Project Manager's review and subsequent submission to RDO/SP and other relevant bodies such as the advisory group, serve as the local liaison between the project the programs and activities of other organizations and donor groups with related or overlapping interests;

(d) support the efforts of the PEP team by identifying and pursuing local opportunities for cooperative efforts between PEP and other related efforts.

Other FSP Country Directors. Country Directors in Papua New Guinea, Tonga, Kiribati, Fiji, Solomon Islands and Western Samoa will make significant contributions to the implementation of the Project in all phases. Each country director will be responsible for the following activities:

(a) design and implementation of an effective information collecting system designed to assemble and organize all scientific, economic and social data for the country that may be relevant for the achievement of PEP objectives within that area; the process and data repository will be co-located with existing FSP facilities and utilize the existing knowledge and capabilities of all FSP staff as well as the extended network of local partner institutions;

(b) early implementation of an information exchange program designed to increase awareness of PEP-related goals and objectives within the development, conservation and business communities;

(c) identification and monitoring of related activities in country, including but not limited to ecological research programs, new or revised government conservation policies and programs, and businesses of the type to be considered by this program;

(d) make all local logistical and administrative arrangements in advance of and during all PEP Project-related activities which may be undertaken in the country during the life of the project; and

(e) identify, as appropriate, local Pacific Islanders through which PEP-related information will be disseminated.

B. SOUTH PACIFIC REGIONAL ENVIRONMENT PROGRAMME

Organization:

The South Pacific Regional Environment Program (SPREP) is the coordinating, clearinghouse and technical regional organization responsible for environmental matters in the South Pacific. It is an intergovernmental body the concept of which emerged from South Pacific Commission (SPC) consultations in 1975. SPREP, as an organization, was established in 1980 under the aegis of SPC, with the objective of "helping the countries of the South Pacific to maintain and improve their shared environment and to enhance their capacity to provide a present and future resource base to support the needs and maintain the quality of life of the people." At the 1982 Conference at Raratonga delegates from all Pacific Island and metropolitan member countries of SPC proclaimed the South Pacific Declaration On Natural resources and The Environment and agreed on an Action Plan For Managing The Natural Resources Of The South Pacific.

The 22 island and five metropolitan members of SPREP are:

American Samoa
Australia
Cook Islands
Federated States Of Micronesia
Fiji
French Polynesia
French Republic
Guam
Kiribati
Marshall Islands
Nauru
New Caledonia
New Zealand
Niue
Northern Mariana Islands
Palau
Papua New Guinea
Pitcairn Island
Solomon Islands
Tokelau
Tonga
Tuvalu
United Kingdom
United States of America
Vanuatu
Wallis and Futuna
Western Samoa

The Intergovernmental Meeting (IGM) of SPREP of 1991 confirmed that the organization should evolve into an autonomous body, no longer under the auspices of the South Pacific Commission, and accepted the offer of a site at Apia, Western Samoa, for its new headquarters. The body is now considering two alternative options for changes in its legal status. The move is expected to be completed in 1992.

Financial Status

SPREP's staffing and budget levels increased dramatically in 1990-1991 and are expected to do so again in 1992. Expenditures in 1991 totalled almost $3.5 million (US) and are projected to be almost $7 million in 1992. Such rapid growth has strained the management and supporting infrastructure, both of which are being strengthened as the program implementation staff is being augmented.

1991-1996 Action Plan Objectives:

The Action Plan, approved by the Intergovernmental Meeting July, 1991, comprises eight objectives for the period 1990-1996, to:

(1) further assess the state of the environment in the region, including the impacts of human activities on the ecosystems of the region and the effects of these impacts on the quality of the human environment;

(2) strengthen national and regional capabilities, institutional arrangements and financial support which will enable the Action Plan to be put into effect more efficiently and economically;

(3) provide integrated legal, planning and management mechanisms at the management and regional levels to ensure the protection and ecologically sustainable utilization of natural resources;

(4) increase and improve training, educational and public awareness activities to support the goal and objectives of this Action Plan;

(5) encourage development undertaken in the region to be directed towards maintaining or enhancing environmental quality;

(6) protect terrestrial and marine ecosystems and species which require special attention;

(7) reduce, through prevention and management, atmospheric, land based, marine and freshwater pollution in the region;

(8) avoid or mitigate the adverse impact of human activities on the ecosystems of the region, through means such as the Environmental Impact Assessment.

In order to achieve its objectives, SPREP is in the process of developing a series of regionally coordinated, comprehensive programs in the following areas:

Conservation Of Biological Diversity

Global Change

Environmental Management And Planning

Coastal Management And Planning

Prevention And Management Of Pollution

Planning And Response To Pollution Emergencies

Environmental Education And Training

Environmental Information

Regional Environmental Concerns.

The conservation of biological diversity program has received major support from the World Bank's Global Environmental Facility (GEF), which is providing $10 million for a UNDP project entitled " Conservation Of Biodiversity In The South Pacific". SPREP will be the executing agency for this large project, the objectives of which will be to identify and establish Conservation Areas that are critical to the survival of threatened or endangered species, rich in biodiversity and regionally representative, to implement existing conservation programs and to offer environmental education.

Under the environmental management and planning program, SPREP is developing National Environmental Management Strategies (NEMS) for each of its member countries. This program is being cooperatively funded by the UNDP and the Asian Development Bank. The latter is also financing the completion of country reports for its member countries in preparation for the UN Conference on Environment and Development (UNCED) to be held in Brazil in 1992.

Aside from these larger efforts, the programs are projected to be funded in 1992 at approximately $50,000 to $200,000 each.

MAJOR DONORS TO SOUTH PACIFIC ISLAND COUNTRIES

BILATERAL ASSISTANCE

AUSTRALIAN INTERNATIONAL DEVELOPMENT ASSISTANCE BUREAU (AIDAB)

AIDAB manages all aspects of the Australian Government's Overseas Aid Programme. Australia's aid to the region is delivered through a number of mechanisms: budget support of Papua New Guinea, country and "multicountry" programmes, support for (South Pacific) regional and (global) multilateral organizations and the South Pacific Cultures Fund.

OBJECTIVE:

To promote economic and social progress in developing countries in response to Australia's humanitarian concerns. It is also designed to further Australia's foreign policy and commercial interests.

The South Pacific remains the principle region of focus in the Australian aid programme, with programmes at a total of around A$395 million in the 89-90 financial year. The objective of such aid to the South Pacific is to promote equitable, sustainable development.

Australia provides substantial support to a number of the South Pacific Regional organizations, including: South Pacific Forum Secretariat, South Pacific Commission, South Pacific Regional Environment Programme(SPREP), Forum Fisheries Agency (FFA), and the University of the South Pacific (USP). Current assistance to regional organizations include telecommunications, trade, transport, environment, economic services, health, and energy.

PROGRAMMES OF POSSIBLE RELEVANCE TO PEP:

Small Grants Scheme:

The small grants scheme is a flexible mechanism for aid assistance. It contributes to and supports small scale economic and social developmental activities. Proposals are usually submitted through designated Government Ministries. For example, in Fiji the proposals are handled by the Ministry for Rural Development.

Activities which may be funded under the scheme include small government projects up to $A50,000, training activities which do not overlap with AIDAB's formal training programme, and small income generating projects.

Environmental Effort: Most of AIDAB's regional assistance for environmental work is channeled through SPREP.

THE JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

The JICA was established in 1974 and is the executing organ of Government-sponsored technical cooperation for developing countries. In the late 1980's. Japan became the largest aid donor to the Pacific. To improve its aid planning and delivery, Japan and Australia are to be involved in a large joint programming endeavor early in 1992.

OBJECTIVES:

Government-sponsored technical cooperation and Grant-aid cooperation promotion programme.

In 1988, the Japanese gave the region USD $42 million in Grant Assistance, $29 million in Technical Assistance and $18 million in Development Lending and Capital.

PROGRAMMES OF POSSIBLE RELEVANCE TO PEP:

Fisheries:
In this sector over the last number of years relevant activities include:

Fiji - Commercial artisanal and rural fisheries development project; Aquaculture Research and Development Project.

Tonga - Fish marketing project.

FSM - Project of the traditional fishing and nutrition improvement; Project for fisheries development in Truk.

Palua, Tuvalu - Project for fisheries communities development.

Vanuatu - Construction of regional commercial centers.

Forestry:
Japan has had much experience in large scale afforestation activities, especially in Southeast Asia. It is undertaking afforestation projects in the Pacific, but states that a more careful study of local conditions is needed as it develops its aid cooperation in this sector.

Global Environmental Problems:
After the United States, Japan is the largest single contributor to several, major international efforts, one of which the Global Environment Facility (GEF) will be discussed below.

NEW ZEALAND - MINISTRY OF EXTERNAL RELATION AND TRADE

New Zealand's programme of Official Development Assistance is managed by the Development Assistance Division (DAD) of the Ministry of External Relations and Trade in Wellington in conjunction with relevant New Zealand diplomatic missions.

OBJECTIVES:

The principal purpose of NZ's aid is to help promote the economic and social development of the recipient countries, by expanding their capacities to raise the living standards of their peoples.

New Zealand's assistance to the South Pacific is provided particularly for human resource development, administrative and institutional support, rural development: especially through agriculture, forestry and fisheries activities, health improvement activities and assistance for the communication, transport and energy sectors.

New Zealand tries to direct its assistance towards development activities which are sustainable and which support increased environmental planning capabilities in partner countries.

UNITED KINGDOM - OVERSEAS DEVELOPMENT ADMINISTRATION (ODA)

DESCRIPTION:
The ODA is part of the Foreign and Commonwealth Office and is responsible for formulating and managing the British Government's aid programme. A regional office was set up in Suva in 1982 to manage Britain's aid to the pacific (Fiji, Kiribati, Solomon Islands, Tonga, Tuvalu and Vanuatu as well as regional organizations). Currently, there are plans to retain an advisory core of experts in Suva while placing ODA programme officers in various countries with the central management functions moving back to London.

OBJECTIVES:
In 1989, under Technical Cooperation Programmes, Britain supplemented the costs of 162 British personnel working long term in all sectors. The main focus in recent years has been in the finance, education, health, engineering and legal sectors. Also, currently, the delivery of Technical Assistance is being re-examined, especially as regards training for localization.

PROGRAMMES OF POSSIBLE RELEVANCE TO PEP:

Over the last number of years, ODA has undertaken several small scale, environmentally friendly income generating projects around the region. The success has been mixed with the main obstacle located in the marketing arena.

MULTILATERAL ASSISTANCE

UNITED NATIONS DEVELOPMENT PROGRAMME (UNDP)

UNDP is the central channel for technical and pre-investment assistance provided through the United Nations system. The Pacific is service by 3 UNDP offices located in Fiji, Western Samoa and Papua New Guinea.

To assist developing countries in their efforts to build up technical and institutional capabilities in order to meet their development objectives. UNDP supports the South Pacific regional institutions as their efforts compliments specific country programmes.

Assistance is delivered within the framework of projects which are an integrated package of personnel, training and equipment.

Currently, UNDP is in process of formulating its 5th cycle 92-96 programme and all programmes will have a commercial component.

PROGRAMMES OF POSSIBLE RELEVANCE TO PEP:

Environment:

GEF: UNDP with SPREP as the executing agency has secured a 5 year USD $ 10 million GEF project entitled: Conservation of Biodiversity in the South Pacific. The objectives are:

1) the identification, establishment and initial management of in-country Conservation Areas (CA) that are critical to the survival of threatened or endangered species, are regionally representative, and are particularly rich in biodiversity;

2) the implementation of existing and planned regional biodiversity conservation programmes such as ex situ forestry seed banks, marine turtles programmes and avifauna efforts, in conjunction with national Government and private conservation groups; and,

3) the improvement of the region's awareness of the importance of biodiversity conservation, including the development of educational and training programmes.

Assistance to SPREP: UNDP also has a 3 year USD $ 2.5 million dollar project to strengthen SPREP by providing staff and programme funds. This effort will strengthen SPREP in the areas of: National Environmental Management Strategies (country specific), Environmental Impact Assessment, Community Development Work, Pollution Monitoring and training of NGOs.

South Pacific Project Facility (SPPF) - The SPPF aims to promote market oriented project ideas for considerations by financial institutions. The aim is to provide strategic supplement to the initial phase and to facilitate coordination of other collaborative bodies in the area. UNDP will also begin a similar project for medium and small scale business (under USD $100,000) and provide technical and administrative assistance.

Integrated Atoll Development: This project adopts an integrated community development approach aimed at outer islands and atolls. There is special emphasis given to natural resource management and environmentally sensitive income generation.

UNDP/Country programmes - UNIDO in the Solomon Island is running a small credit scheme for setting up mechanical workshops. There are plans to expand this small/medium scale industrial credit scheme.

Through UNDP, ILO has a labor intensive approach to road and bridge building which has been part of community development efforts. To construct roads without heavy machinery could be very useful in opening markets with minimum environmental impact on sensitive areas.

THE EUROPEAN COMMUNITY (EC)

The EC in its relation with other countries seeks to encourage world trade and the economic development of the poorer countries. In addition to its trade activities, the EC devotes a share of its annual budget to aid programmes.

Unlike under previous Conventions, the Fourth Lome Convention provides for the regional assistance as well as bilateral programs. Consultations on regional objectives and priorities between the Commission of the European Community and the various countries started in 1991.

OBJECTIVE:
The focal sectors for EC support are:

- natural resources
- transport and Communications
- trade and tourism

Within the Natural resources focus, the areas of concern are:

- agriculture
- marine resources
- rural, development
- energy

PROGRAMMES OF POSSIBLE RELEVANCE TO PEP:

Microprojects:

Small grants that look at rebuilding houses, coconut rehabilitation,water and sanitation, seaweed cultivation, fish ponds, handicraft training.

Coastal Protection scheme in Tuvalu - seawalls

Vanuatu - pilot Forestry Development project aims to plant an area of 525 hectares of trees and 60 ha of agro-forestry as a basis for income-generating activities. The project will inject significant quantities of cash into the local economy by buying or renting local goods and services.

ASIAN DEVELOPMENT BANK (ADB)

DESCRIPTION:

The ADB, headquartered in Manila, is a multilateral lending institution involved in financing development projects in its developing member countries in Asia and the Pacific. South Pacific developing countries of the Bank include Cook Islands, Fiji, Kiribati, Federated States of Micronesia, Marshalls Islands, Papua New Guinea, Solomon Islands, Tonga, Vanuatu, and Western Samoa.

OBJECTIVE:

The ADB have helped countries develop operational strategies in which the Bank strengthens Governments capacity to absorb external assistance, institution building and the role of the private sector are also emphasized. These strategies seek to diversify and increase agricultural production; develop the necessary infrastructure for productive purposes; avail of indigenous energy resources; encourage growth of private sector; and support manpower development and institution building through better recruitment and training programmes. In addition, ADB provides loans and technical assistance.

PROGRAMMES OF POSSIBLE RELEVANCE TO PEP:

National Environmental Management Strategies: The ADB is financing the development of NEMS in its member countries in the region.

For its member countries, the ADB is financing the development of country reports for the meeting of the United Nations Conference on Environment and Development (UNCED) of 1992 in Brazil.

REGIONAL AND LOCAL NGOs

Programs in Environment and Small Scale Income Generation

FEDERATED STATES OF MICRONESIA

KOSRAE COMMUNITY ACTION PROGRAM

Type of Organization: Development organization
Focus: Environment Various
Annual budget $60000
SOURCES OF FUNDING:
- FHP Foundation - U.S.
- Australian Government
- State of Kosrae
- FSM National Government

SERVICES OFFERED:
Build water catchments and spring boxes and other facilities to provide drinking water on a self-help basis. Also recycle aluminum cans.

ACHIEVEMENTS:
Have built dozens of water catchments, built 5 new rural health centers this year, recycled over 700,000 aluminum cans, conducted CPR training.

FIJI

FIJI NATIONAL TRAINING COUNCIL
Type of organization: Development organization
Focus: Small Business Training
Annual budget $6000000
SOURCES OF FUNDING:
Levy from employers

SERVICES OFFERED:
1. Short skills upgrading training courses in a wide cross-section of training areas and occupations.

2. Advisory and consultancy services on matters relating to training and or manpower development.

3. Audio-visual aids.

4. Provide for skill testing (5) Monitoring of the Apprenticeship Scheme.

ACHIEVEMENTS:
1. Creation of 11 Industry Training Boards to cater for training requirements various areas including Apprenticeship Training

2. Own training complex housing most of the activities of the council.

3. Good rapport with industry, government and other agencies like ILO, APO etc.

FIJI SOCIETY FOR THE BLIND
Type of Organization: Development organization
Focus: Small Business
Annual budget $189000
SOURCES OF FUNDING:
Royal Commonwealth Society for the Blind
Christoffel Blindenmission - Germany
Government of Fiji & other service organ
General public.

SERVICES OFFERED:
- A special education school
- Daily living training skills
- Hostel facilities
- Primary eye care
- Programme in conjunction with Ministry of Health & CBR services.

ACHIEVEMENTS:
Special education facilities, community based rehabilitation and early intervention programmes, also primary eye care and prevention of blindness.

HOUSING ASSISTANCE AND RELIEF TRUST
Type of Organization: Service organization
Focus: Small Business Handicraft and Artisanry
SOURCES OF FUNDING:
Government of Fiji
ICCO of Netherlands
Columban Fathers, CEPAC
Overseas Mission Victoria, Australia.

SERVICES OFFERED:
Housing and train them to do some handicraft, fishing and woodwork or find employment for them outside of HART.

ACHIEVEMENTS:
Is to help deserted wives with children; young mothers with children; educate the children and when they find good jobs to leave HART and join society and find a place in there and leave HART for some other family.

MARAMA CO-OPERATIVE SOCIETY LIMITED
Type of Organization: Co-operative association
Focus: Cooperatives Various
Annual budget $40000
SOURCES OF FUNDING:
Garment sewing.
Share contribution.
Loan - Fiji Development Bank.
Sale of wool.

SERVICES OFFERED:
Since we are a garment factory, we have machines for sewings etc. Most of them are very old (old models).
NB. The society is in great need of new machines.

ACHIEVEMENTS:
1. School uniforms
2. Wool selling
3. Feeding our local markets with our own productions.
4. Making mosquito nets for our overseas market. (Sydney based.)
5. Garments for coast to coast (Brisbane to Townsville, Australia.)

MONTFORT BOYS TOWN
Type of Organization: Religious organization
Focus: Appropriate Technology Various
Annual budget $350000
SOURCES OF FUNDING:
Government Grant
Income generated by the school such as:
Gardening, vehicle repair, household furniture making etc.

SERVICES OFFERED:
Skill Training, Personality Development and Character Formation to the underprivileged youth.

ACHIEVEMENTS:
More than 521 students have completed their training here and is well placed in society now. Some of them have started their own business. All the past students are employed in the different fields.

SOUTH PACIFIC ACTION COMMITTEE FOR HUMAN ECOLOGY AND ENVIRONMENT Type of Organization: Community group
Focus: Environment Various; Environment Ecosystem
Annual budget $15000
SOURCES OF FUNDING:
SPREP (UNEP)
Baily Trust (1990)
Greenpeace (1991)
Member Subs

SERVICES OFFERED:
We provide information to members of public, particularly student throughout the Pacific. Through our environment satellite programme and publication we reach people throughout the Pacific.

ACHIEVEMENTS:
We bring together experts in all fields concerning the environment in the South Pacific and in that sense act as a coordinating body.
Our publication are widely distributed and we operate the resource centre which people are free to use.

WORLD VISION INTERNATIONAL - FIJI
Type of Organization: NGO association/co-ordination
Focus: Appropriate Technology Various
Annual budget $200000
SOURCES OF FUNDING: World Vision International

SERVICES OFFERED:
1.1 Training programmes conducted to develop people to help themselves in whatever needy areas they are confronted with.

ACHIEVEMENTS:
2.1 Main achievements are through training conducted through appropriate technology training, leadership training, health training that people are being nominated to do things better for themselves and have a remarkable impact into their own communities.

FIJI REHABILITATION COUNCIL WORKSHOP
Type of Organization:
Focus: Small Business
Annual budget $31000
SOURCES OF FUNDING:
Government support for 2 teachers
profits from sales of products.

SERVICES OFFERED:
It trains disabled people and replaces them to work in the community.

ACHIEVEMENTS:
47 disabled people are working in the community and earning their livelihood.

KIRIBATI

KARIKIRAKEAN MWENGARAOIN KIRIBATI
Type of Organization: Development organization
Focus: Appropriate Technology Various
Annual budget $75000
SOURCES OF FUNDING:
G.O.K. bilateral aid (from NZG)
New Zealand Save the Children Fund

SERVICES OFFERED:
Training in community management and organization, small business development, technical skills in construction, timber milling, etc.

ACHIEVEMENTS:
Began operating only in October 1990. Thus far have completed negotiations/orientations with island councils on 3 islands and needs assessments/community orientations on 2 islands.

KIRIBATI CHAMBER OF COMMERCE (BOTAKIA TAAN IOKINIBAI)
Type of Organization:
Focus: Small Business
Annual budget $2500
SOURCES OF FUNDING:

SERVICES OFFERED:
Guest Speakers, Trade Publications Library, Introducing Trading Partners, Liaising with Government and visiting experts.

ACHIEVEMENTS:
Providing information to members and creating a forum for discussion of mutual problems and solutions to those problems.

SOLAR ENERGY COMPANY LIMITED
Type of Organization: Development organization
Focus: Appropriate Technology Various
Annual budget $25000
SOURCES OF FUNDING:
- Individual
- Organization
- Island Projects
- Government Projects

SERVICES OFFERED:
Improving lighting, water pumping, vaccines preservations, minimum training for the maintenance and repair work of P V equipment.

ACHIEVEMENTS:
Recognition throughout Kiribati and overseas suppliers. AWA, BP, GIE, Solar etc. Received minimum aids on both technical/management training.

MARSHALLS ISLANDS

MALOELAP SELF RELIANCE MOVEMENT

Type of Organization: Community group
Focus: Small Business
Annual budget $2450
SOURCES OF FUNDING:
- Local Government and Aid Donors
- UNDP/OPS RAS/81/080 - $2,000
- Maloelap Local Govt.- $400
- Community contributions - $50.00

SERVICES OFFERED:
MSM can organise working groups, monitor progress, organise training sessions and petition for funding in relation to its areas of activity (fisheries, agriculture, livestock)

ACHIEVEMENTS:
1. Promotion of home gardening
2. Construction of water tanks and wells
3. Raising community confidence in implementing development projects to raise self-reliance of the people

MARSHALL ISLANDS AQUACULTURE FARMERS COOPERATIVE

Type of Organization: Farmers assoc./trade union
Focus: Appropriate Technology Various; Cooperatives Various; Aquaculture

Annual budget $2500
SOURCES OF FUNDING:
- Marshall Island Aquaculture
- S-K Funding via NOAA/NMFS
- UNDP
- Pacific Fisheries Development Foundation

SERVICES OFFERED:
Aquaculture training courses at a pilot farm training site. Eventually contact with, and organization of, sale of farmed products.

ACHIEVEMENTS:
Development and operation of pilot aquaculture site (Bue Island,Mili Atoll)

SOLOMONS ISLANDS

HANDCRAFT EXPORT ADVISORY GROUP
Type of Organization: Business group
Focus: Small Business Handicraft and Artisanry
SOURCES OF FUNDING:
SERVICES OFFERED:
To co-ordinate production towards filling larger orders through promotions and ventures such as Expo 88 and 92.

ACHIEVEMENTS:
To reduce regional trading tarriffs on handcraft imports to Fiji.

INTERNATIONAL CENTER FOR LIVING AQUATIC RESOURCES MANAGEMENT Type of Organization: Academic/research institution
Focus: Environment Ecosystem
Annual budget $3700000
SOURCES OF FUNDING:
World Bank
USAID
UNDP
AIDAB, France, Denmark, UK.

SERVICES OFFERED:
a) Within Pacific region : coastal aquaculture, information, training, technical assistance.
b) Globally : Advanced research training.

ACHIEVEMENTS:
a) Within Pacific Region: Development of new mariculture technologies.
b) Globally: Development of fish stock assessment methods and new fish farming systems, global networks in these fields.

TONGA

FRIENDLY ISLANDS FELLOWSHIP
Type of Organization: Development organization
Focus: Environment Ecosystem
SOURCES OF FUNDING:
Fund Raising
SERVICES OFFERED:
Monthly training at the Training Centre, followed by group works at their own villages.

ACHIEVEMENTS:
- The constructions of water tanks
- The ability of clearing wells.
- Working skills (eg. cooking, sewing, chrochetting, budgeting, sharing ideas, knitting, Tongan handicrafts, farming etc.)

MARINE RESEARCH FOUNDATION
Type of Organization:
Focus: Environment Various; Environment Ecosystem
Annual budget $40000
SOURCES OF FUNDING:
ESCAP
FAO
UNEP
SPREP

SERVICES OFFERED:
Determining environmental improvement projects and ways to get everyone involved.
Preparation of educational video.

ACHIEVEMENTS:
1989-1990.
Community Grant Clam Sanctuaries of Tonga.
Environmental Management Plan for the Kingdom of Tonga.
Establishment of environmental desk in Tongan National Council of Churches.

TONGA COMMUNITY DEVELOPMENT TRUST
Type of Organization: Development organization
Focus: Small Business
Annual budget $75000
SOURCES OF FUNDING:
Various donor agencies, including ECC & Misereor.
SERVICES OFFERED:
Technical expertise, infrastructural support, human development training.

ACHIEVEMENTS:
TCDT has assisted a variety of small, community-based projects throughout Tonga, providing technical and (limited) financial resources. It has also participated in a larger-scale regional water supply project, providing improved water resources to 19 villages/islands in the Vava'u region.

TONGA CREDIT UNION LEAGUE
Type of Organization: Service organization
Focus: Cooperatives Various
Annual budget $30000
SOURCES OF FUNDING:
Annual dues paid by Individual members
Fund raising
Aid from Australian Credit Union

SERVICES OFFERED:
The most important services and facilities is teaching the people to save regularly and borrow wisely for a good productive purposes in low interest. We also provide notes, pamphlets and some visit program.

ACHIEVEMENTS:
The main achievements of our organization is preparing a training program for every year.

TONGA NATIONAL COUNCIL OF CHURCHES
Type of Organization: Development organization
Focus: Environment Various
SOURCES OF FUNDING:
Annual subscriptions of member churches
Overseas Emergency Funding Agency such:
NZCC, ACC, SICARWS through WCC.
Donations on Annual ecumenical service.

SERVICES OFFERED:
Training of management in the grassroot level - starting womens'development programmes and projects. Provide capital to start up small developmental programmes.

ACHIEVEMENTS:
- TNCC have reached out to enrol 80% of the denominations in the Kingdom.
- Breaking down of barriers between churches that ecumenical prayer services can be conducted.
- Formation of an environmental awareness desk.

TONGA YOUTH WORKERS ASSOCIATION
Type of Organization: NGO association/co-ordination
Focus: Small Business
Annual budget $19000
SOURCES OF FUNDING:
Membership subscription, outside assist.
Membership fees
Outside

SERVICES OFFERED:
We have training/workshops on book-keeping, project implementation, how to write youth group constitution, etc. We also provide information on the various funding agencies that are available and teach them how to apply for funds.

ACHIEVEMENTS:
The Association has sent so many youth leaders overseas for short term courses/training; conducted some workshops; funded a lot of group projects; and created rapport working relationship with the members.

TUVALU

TUVALU CHAMBER OF COMMERCE

Type of Organization: NGO association/co-ordination
Focus: Small Business
Annual budget $300
SOURCES OF FUNDING:
Subscriptions

SERVICES OFFERED:
Nomination of members for overseas workshops which are relevant to their business, financial assistance for working capitals and for expansions, training to diploma and degree levels for top positions of member businesses, possession of a workplace (office) for the executive committee and possession of a Bond warehouse for heavy duty goods.

ACHIEVEMENTS:
Main achievement so far the Chamber of Commerce had achieved besides securing short attachments for its members on overseas training is the establishment of a joint Consultative Committee with government to discuss matters which are important to both parties.

TUVALU COCONUT TRADERS CO-OPERATIVE LTD.

Type of Organization: Co-operative association
Focus: Cooperatives Various: Small Business
Annual budget $160000
SOURCES OF FUNDING:
Copra proceeds
Stabex receipts
Government subsidy

SERVICES OFFERED:
Provision and maintenance of a source of income for the rural subsistence farmers.

VANUATU

HANDICRAFT BELONG VANUATU
Type of Organization: Development organization
Focus: Small Business Handicraft and Artisanry; Small Business Various
SOURCES OF FUNDING:
Sale of handicrafts
SERVICES OFFERED:
Quality control of local handicraft.
Assist with providing income for local artists.

ACHIEVEMENTS:
Main achievement providing a venue for people (Ni-Vanuatu) to sell products to.

VANUATU NATURAL SCIENCE SOCIETY
Type of Organization: NGO association/co-ordination
Focus: Environment Various
Annual budget $200000
SOURCES OF FUNDING:
Membership
SERVICES OFFERED:
Network of informed people on environment matters, support for conservation projects.

ACHIEVEMENTS:
10 years survival holding regular meetings, continuing to publish Naika, save coconut crabs campaign, education work.

VANUATU NATIONAL COUNCIL OF WOMEN
Type of Organization: NGO association/co-ordination
Focus: Small Business
Annual budget $75000
SOURCES OF FUNDING:
Inter-church co-ordinating commt.of Neth
Canada fund- 1,000,000
CUSO - 1,000,000
Australia (AIDAB) 1,000,000

SERVICES OFFERED:
* the most effective now-government network in Vanuatu.
* access to small business project grant money.
* access to a unified public voice.

ACHIEVEMENTS:
* the establishment of 77 area councils of women plus 13 island councils with a national office and executive.
* the raising of public consciousness of the position of women in society.

VANUATU RURAL DEVELOPMENT TRAINING CENTERS' ASSOCIATION
Type of Organization: NGO association/co-ordination
Focus: Appropriate Technology Various; Home Gardening
Annual budget $3000000
SOURCES OF FUNDING:
Grant from UNDP,
Community Aid from abroad
E.E.C. through U.K. F.S.P.
Other sources within the region

SERVICES OFFERED:
Providing training in areas of management, appropriate technologies, teaching methodologies, resource materials/information, access to funding agencies, support system for accounting, bookkeeping, writing project proposals for association programs.

ACHIEVEMENTS:
Carried out a Tracer Survey of students who attended L.T.C's, from 1985-89. Wrote drafts for national Policy for L.T.C's, Constitution for the association. Conducted successful annual training, workshops, meetings, prepared course curriculums on nutrition, introduced appropriate technologies.

VANUATU SMALLSCALE SAWMILL PROGRAMME
Type of Organization: Development organization
Focus: Appropriate Technology Various; Small Business Various

Annual budget $30000
SOURCES OF FUNDING:
International donors agencies
CUSO
AIDAB & NZHC
UNDP & EEC (pending)

SERVICES OFFERED:
Introduce new ideas and accessibility to Appropriate Technology
Technical assistance, training and follow-up.

ACHIEVEMENTS:
Establishment of several local sawmilling business.

VILA TAON KAONSEL BLONG OL WOMAN
Type of Organization: NGO association/co-ordination
Focus: Small Business
Annual budget $300000
SOURCES OF FUNDING:
- Fund raisings
- Diplomatic Missions
- Other outside Partnerships
- Vanuatu Government

SERVICES OFFERED:
Bring the women living in the town together. Emphasis has been (in the past) on women in the rural areas. Collective effort, we can assist in the social issues in town.
Provide, organise training in business management.
Organise women in business, and housegirls, and hotel employees.

ACHIEVEMENTS:
1. That there is an organization in town to help urban women.
2. A women's credit scheme is established.
3. Promote women's handicraft overseas.
4. Good relationship with the women's groups in town and other NGO's, and government - local and national.

Annex K

RELEVANT PROGRAMS OF A.I.D. AND INTERNATIONAL ORGANIZATIONS

I. AGENCY FOR INTERNATIONAL DEVELOPMENT

II. MULTILATERAL ORGANIZATIONS

III. REGIONAL ORGANIZATIONS

IV. INTERNATIONAL NON-GOVERNMENTAL ORGANIZATIONS

RELEVANT PROGRAMS OF A.I.D. AND INTERNATIONAL ORGANIZATIONS

I. AGENCY FOR INTERNATIONAL DEVELOPMENT

A. Environmental and Natural Resources Policy and Training (EPAT), 936-5555, managed by S&T/FENR

This $75 million project represents a major effort by A.I.D. to bring together the issues of economic policy and the environmental and natural resources consequences of such policy in developing countries. One element of the project will support core research and associated dissemination of results and training. Another, to be financed by missions, will offer technical assistance in policy research and analysis, policy dialogue and strengthening of in-country institutions to which governments will look for analysis of environmental matters. It is possible that core research topics will include issues of significance for the South Pacific. The project will provide access to the Environmental Protection Agency and other U.S. government agencies via inter-agency agreements and to core research institutions through cooperative grant agreements.

B. Conservation of Biological Diversity (BSP), 936-5554, managed by S&T/FENR

This project includes a matching grants program to fund studies addressing questions relevant to A.I.D.'s conservation activities worldwide. One of the issues already identified for the matching grants program is that of the economic costs and benefits of investments in conservation. The Profitable Environmental Protection (PEP) project will include $290,000 for such research, one half to be provided by RDO/SP and the other half from core funds in the BSP project, as well as $90,000 to be provided from BSP for

C. Environmental Support Project, 499-0004, managed by the Asia Bureau

The successor to a regional environmental project of the mid-1980s, this two-year project will develop an Asia Bureau environment and natural resources strategy and program and a longer term regional environmental project. In the course of the project, short term technical assistance will be targeted toward private sector approaches, to include urban and industrial pollution, environmental policy, law and regulation, raising environmental awareness of policy makers and the general public, and investigating "green" and "brown" business opportunities. Longer term technical assistance will be in the areas of forestry biodiversity, natural resource economics, urban and industrial pollution, and environmental education.

As the PEP project identifies policy issues that seriously constrain the viability of environmentally conscious enterprises in A.I.D.-recipient countries, RDO/SP will be able to draw upon the Environmental Support Project to address those issues.

D. Forestry/Fuelwood Research and Development (F/FRED), ???-????, managed by S&T/FENR

This worldwide research-oriented project, in its second phase, is aimed at developing improved knowledge of the cultivation and use of multipurpose tree species. In Papua New Guinea the project has collected seed of Acacia mangium for distribution to cooperating scientists to test, the focus to be on its potential as a multipurpose tree species for small farm use.

Results of the research could be applicable to other tropical countries, including those of the South Pacific. Moreover, the PEP project could tap the experience of F/FRED in seed collection and handling to help organize commercial seed collection and distribution enterprises. It could serve also possibly as a source of seed for agroforestry enterprises.

E. Market Access and Regional Competitiveness (MARC) managed by RDO/SP

This project will establish in the United States the South Pacific Investment and Trade Service to provide a resource for U. S. businesses seeking trade and investment development opportunities. The purpose of the Service is to establish a services network to provide the support needed in the U.S. marketplace and in the field to help enhance trade and investment flows between the South Pacific and the United States.

Four main functions, each of which may provide important resources to the PEP project, are: (a) a network of contacts with key U. S. businesses and industries that are willing and interested to work with the South Pacific private sector(s) on trade and investment development, (b) coordination with other U. S. Government Agencies, (c) management of U.S. Technical and Training Resources, and (d) an information and data system that will establish and maintain an on-line information service and disseminate such information on a fee-for-service basis.

F. Pacific Island Marine Resources (PIMAR), 879-0020, managed by RDO/SP

PIMAR is designed to promote income generating opportunities for men and women through small-scale marine resources development. Like PEP it is a project whose success will depend on attention to conservation and sustainability of the resource and on demonstration, in this instance of the economic and financial viability of private enterprises engaged in mariculture and fishing and manifesting concern for the environment.

The project will be active in Cook Islands, Tuvalu, Papua New Guinea, Kiribati and Tonga, countries that will benefit from the outreach of activities in the PEP project in its first or subsequent phase.

G. Revolving Loan Fund, managed by the Private Enterprise Bureau, and Environmental Enterprise Assistance Fund

A total of $2.4 million has been committed from the Revolving Loan Fund to the Environmental Enterprise Assistance Fund established in 1990 with the help of Winrock International and the Rockefeller Foundation to promote the spread of commercially viable renewable energy and other environmentally responsible technologies in the developing countries. The Fund is intended to make carefully targeted investments in promising projects which, if they lead to profitable businesses, will return funds for further investment. It will provide entrepreneurs with technical and management assistance, loans and equity and will seek to empower local communities and serve as catalyst to overcome the many non-market barriers that smaller-scale technologies encounter.

The Fund will target renewable energy systems that generate employment, are environmentally benign, are small in scale and are economically sound. It will also promote technologies that improve energy efficiency, techniques to improve forest management to assure sustainable growth, and organic waste management systems.

Local investment funds to be created by the Fund, and run by local management under the guidance of local boards, will provide the mechanism for identifying, screening and managing investments. The sites of the first two local funds have been identified tentatively. A close working relationship between the activities of the second phase of PEP and a local fund in the South Pacific would be mutually beneficial, as PEP would identify environmentally conscious and potentially viable enterprises and the fund could provide financing.

H. Overseas Private Investment Corporation (OPIC)

OPIC has announced the establishment of the Environmental Investment Fund, a privately owned and managed investment fund that will invest in new or expanding business enterprises in developing countries that use natural resources on a sustainable basis or otherwise practice sound environmental management. The fund manager, Kidder, Peabody & Co., as of late 1991 had not attracted private monies for such investment. Although there is an outside possibility that small enterprise projects could be grouped into a sizeable investment package by an entity such as the Environmental Enterprise Assistance Fund (see above), such a packaging is not likely to take place during the life of the PEP project.

II. MULTILATERAL ORGANIZATIONS

A. World Bank

The World Bank has established a Global Environmental Facility (GEF), projected to be financed at a total level of $1.2 billion. In the South Pacific the GEF is providing $10 million for a UNDP project entitled Conservation of Biodiversity in the South Pacific. The South Pacific Regional Environmental Program (SPREP) will carry out the project objectives to identify and establish Conservation Areas that are critical to the survival of threatened or endangered species, rich in biodiversity and regionally representative, to implement existing conservation programs and to offer environmental education.

B. UNDP AND Asian Development Bank

In support of SPREP's program objective in Environment Planning and Management, UNDP and Asian Development Bank together are financing the development of National Environmental Management Strategies for member countries. Asian Development Bank is also financing the preparation of country reports for its member countries.

C. Food and Agriculture Organization

The Food and Agriculture Organization (FAO) of the United Nations is the leading collaborative partner in the multi-agency funded Tropical Forestry Action Plan. In the South Pacific, in response to a request from the government of Papua New Guinea, an inter-agency mission has identified 15 projects for priority action in the forestry sector. Following a donor roundtable in 1990, the TFAP framework in Papua New Guinea has been expanded to give greater emphasis to conservation and a steering committee consisting of both official and NGO agencies has been established. Any PEP activity in forestry would be expected to have the approval of the Steering Committee. Fiji, Solomon Islands, Vanuatu and Western Samoa have either initiated preparation of a TFAP plan or have indicated their intention to do so. FAO is also active wood energy development and watershed management.

III. REGIONAL ORGANIZATIONS

A number of regional organizations are seized with the importance of resources to the future growth and well-being of their member nations and territories. Some, such as the South Pacific Forum, are particularly active in the political realm, some have concentrated on research, dialogue and discussion of issues, and others are oriented to specific industries or groups of industries.

The initiatives of these regional membership bodies dealing with environmental issues concentrate on the provision of assistance to governments in the development of national environmental policies and objectives, augmentation of existing and local expertise and capabilities to confront environmental issues, and facilitation of the emergence of shared governmental responsibility for the preservation and maintenance of environmental quality. The important role of the private sector is only beginning to emerge in regional fora.

A. South Pacific Forum

The 16 member Forum, an intergovernmental organization, was founded to help governments of the region work together on projects and on issues of general significance and to provide technical expertise in economic and other matters. It has adopted the objective to encourage and promote regional cooperation in the development of the island countries of the South Pacific in close partnership with the more industrially developed countries--Australia and New Zealand in the region, and the former colonial powers as Forum Partners. The Secretariat of the Forum offers technical assistance (funded by members and donors) in telecommunications, trade and investment, transport, energy, petroleum and economic planning.

B. South Pacific Regional Environment Programme (SPREP)

Under the auspices of the South Pacific Commission (SPC), environmental attention on a regional basis was first galvanized. In 1974, the regions first ecological adviser was appointed by the SPC, in 1975 a regional conference on the human environment was proposed, and in 1982, on the occasion of the conference, the South Pacific Regional Environment Programme (SPREP) was formed. As of 1991, SPREP is an independent regional body. It will move its secretariat to Apia, Western Samoa in 1992. (See Annex H)

The goal of the SPREP Action Plan adopted in 1991 is to assist its 22 member countries and territories to protect and improve their shared environment and manage their resources to enhance the quality of life for present and future generations. Among the nine program areas of SPREP, several are potentially relevant to the objective and approach of the PEP project: conservation of biological diversity, environmental

management and planning, environmental education and training and environmental information.

C. Forum Fisheries Agency

The Agency, formed in 1979 as an independent agency under the auspices of the South Pacific Forum countries, has the mandate to promote and regulate the development of fisheries within the established Extended Economic Zone (EEZs) of the South Pacific nations. The aim of the founding countries was to adopt a coordinated approach to the various aspects of fisheries, with the objective of securing the maximum benefits from the living marine resources of the region.

D. South Pacific Applied Geoscience Commission (SOPAC)

The SOPAC, an affiliate of the UN Economic and Social Commission for Asia and the Pacific (ESCAP), has responsibility for the management of offshore marine geoscientific research. In recent years, its emphasis has shifted to give attention to environmental concerns. Environmental issues are well established on the agenda of ESCAP itself, and its Pacific Operations Center (EPOC), primarily through the Committee on Rural Development and Environment.

E. Pacific Island Development Programme (PIDP)

PIDP is a research organization whose priorities are established by its board, the Islands Conference of Leaders. The research is planned and organized to ensure that results can be translated into policy advice and training. The program aims to conduct training and research by and for the people of the Pacific Islands.

F. University of the South Pacific (USP)

The University was established as a regional education, training and development institution in 1968. It has major campuses in Fiji and Western Samoa and programs, departments or institutes in ten other countries of the region. Its institutes are focused on education, agriculture, rural development, Pacific studies, marine and natural resources, and atoll development. The University serves as a comprehensive repository of human experience and data on many aspects of development and natural science in the region.

IV. International Non-governmental Agencies (NGOs)

Historically, the community of international and local NGSs in the South Pacific have focused on social and community development, allowing the articulation of environmental concerns to be carried by others. The situation is changing, however, both internationally and locally, as NGOs insist that their programs be environmentally sound or add an environmental dimension to research and educational activities.

In addition to a variety of groups from Australia, New Zealand, Canada and United States, international NGOs with significant programs in the region include:

- World Wide Fund for Nature, International (WWFI) and its family of affiliates, which made a commitment in 1989 to expand its South Pacific conservation program, focusing on protection of biological diversity, ensuring that uses of renewable natural resources are sustainable, working to minimize wasteful consumption or pollution of natural resources. Current field projects are in Papua New Guinea, Solomon Islands, Fiji, Western Samoa and Palau. Regional initiatives are active in education, conservation training and public policy.

- International Union for the Conservation of Nature and Natural Resources, which has completed a review of the protected areas system in Oceania.

- The Nature Conservancy (TNC), which has been funded by A.I.D. to develop classification systems for marine and non-marine ecosystems in terms of their importance for conservation of natural diversity in the tropical insular pacific.

- Conservation International (CI).

- Greenpeace, which will fund a project in hazardous waste management for SPREP in 1992.

- TRAFFIC, a WWF program concerned with monitoring and analysis of trade in animal and plant products.

COUNTRY PROFILE

WESTERN SAMOA

Western Samoa is composed of two major island, Upolu and Savai'i, of mountainous terrace, and seven smaller ones, with a total land area of 46,000 square miles. The population of about 160,000 place great value on the Samoan way of life, with its rich and elaborate ceremonial calendars. Land and sea resources are abundant, and soils are generally good, though forests are threatened with depletion, and aging coconut trees are declining in productivity. Production of a wider range of subsistence and commercial crops is possible.

STATUS OF ECOSYSTEMS AND SPECIES

A. Ecosystems. Terrestrial ecosystems are under pressure from commercial logging, plus impacts from grading and excavation associated with road and building construction. Two-thirds of the forest cover is classed as commercial, but logging takes place in protected forests as well. Commercial logging has progressed at alarming rates during the past decade.

However, shifting agriculture poses an even greater threat through the clearing of approximately 2,000 acres of previously undisturbed areas each year. At this rate, more than 50 percent of the existing forest area will be cleared for subsistence farming in the next 40 years.

Wetlands, coastal areas, and marine ecosystems also face the impacts of human encroachment, as natural shorelines are filled in to create new residential land or disposal sites for municipal solid wastes. It is difficult to find an unbroken stretch of natural shoreline on the north shore of Upolu today. Sedimentation and toxic effects from such practices exact their toll on the coral reefs, resulting in the decline of important subsistence fisheries. The culturally important palolo worm, for example, is reported to have suffered major declines in the past two decades, possibly a result of the slow suffocation of its reef habitat through sedimentation.

B. Species. The assemblage of species in Western Samoa maintains essential ecological functions. For example, the "flying fox," a large fruit bat with wing span of more than three feet, is responsible for pollination and seed dispersal for as much as 75 percent of the forest flora. This species is under pressure from overharvesting and loss of habitat.

The three main islands provide habitat for 33 species of land birds, twenty-three of which are endemic to the Samoas. Of these, fourteen are reported to be either endangered or threatened across their range. These include the white-throated pigeon, the Samoan wood rail (last seen in 1908), and the tooth-billed pigeon, a "relic" species closely related to the extinct dodo of Mauritius. Studies indicate that the last will require large tracts of undisturbed primary forest to ensure its survival. There are five birds that are both endangered (due to habitat loss) and protected in Western Samoa.

THREATS TO BIODIVERSITY

Shifting agriculture and commercial logging practices cause vast habitat destruction. Beyond deforestation, the indirect impacts of shifting agriculture and commercial logging include runoff of soil, pesticides, and fertilizers. Herbicide, used to make farming easier on the stony ground, is so widespread that "practically every farmer is using it," including chemicals banned widely in the world like paraquat. Pesticides and fertilizers contaminate surface and ground waters, with significant effects downstream upon, freshwater, nearshore waters, and human health. Even the well intentioned actions of government officials to tap new streams for drinking water often result in severe watershed management problems through indiscriminate clearing to build new roads.

Western Samoa faces serious problems in disposing of municipal solid waste. Apia's dumpsite is located in the middle of an extensive and important mangrove wetland area where toxic residues can leach directly into nearshore waters. Rural villagers dispose of wastes behind their homes in ad hoc fashion. These practices, coupled with the lack of sewerage infrastructure, bodes ill for the long-term maintenance of groundwater quality.

Although less common today, subsistence fishing techniques that use poison or dynamite devastate coral reef communities. Human population growth will place ever increasing demands on the nearshore environment for food, recreation, and new home sites. In general, the biological inventories and careful planning necessary to steer development along environmentally sustainable paths are lacking.

The significant impacts that natural destructive forces can have on ecosystems cannot be understated. In early 1990 when Cyclone Ofa, the most destructive cyclone since 1889, ravaged the Samoas, up to 40 percent of the native forests were defoliated, and as much as 50 percent of the millable forest was destroyed. The cyclone depleted wildlife populations severely, and caused demand for sawn timber for construction purposes to increase to an all-time high. The country's rainforests and wildlife populations will not recover fully for at least two decades.

TENURE

Similar to many countries in the Pacific, a communal land tenure system is central to the functioning of Western Samoan society. The stewardship of customary lands is vested in a family's matai (chief) who alone grants use of the land and the resources found therein. Over 80 percent of the country's land area today remains under customary title. A Land and Titles Court has exclusive jurisdiction over customary land and matai titles.

The matai system is reflected in the national political system and until now only matai have been eligible to vote (a plebiscite held on October 29, 1990 favored universal sufferage). At the village level, the fono (village council) administers the village through its own rules and enforcement procedures. Thus, the implementation of virtually any form of outside assistance must first gain the consent and support of village council members. This can be an elaborate process, for example, in the negotiation of a nature reserve involving the perceived alienation of customary land. A de facto system of virtual ownership or control of land converted to agriculture, however, is beginning to threaten certain lowlands and steep slopes of the interior.

ENVIRONMENTALLY RESPONSIBLE ENTERPRISE

A. Community-Scale. At least one village, Uafato in northeast Upolu, has requested assistance from the Western Samoa Visitor's Bureau and the Lands and Survey Department to establish a cultural center in Apia to display and sell handicrafts made from forest materials found near their village. They would also present handicraft techniques, dancing, and other traditional arts. The suggestion was made to link these activities with an organized "Village Home-Stay" program, to capitalize further on the villagers' organizational and business skills while adding incentive to maintaining their village environment in pristine and sanitary condition. Once initiated, this program could serve as a model for numerous other villages wishing to compete for tourist revenue. The project would require both the necessary small enterprise development skills and an initial capital investment to construct a visitors center in Apia.

In the last two years, two villages on Savaii, Falealupo on the north-west coast and Tafua on the south-east coast, have established forest reserves near their villages. This occurred through cooperation with the Swedish Society for the Conservation of Nature, which raised and donated funds to the villagers to pay for schools, medical clinics, and roads. It resulted directly from the villagers' expressed need to sell commercial logging rights so they could afford the infrastructure. Plans are underway in both locales to identify how the villagers can capitalize on their protected forests through eco-tourism, research, education, or other potential economic opportunities.

B. Private-Enterprise Scale. A village on the south-central coast of Upolu and a foreign investor have agreed to develop a small beachfront resort near a pristine mangrove area. This eco-tourism type of operation will include Samoan style fales as living quarters for visitors, a central bar and store, and a proposed elevated walkway through the mangrove area. Presumably, the villagers will supply the resort with locally grown produce, and serve as hiking guides for visitors in the adjacent rainforest.

A Samoan family operates a popular visitors destination in Apia known as Palolo Deep. The marine reserve, established in 1979, consists of a large cavernous hole in the reef flat, hosting a diverse fish and coral population. The reserve is used by locals and visitors alike, and affords snorkelers the opportunity to see abundant marine life. The park attracted more than 30,000 visitors per year prior to its near complete devastation by Cyclone Ofa.

Another business, Samoa Marine, has attempted to grow giant clams at a hatchery in Aleipata, on the south-east shore of Upolu. That operation, and one by a women's committee that tried to cultivate freshwater prawns at the same location, failed to sustain the operations for reasons unknown. In a government sea turtle hatchery venture, poor management and lack of funds were cited as reasons for its collapse in 1983. A green mussel farming project also collapsed for a different reason: the people could not be kept out.

With only one dive operation in Western Samoa (Apia), the potential for diving and sports fishing is largely untapped, particularly in Savaii where a majority of the eco-tourists go to see the fruit bats or to visit the aforementioned newly opened forest reserves.

A sixty cent deposit on soft drink bottles encourages their reuse, but there is no recycling for other types of glass.

INDIGENOUS NGOs

Western Samoa's first environmental NGO, O Le Siosiomaga Society, was registered in August 1990 as a not-for-profit environmental and cultural preservation organization, the result of increasing public awareness of the value of protected areas and the need for environmental planning on major infrastructure projects. The Society is moving quickly to secure funds for both a local office and staff, and project funds to improve the Falealupo nature reserve on Savaii. Society members also indicate a government watchdog role for themselves regarding the proposed wharf at Vaiusu Bay near Apia. The Natura Society has organized hikes, trips to nearby islands, and public speaking events for its members in recent years. Its goals are primarily educational and recreational.

NON-INDIGENOUS NGOs

A. The Robert Louis Stevenson Foundation in Arizona proposed the construction of an aerial cablecar to transport visitors over scenic forests to the top of Mt. Vaea, where a newly created national park would provide access to a spectacular crater lake. Accommodations are proposed for the site.

B. The National Wildlife Federation organized jointly an environmental education workshop with the U.S. Peace Corps

C. The Swedish Society for the Conservation of Nature has been assisting two villages to establish forest reserves for their villages, through raising and donating funds to pay for village schools, medical clinics and roads.

OTHER DONORS

A. The U.S. Peace Corps provided four volunteers to rural branches of the Development Bank of Western Samoa to work on small enterprise development. They will train anyone having an interest in business development and management. Peace Corps plans to increase their numbers to seven or eight by early 1991. This mechanism could improve upon or initiate new enterprises in conjunction with environmental conservation. The Peace Corps has its own resources to provide specific training in natural resource management and recently sponsored an environmental workshop for science teachers to assist the establishment of environmental curricula in the public schools.

B. New Zealand funds enabled the Western Samoa Visitors Bureau to contract a 1985 study entitled "Environmental Planning for Tourism." New Zealand assistance is also underwriting the reconstruction of a visitors center at Western Samoa's main national park, O le Pupu-pu'e.

C. The Asian Development Bank has four people in Western Samoa who are trying to increase the profitability of village-level enterprises in an environmentally sound manner.

D. The United Nations Development Program sponsored a two-day workshop entitled, "New Environmental Challenges for Western Samoa." It expects environmental protection to be a major theme of its 1991-96 program, currently being developed.

E. The Food and Agriculture Organization of the United Nations funded a sustainable development poster.

GOVERNMENT POLICY

Policies relating to management of the environment are generally lacking. Following approval of the 1990 Lands and Environment Act, however, the Government established the Division of Environment and Conservation (DEC) within the Department of Lands and Environment. The former SPREP Coordinator became the DEC Director, and has already hired six professional staff members. These actions represent major and promising improvements to the government's environmental management capability, and have markedly improved attitudes within government about examining critical environmental sustainability issues within the context of economic development.

Other government departments are factoring environmental issues into development strategies. The Western Samoa Visitors Bureau contracted a 1985 study entitled "Environmental Planning for Tourism." A steady (3-7%) growth in tourism since 1980 has fostered the recognition that environmental conservation is central to realizing the country's long-term tourism potential.

The Development Bank of Western Samoa maintains a lending portfolio with a bias toward enterprises that sustain or enhance natural resource use. The Bank has participated in giant clam culture, village-based timber processing, and village-based tourism development activities. It serves as a conduit for several multi-lateral assistance funds aimed at specific sectors related to fisheries, tourism, and (import substitution) small enterprise development. In general, it appears that credit opportunities for small businesses are sufficient. However, direct technical assistance is most needed in the form of business plan preparation, market development, use of appropriate technologies, and general financial management.

The Tourism Master Plan (1983-1984) gives consideration to conservation of archaeological and historic sites, cultural patterns and natural environment.

GOVERNMENT STRUCTURE

A. The Division of Environment and Conservation, since its establishment, has moved quickly to create a work plan and recommend further legislative refinements. Its initial priorities are to: (1) identify and prioritize remaining native habitat for inclusion in a system of protected areas, (2) implement watershed management legislation, (3) improve solid waste management operations, and (4) implement and enforce more rigorous Environmental Impact Assessment reviews of proposed development in both the public and private sectors.

1. With respect to protected areas, DEC:

   a. is examining ways to expand Western Samoa's protected areas system (which it now manages), attract tourism, and maintain biological diversity;

   b. is considering how to make the eight to ten natural reserve areas it maintains and operates more accessible to visitors. Among these is a proposal before Parliament to construct an aerial cablecar to transport visitors over scenic forests to the top of Mt. Vaea, where a newly created national park would provide access to a spectacular crater lake;

   c. has secured funds to reconstruct a visitors center at the country's main park (O le Pupu-pu'e on Upolu, which attracts 3,000 overseas visitors and numerous local residents per annum) and to re-build the country's system of national parks damaged by Cyclone Ofa;

   d. is examining possible arrangements for reserve management privatization to meet national goals in establishing a viable protected areas system, an approach generally believed necessary within government circles. DEC has indicated that it would encourage a plan to establish profit-seeking reserves; and

   e. is seeking $150,000 to prepare a National Environment Strategy report.

2. With respect to watershed and forestry issues

   a. DEC is working with the Forestry Division to implement watershed legislation. Watershed management legislation was submitted to Parliament in 1985, and a pilot project established for managing the watershed that supplies Apia's drinking water. Draft regulations from a recent FAO-led review are completed and before the Head of State for consideration. They would establish an interagency committee to coordinate and approve individual watershed management plans.

   b. DEC is seeking to halt the milling of timber for export. Also, the government recently curtailed the issuance of new logging permits, affecting approximately 70 percent of Savaii and 40-50 percent of the forests on Upolu (although much of the resource is either inaccessible or unprofitable for milling).

B. The Department of Education produces an environmental children's magazine of high quality, "Our World, Too."

C. Nuclear waste from abroad, nuclear testing or receipt of other types of waste has been refused by the government.

LEGISLATION

Most of the existing environmental legislation is old, or is enabling rather than regulatory (e.g. the establishment of the Division of Environment and Conservation).

The Water Act of 1965, which established a Water Supply Committee to control the use and conservation of water, also prohibits the cutting or removal of bush or trees from the banks of rivers, access of livestock to streams, and allowing of pollutants to enter any water.

The Forests Act of 1967 calls for conservation of resources and establishment of forest reserves for water and soil conservation and authorizes regulation of pesticides and forestry. The Act provides for exploitation on a sustained field basis, but without firm criteria; thus allowable cuts are apt to be determined on the basis of or the industry's capacity to mill.

Similarly, the National Parks and Reserves Act of 1974 has had no teeth for enforcement.

COUNTRY PROFILE

SOLOMON ISLANDS

The six larger and scopes of smaller islands of Solomon Islands hold close to 300,000 people on 11,000 square miles of land, in a sea area of over 1,000,000 square miles. The high annual population growth rate of 3.5 percent caused a population increase of 45 percent in the ten years after 1976. There is a shortage of land; only forestry and fisheries offer potential for future economic growth. Only the largest Island of Guadalcanal has flat areas conducive to cultivation.

STATUS OF ECOSYSTEMS AND SPECIES

A. Ecosystems. Terrestrial ecosystems in the Solomon Islands are under heavy pressure from the combined effects of large-scale commercial logging and shifting agriculture. Only two percent of the land is arable. Forestry is dominated by foreign companies which give little attention to environmental concerns. As of 1991, however, legislation to control forest offtake was pending.

B. Species. The Solomon Islands reportedly have more endemic species than Papua New Guinea or Vanuatu, several of which are reported as threatened or endangered. These broadly include: crocodiles, snakes, lizards, frogs, turtles, coconut crabs, butterflies, dolphins, megapode birds, giant rats, flying foxes and two species of parrot.

It is reported that only an estimated 700-800 crocodiles are left in the entire country. Most were shot in the late 1970s and 1980s for the export market.

The Solomon Islands Government is unclear on exactly what species are endangered or their distribution. The government wildlife ecologist is conducting a broad-scale survey of the locations of several reportedly endangered species, which will include a look at remaining sea turtle populations.

THREATS TO BIODIVERSITY

A. Habitat Loss. Habitat loss is largely a result of the combined effects of large-scale commercial logging and shifting agriculture. Ngali nut trees, which grow under the forest canopy and have considerable export potential, have undergone significant decline since commercial logging began.

B. Overharvesting for Export

1. Legislative Loopholes. The Wild Birds Protection Act of 1914 protects all parrots from sale or export, but grants exception to two of the more common species. Although the biology and current status of these two species is poorly known, their trade is not managed. 200 of these birds were recently shipped out of the country, with another shipment due to leave at the time of the field visit. The Department of Environment and Conservation is aware of the problem and is working to gain control over such exports.

2. Lack of Government Sanction. The Solomon Islands Government appears unable or unwilling to develop and enforce sanctions on international trade in wildlife. It is not a party to the CITES convention, partly because it has no scientific body or management authority. The government is reportedly relying upon import restrictions of other countries (most recently those begun by Singapore and Japan against crocodile skins) to curb its own export of such items. A policy document on selling wildlife to developed countries (such as snakes, frogs, lizards, dead butterflies and insects) is pending before Cabinet. If passed, it would lead to the drafting of further legislation.

3. Circumvention of Existing Sanctions. Coconut crabs are decimated in the country, yet the Prime Minister has granted several exceptions to the ban on coconut crab export, facilitating exports of 3,000 kilos of crab each month for three months period in 1990. Exports are mostly from the Western Province and destined for Taiwan. Recently, 2,000 kilos worth of coconut crab collected by an Australian business person, perished at the airport when its transport plane was exceedingly late.

   Taking a different angle, a Japanese company is circumventing restrictions on the export of turtle shells by collecting and exporting them live from the country.

C. Domestic Population Pressures. There is considerable interest in exporting flying foxes, of which the Solomon Islands have many endemic species. This is due in large part to claims that the fruit bats destroy breadfruit crops and therefore are in direct competition with humans. The government wildlife ecologist believes that the damage to breadfruit is actually low, but due to large bat populations in certain areas the competition for food reserves between species is great.

D. Fish Capture Methods. Local plants called "guwulu" locally, are crushed to stun fish and facilitate their capture. This kills both coral and juvenile or larval fish. Similar illegal fishing methods are used elsewhere in the Pacific for the same purpose.

TENURE

Approximately 87 percent of the land remains in customary ownership by clans (wantoks). The rest is government and alienated (freehold) land, although much of this is being returned to the customary owners. Reef tenure rights are widely recognized throughout the Solomon Islands, and generally extend outward from one's land holdings to the reef's edge. In some cases, reef tenure rights apply to offshore shoals or islets. Responses to questions about government claims or rights to sub-surface water or minerals (such as in PNG) were ambiguous. Local informants did indicate, however, that projects must be approved and supported at the clan and community level for any real chance of success.

ENVIRONMENTALLY RESPONSIBLE ENTERPRISE

A. Community Scale. Sosimo Koki, an indigenous entrepreneur on the island of Guadalcanal, has organized his brothers and the community of Komunbuli to use chainsaws to cut and mill trees on their communal land. Sosimo uses his own carefully plotted land management plan, and takes only trees greater than 60 cm in diameter, milling them where they fall by chainsaw. The operation uses an "Alaskan" sawmill with a door-jam improvised as a saw guide and level. The wood is air-dried between small blocks of wood. The community is experimenting with replanting various native species from the nearby forest.

Using the community truck, the lumber is brought to Honiara where it supplies the local market. Only 10 percent of the timber is exported, as most cannot meet international standards. Buyers occasionally go direct to Komunbuli to purchase sawn timber. Domestic prices for the wood vary considerably, with Sosimo often receiving less than the quoted price in Honiara after delivering the wood. Honiara has no timber drying kiln which results not only in less value-added potential, but the wood, which must continue to be air-dried, cannot be packed as tightly during shipment overseas. This increases the per unit transportation costs. Availability of spare parts to keep the operation going is another problem.

Despite these shortcomings, the village appears to have prospered from conducting its own logging and is glad that it declined to sell concessions to foreign-owned logging companies. Sosimo has constructed numerous buildings in the village with the sawn timber, including a center used to train people from elsewhere in the country in milling techniques. There are about 40 people in Sosimo's part of the island who also mill with chainsaws, whom he believes prefer chainsaws over the "wokabout somil" because they are more portable. They also cut straighter and do not need to be used on flat ground. He claims the wokabout somils "don't walk straight." Another person added that "none of them consistently cut a high quality product" in smoothness of surface and dimension. This could be due to both a lack of training and the machine.

Sosimo tested a wokabout somil side-by-side with a chainsaw mill, but returned the former because it was not as good for him as his chainsaw mill.

B. Private Enterprise Scale

1. Overview. Numerous processing businesses were noted, including: domestic reef fish distributors (Canadian owned); a cane and rattan furniture factory (ownership uncertain); a trochus shell button factory (Japanese owned); a large baitfish and tuna enterprise (Japanese owned); and a beekeepers association. Of these, the reef fish distributors control much of the local market, but probably do not generate significant returns to the local economy. The cane and rattan furniture factory has gone in and out of business several times, reportedly due to the lack of trained artisans and irregular raw material supplies. The trochus shell button factory has operated for several years and is encouraging locals to pillage reefs for trochus shells. The Japanese-owned fishing enterprise also purchases baitfish, lobster, and beche-de-mer. Additionally, a tobacco factory, hardwood furniture manufacturer, and timber milling company operate in Honiara.

2. Beekeeping. The Solomon Islands Beekeepers Association is an example of good indigenous profit-oriented enterprise that protects the environment. Incorporated in 1986, it now has 200 members. It markets its honey to Australia, New Zealand, Vanuatu and Fiji, and is considering exporting frames and other equipment to Australia and New Zealand. The Association will soon decide if it will invest to increase production.

3. Can Crushing. An FSP-initiated aluminum can crushing and exporting business has prospered. Now two or three other groups collect cans and bring them to FSP for crushing.

4. Ngali Nuts. On the questionable side of viability, Barry Evans at Dodo Creek has been researching a ngali nut production and marketing scheme for the past two and a half years. He recently advertised for locals to supply nuts, but none have been delivered so far.

5. Charcoal Production. Two 40 ton containers of charcoal derived from coconut shells have been exported to New Zealand for barbecue.

6. Crocodile Farming. The approximately six crocodile "farming" enterprises in the Solomon Islands are mostly just hatcheries and will not be viable for at least 5-10 years. Most locals, however, do not tend to keep the animals that long.

Moreover, there are only about 700 crocodiles left in the country to stock the fledgling enterprises. A local man from Nisa Hope village in the Western Province charges tourists to see his crocodile farm.

7. The National Youth Congress has reportedly initiated activities in furniture making, pig rearing, vegetables, poultry, and fisheries that have become self-sustaining since their initiation in 1986. Most of these products are sold in Honiara, others to local communities, hotels, and restaurants on Guadalcanal.

INDIGENOUS NGOs

A. Solomon Islands Development Trust (SIDT). SIDT operates a country-wide village-based extension system comprised of 150 part-time workers organized into 3-4 member mobile teams. The teams' major task is to visit villages and conduct three-day workshops that enable villagers to identify and implement improvements to village life. SIDT also publishes a magazine, LINK, every two months that focuses on village life. SIDT's themes last year were development education and disaster awareness; current themes focus on population awareness and the relationship between population growth and environmental management. The group promotes composting and nitrogen-fixing tree plantations as alternatives to environmentally damaging shifting agriculture.

In October 1990, SIDT will run a course at Sosimo Kuki's training center in Komabuli on chainsaw milling. The workshop will attempt to get villagers committed to reforestation, while teaching them the basics of land use planning. As a result of SIDT's work, many villagers have declined to sell concession rights to foreign logging companies.

B. Development Services Exchange (DSE). DSEs primary objective is to bring together Solomon Islands NGOs on a regular basis in order to secure a comprehensive view of relevant problems and needs and to mobilize resources for action. It has two full-time employees, including a VSO volunteer. The NGO is small but well-supported, as evidenced by the two relatively large buildings purchased for its use and expansion. A replacement for the current volunteer is planned, who will train a Solomon Island national as a counterpart.

OTHER DONORS

A. Overseas Development Agency (ODA). ODA has funded the initial phase, by a group called David Bellamy Associates, of a three-phase study on non-timber forest products, including eco-tourism. The study will eventually identify commercial sponsors and conduct preliminary market analyses. Initial field work was completed in October 1990.

ODA has also established a system of nature trails in the Western province. An exact mechanism for the long-term maintenance of the trails is uncertain.

B. European Economic Community (EEC). The EEC has funded a consultant from the Tourism Council of the South Pacific to examine eco-tourism possibilities. The Solomon Islands Tourist Authority is organizing the study.

C. New Zealand. New Zealand has funded an initial study on eco-tourism for Marovo Lagoon. Three meetings of local residents have been already held at Seghe village. NZ is also assisting the development of a reforestation program.

D. Australia. has an Australian Volunteer Abroad in the Ministry of Natural Resources.

E. U.S. Peace Corps of Solomon Islands and Vanuatu. Peace Corps focuses its efforts in these two countries on the environment, small enterprise development, and urban development. Working through its community development volunteers, environmental issues are routinely incorporated into program activities. In fact, Hyundai (the Korean conglomerate) recently took the Peace Corps to court for allegations that community development workers "incited" local villagers to breach their logging contract with Hyundai. Hyundai had already apparently broken the terms of its contract with the villagers, by polluting a nearby river and destroying gardens. The Peace Corps won the case, but had to pay its court costs.

F. UNIDO. The Minister of Trade and Industry said that he would like to conduct a study of businesses having conservation objectives and the means by which they can be supported. He would like help in conducting the study, and indicates that he will request assistance from UNIDO who usually assists with this type of study.

G. Regional Environmental Technical Assistance of ADB. RETA is funding a three year project to develop environmental management plans for South Pacific countries, including the Solomon Islands.

GOVERNMENT STRUCTURE

Coordination on forestry and natural resource issues is reportedly lacking between the Ministry of Trade and Industry and the Ministry of Natural Resources. The Minister of Natural Resources has three divisions: Forestry, Conservation and Natural Resources, and Fisheries.

The National Youth Congress is a statutory body that conducts extension and training programs, which have included themes on population growth and its impact upon the natural resource base. Next year's theme will be "skills development and management". The training emphasizes "social group work" for organizing, developing, and maintaining groups in leadership, bookkeeping and programming. The Congress would like to train people in community-based enterprise development. It has not yet, however, found a good mechanism to resolve "wantok vs. community loyalty" conflicts.

GOVERNMENT POLICY

A. General. The Solomon Islands Government has depended heavily upon foreign assistance. Aid has been viewed as necessary to increase copra and cocoa production and revenues from log exports. As of 1991, however, the view has changed. A comprehensive environment policy, in draft, is to be backed by legislation to ensure that development activities do not create damage to ecosystems, habitats and species of the Islands. The strategy will include a population policy and an awareness campaign.

B. Logging and Timber Issues. The government wants to export milled timber, not logs, to secure more income from forestry resources. National legislation to promote timber processing is apparently adequate but unenforced.

The Ministry of Trade and Industry fully supports the promotion of village-based timber production. The Minister stated that portable sawmills "reduce waste; provide maximum benefit to their owners; are very competitive; have great potential for national industry; make good quality furniture, and thereby ought to be promoted because of their value-added potential." He believes the viability of these sawmills must be first demonstrated to the government. This leaves an opening for NGOs, which can afford to be more experimental and progressive. Further, the Minister would like technical assistance in choosing a kiln-drying technology to support local timber processing. Other ministries, including the Forestry Division, have been less supportive of village-based timber production, though for unspecified reasons.

The government will only reforest on registered land (thereby excluding large tracts of customary land from eligibility). The government is developing a reforestation policy and program and working with the community of Komunbuli on replanting. Reforestation requires many technical considerations and must be carefully planned.

Despite government reluctance to invest in environmental planning or protected areas, environmental awareness is increasing in Honiara and among rural landowners.

C. Non-Timber Forest Products. Official policy allows the export of wildlife, except for trade in turtle shells and coconut crabs. The government recently banned the export of certain butterflies. It is, however, difficult for customs officials to distinguish among species, and thus probable that some banned ones still are exported. As mentioned above, the ban on exporting coconut crabs has been waived by the Prime Minister on several occasions. Other loopholes exist to allow the export of two parrot species under the Wild Birds Protection Act of 1914.

D. Eco-tourism. Despite general attitudes described above, the government appears interested in promoting eco-tourism. Three such projects are now underway, one at Crocodile Lake on the West Coast, and one at Savo Island (to protect megapode birds).

COUNTRY PROFILE

PAPUA NEW GUINEA

Papua New Guinea (PNG) has a land area of 462,840 square kilometers and a sea area of over 300,000 square kilometers. The largest part of the country (85 percent) comprises half of the island of New Guinea, which is the world's largest and highest tropical island, and contains most kinds of environments except deserts. The rugged interior has isolated the human population into over 700 different language communities.

STATUS OF ECOSYSTEMS AND SPECIES

The geographic diversity of PNG has induced many genera of Indo-Malay or Australian origins to undergo speciation, particularly in the highlands where high peaks arising from ranges and separating valleys encourage isolation. Papua New Guinea has an exceptionally high rate of endemism: a recent study showed 6789 endemic species. The country has 200 mammal species, 708 aviafauna (including 43 of the 56 known bird of paradise species), 282 species of reptiles, 1465 fauna genera representing over 20,000 species, the richest mangrove flora in the world, and coral reef fisheries that have been characterized as among the world's richest (65 genera have been described in the Port Moresby area alone).

Throughout most of the country, the environment remains relatively undisturbed, especially in comparison to that of other tropical countries. Large tracts of tropical forest remain intact. Wetlands are extensive, especially in Sandaun, Sepik and Western Provinces. Mangrove swamps occupy large parts of the coastal areas, particularly on the South Coast in the Gulf of Papua along the river basins. The coral reefs are virtually pristine in many areas. Reefs are extensive in the Central, Bougainville, New Ireland and Manus provinces. There are also 1,480 kilometers of linear reefs associated with the Papuan Islands to the east of the mainland.

Despite the above, ecosystems and species prevalence in certain pockets, particularly where human populations are high and growing rapidly, are being degraded markedly. These include accelerated conversion of tropical forests to grasslands, soil and soil fertility loss in mid-montane valley systems, dynamiting and depletion of reef species (including giant clams about 200 years old), and pollution of terrestrial and marine ecosystems by mine tailings and chemical effluent from large-scale mining and agricultural production.

THREATS TO BIODIVERSITY

Causes of ecosystem destruction in PNG fall into two broad categories: natural disasters and human activity. The former include earthquakes, landslides, and lightening-caused forest fires. Within the latter category, ecosystem destruction by human activities is driven by two major factors: the high human population growth rate (2.3 percent per annum overall but very high in the highlands) which has led to an encroachment on forested land for agricultural and economic purposes and an annual rate of urban growth of around ten percent; and the pressures upon the environment induced by the transition from subsistence to cash economies. Thus, the major causes of ecosystem destruction are the following.

A. Commercial Logging and Associated Practices. Forest destruction in PNG has been estimated by the Asian Development Bank at 80,000 hectares per annum, of which 60,000 is caused by commercial logging and the rest by agricultural practices. There were 16 major timber operations covering some six million hectares as of 1985. These operations are particularly prevalent on the north coast of the mainland and on the islands of New Britain and New Ireland. The major problem with this logging is the environmentally unsound manner in which it is conducted. There is little planning and monitoring of logging activities, particularly by companies that have no long-term interest in maintaining PNG's ecosystems. Commercial logging as practiced in PNG is not leaving enough forest cover for a return to shifting agriculture, therefore its effects are often permanent. While selective logging is generally practiced and the appearance of the forest has not changed much, all the good species in commercially logged areas have been removed.

The government of PNG has often been unwilling or unable to regulate commercial logging within its borders. The complex and numerous factors involved include: corruption among government, industry and landowner leaders; inadequate resources applied toward monitoring the existing industry ; conflicting legislation; conflicts between the provincial and central governments; and unmonitored direct agreements between landowners and industry.

The low prices that commercial logging companies have paid to landowners causes local people to perceive that their standing forests are of low value. Given this, landowners often consider logging and subsequent cash cropping their most attractive economic option.

Ignorance paves the way for commercial logging as few people understand its large-scale impacts. Most of the pressure seems to come from the top (politicians) and the bottom (landowners) who are manipulated skillfully by a few individuals from their top (politicians) and the bottom (landowners) who are manipulated skillfully by a few individuals from their number who are educated

and/or corrupted, and that there are probably more people who want to sell their forest resources now than there are people to buy them.

B. Changing Agricultural Practices. With less than one percent of the land arable, agricultural pressure is very heavy on the dry lowlands and the highlands that are not too rugged and steep. The customary land tenure system and associated subsistence economy traditionally contain many forms of resource management and conservation, such as shifting agricultural practices and the protection and regulation of certain flora and fauna species. These are being overcome by changes to the shifting agricultural system and the introduction of the cash economy.

Shifting, swidden agriculture is the traditional and widespread form of agriculture throughout PNG. The area where good sedentary agriculture can occur is limited: it has been estimated that soils of high fertility and agricultural potential occur on only five percent of PNG's land area. With high human population growth in many of these areas, fallow periods have been shortened, resulting in some loss of forest cover. This forces people to begin cultivating on ever-steeper lands that are more susceptible to landslides and erosion: in some parts of PNG, women reportedly must rope themselves to the mountain ridges to garden on the steep slopes. Approximately 20,000 hectares of forest per annum are destroyed by agricultural practices and firewood collection.

The advent of cash cropping also encourages ecosystem destruction. It often leads to the degradation of natural forest, first by logging companies, and second by villagers encroaching on logged lands to plant cash crops like copra, coffee, tea and cocoa, or to use portable sawmills (wokabout somils) to complete the clearing process. The cash to be earned by both these activities is very appealing to the almost 90 percent of the population in subsistence agriculture. In this context, commercial logging is considered an effective method of clearing the land for cash cropping. However, often large tracts of land suitable for industrial forestry are too large for small-holder cash cropping, and clan groups cannot provide the high labor requirements for large-scale plantation agriculture. Degraded forest areas can then be taken over by secondary growth such as alang-alang (kunai) grass, which is very difficult to dislodge. Thus, disturbing the swidden cycle often leads to soil fertility loss, site abandonment,and burning grassland to replace these sites and to driving out animals to enable easier hunting, which causes soil erosion and even wider environmental degradation.

C. Use of Introduced Technology. Reportedly, in some areas of PNG the introduction of guns has enabled easier hunting of various birds whose feathers are integral to ceremonial costumes and need to be replaced continually.

D. Destructive Fishing Practices. Dynamiting, bleaching and localized overfishing have begun to damage marine ecoystems significantly since about 1988, especially in Port Moresby and Lae. Fishing communities within 60-70 kilometers of Port Moresby will use "any method" to catch fish for the market, and dynamiting often proves the easiest one. Dynamiting is also reported to occur in Lae, New Ireland and Rabaul. Since about 1982, the use of monofilament nets with varying mesh sizes began to contribute to overfishing by making fishing more efficient. The idea of protecting reefs as a source of food is only one of non-fishing coastal villages: fishing communities think in terms of fishing for income, rather than for food.

E. Pollution. Various riverine and marine ecosystems throughout the country are polluted by high siltation and effluent loads associated with soil erosion in coastal areas, especially from mining and waste disposal. Sewerage near urban centers is another factor, as in Port Moresby where houses of villages are build over the sea.

F. Commercialization in General. Refering to experience in developing export markets for snakes, black coral, beche de mer, trochus and clams, a government environmentalist noted that, "as soon as commercial interest is developed, you get overexploitation in specific pockets." Although seven species of birdwing butterflies are legally protected, illegal trade threatens their continued survival.

TENURE SYSTEMS

In PNG, 97 percent of land falls under customary (clan) ownership with the remainder either freehold or government-owned. Landowner claims extend to a few meters below the surface, and government claims begin thereafter. Unlike Polynesia, general rules of thumb for land tenure do not apply, except that the tenure enjoyed by coastal residents is considered to extend seaward to the reef. Customary law of land tenure consists of the customs of whichever of the 700-plus distinct cultures have occupied the land traditionally. The Constitution endorses explicitly the preservation of the traditional diversity that gives rise to this situation.

The major implications of the land tenure system to conservation are twofold: the high proportion of land held under customary ownership provides an uncommonly strong opportunity for conservation by appealing to landowners' inherent interests, and introduced conservation measures must be more decentralized than they would be in other countries with less customary land ownership.

There are four attendent considerations. First, the forests can be sold while the land beneath them always belongs to the custom groups. Hence, the land is never regarded as sold or alienated; rather, at most a temporary transfer of rights occurs.

Second, the making of binding decisions is described as "alien" to traditional Melanesian thought; therefore, customary landowners expect continual involvements in negotiations and decision making, even after initial commitments have been made. Third, the custom group that owns the land may be a clan (wantak, pidgin from "one talk"), a group of clans, or even a less-easily identified group. The basic unit of land ownership is the clan territory, within which individuals and family groups have particular rights. Additionally, there are overlapping rights to land use; and these are held not only by more than one person, but often by more than one clan and even more than one generation. Thus, individuals exercise land rights on behalf of the clan in perpetuity. Fourth, there is no central and legal registry for customary land which would define clearly both the perimeters of a claim and an understanding and agreement of how the income from the land's utilization will be distributed amongst clan members.

The emerging desire to solidify claims to land and give it value, particularly for cash-earning purposes, has led to the development of a movement to delineate and demarcate land claims by registration. Some oppose this trend because it might lead ultimately to land becoming a salable commodity, contrary to Melanesian custom. This notion has apparently been behind some communities deciding to declare their lands as Wildlife Management Areas. Such a practice may engender but does not guarantee conservation. It does not bind the villagers actually to protect the land or bar them from removing the Wildlife Management Area status in the future once the tenure claim is recognized officially (although no communities have done that yet).

Besides registration, converting natural forests to grassland or agriculture is another way to secure land tenure claims, thereby degrading ecosystems while not necessarily meeting subsistence needs.

ENVIRONMENTALLY RESPONSIBLE ENTERPRISE

A. Community-Scale. Environmental protection appears to be the motive behind some communal actions, for example: deciding not to take shells near a coastal resort in Port Moresby; declaring a 10-year ban of any activities on a four kilometer stretch of reef on the island of Tinga near New Ireland to allow the reef to regenerate; and local residents stalling a port development project in Lae because they were refused compensation for the havoc it would create to their shellfish fisheries over about two years.

1. Village-based timber production. Approximately 200 of the 420-450 wokabout somils throughout PNG are functioning. If used correctly, these can minimize damage to the forest canopy by felling large trees selectively and processing them on the spot. They may also enable villagers to complete clearing for agricultural purposes on previously logged land, thus sparing forested lands elsewhere from degradation.

Reportedly, villagers often come to the in-country manufacturer of the mills and pay cash for them, indicating a demand factor in the community-based sawmill industry. Some conjecture that the purchase of wokabout somils is encouraged actively at the political level as a means to redistribute industrial power: some villagers have even kicked out logging companies once they obtained wokabouts.

However, these mills must be employed carefully and coupled with education, otherwise "they will be as damaging as current logging practices . . . but at least the benefits will go to the people who own the resource." Strong support is coming from some government agencies, especially the Department of Environment and Conservation (DEC), and the Minister of Trade and Industry, and NGOs (including FSP) to develop a complementary and/or alternative logging industry of village-based timber production. The next step, being pursued actively by FSP and DEC, is to prove to the government that this industry is the way to go.

2. Butterfly farming. Several hundred farmers throughout PNG also supply butterflies and insects to the external market through a centralized exporter. Reliable information on how profitable or environmentally protective these enterprises are is not yet available.

3. New initiatives - Externally-initiated activities that may be both profitable and environmentally protective include:

   a. The Grassroots Opportunities for Work project in the Eastern Highlands seeks to improve agricultural techniques through organic and culturally appropriate means and to promote site-stable agriculture to replace shifting cultivation, and curb adjacent forest degradation while preventing erosion and soil fertility loss associated with it.

   b. The Artisanal Fisheries Extension Training Program supported by several donors encourages fishing entrepreneurs to improve fishing techniques within sustainable limits. In Manus, it has produced five different models of locally built, FAO-designed wooden canoes adapted to PNG fisherfolk needs, with modifications to traditional boat designs that increase the efficiency and cost-effectiveness of the boats for fishing and transport. The program is also working to develop a domestic alternative to imported fiberglass dinghies for village use; train PNG nationals in building, handling, sailing and maintaining the new boats; and developing a local boat building industry throughout PNG. The process retains skills, money and the product within Papua New Guinea.

The planks used for the boat construction may be integrated with village-produced lumber using portable sawmills.

c. Efforts to establish an eco-tourism industry are being undertaken by DEC and several NGOs.

B. Private Enterprise Scale

1. Portable Sawmill (Wokabout Somil) Production. An employee-owned company in Lae, National Equipment, makes portable sawmills in partnership with another firm. It became independent of its parent NGO in May 1990, and hopes to franchise. It is the only producer of wokabout somils in PNG. Approximately 450 somils have been manufactured and sold so far in PNG, of which an estimated 200 are in use. About 35 have been exported to Vanuatu and the Solomon Islands following their successful application in PNG.

   Villager demand for the mills is strong: individuals often come to Lae with hard cash to pay for the mills at a cost of 7,000 Kina (about US$7,700), then find that they are made-to-order. To avert adverse environmental impacts from this large demand, National Equipment trains people in mill use. It provides a training package (two-week course and manual) with each mill that is virtually compulsory before the mills are turned over to their operators. It informs provincial forestry officers when it sells mills to people in their jurisdiction (although landowners are not required to go through forestry officers to obtain wokabout somils), and offers the officers backup assistance and training in responsible mill operation so they can provide better extension services to mill owners and monitor the equipment's use and impact. Follow-up training and support for mill owners is included in the mill's purchase price.

2. Ecologically-Produced Wood Exports. A container of wood cut by portable sawmill from mixed hardwood species was just exported to a cabinet making firm in the United Kingdom.

3. Butterfly/Insect Farming. In PNG, it is estimated that commercial butterfly farming employs 500 local farmers, 15-18 nationals in quality control and export, and two expatriate technical advisors; and that there are three or four commercial insect farms in PNG. UNITECH Development and Consultancy Pty. Ltd. (UDCPL) reports that it purchases all the butterflies that farmers supply it - even at cost for some common types, then packages and exports them world-wide to fill orders, particularly to Europe and Taiwan.

UNITECH is reported to be the only entity with a license for marketing butterflies to the EEC because it employs "free-range" techniques. These methods draw specific types of butterflies from the wild by planting vegetation that the insects are attracted to lay eggs. Once the pupae hatch, farmers kill, package and mail the butterflies to UDCPL, which distributes them worldwide and operates the network via FAX. UDCPL also purchases and exports other types of insects. UDCPL reports that it sells 20,000 Kina (about US $22,000) of butterflies/insects a month, up from 12,000 Kina (about US $13,200) a year ago. Of this, farmers are said to receive 40 percent of the profits. The actual butterfly population increases.

4. Crocodile Farming. Three crocodile farms operate in PNG: in East Sepik, Lae, and Port Moresby. The one in Port Moresby is operated by the Department of Environment and Conservation. The one in Lae has 25,000 crocodiles, the largest such farm in the world, with export sales of K5 million. In Lae, the crocodile farm and a nearby chicken farm are said to have a complementary relationship: chicken offal feeds the crocodiles, and the crocodile meat feeds the chickens, other crocodiles, and is sold to the domestic market for human consumption. Crocodile skins and eggs are the major export product. New Guinea and Estuarine Crocodiles are also harvested as hatchlings from the wild and raised in captivity for sale in a scheme sponsored by FAO and UNDP.

   In the experience of the Department of Environment and Conservation, small-holder crocodile farms/ranches do not work, and the major interest in crocodiles is to realize sustainable harvests from the wild. This may be possible since DEC's crocodile monitoring through licensing fees shows that crocodile populations are increasing gradually after rapid declines during the 1960s due to unlicensed harvesting. This may be compatible with finding financially profitable uses for wetlands, as there are few economic alternatives.

5. Orchid Farming. has strong possibilities for import substitution and export, especially to Australia and New Zealand, and is being proposed by FSP for development.

6. Agroforestry. The integration of trees into farming systems may be compatible with cash crop production. Environmentally-sensitive commercial cash cropping may also create income for people while protecting nearby forested areas. A company based in Goroka markets an organic coffee that is grown without petrochemical input.

7. Mining-Support Enterprises. Mining companies indicate increasing interest in providing seed capital, training and extension to establish local enterprises (e.g. community-based timber production, fishing, engineering, road work, earthmoving and catering) near mining sites that supply miners, thereby providing long-term employment for resident nationals in mining regions, and averting problems of employment opportunities dropping once mine construction is completed, leading to rebellion by disenfranchised landowners. Kennecott has a full-time manager who oversees its small-enterprise support program with its one million Kina seed fund. It has assisted two businesses that use wokabout somils.

8. Consulting

   a. Environmental consulting. The University of Papua New Guinea has set up UNISEARCH. The university in Lae, UNITECH, has established UNITECH Consulting Services to provide environmental services, such as conducting environmental impact assessments for logging permits and other major activities. The consultants include professors from the universities.

   b. Small-business consulting. KUM-GIE is the first nationally-owned consulting company in PNG. Based upon a grassroots-up philosophy, it provides consultancy services in the practical aspects of small businesses, from cash flow to technical requirements; conducts training and education programs; and conducts feasibility and demand surveys and studies. It advises and supports nationally-owned businesses and core industries relevant to PNG developmental needs and encourages local spin-offs. It also has a loan guarantee system.

INDIGENOUS NGOs

A. National Association of Non-Governmental Organizations is a newly-established umbrella organization that coordinates environmental activities undertaken by NGOs in PNG. So far it has held meetings and is developing its constitution. Other NGOs support it widely and expect much of it. The head of the Wau Ecology Institute (see below) is the NANGO representative at meetings of the Task Force for Forest Management, chaired by the Department of Environment and Conservation as part of the Tropical Forestry Action Plan process.

B. South Pacific Appropriate Technology Foundation (SPATF) has long been involved in several PEP-like activities: operating an aluminum/non-ferrous metal recycling plant; working with a cane and rattan furniture factory; operating a village-supplied handcraft store; and conducting the research and development/production for wokabout somils. At present, this NGO is reportedly suffering cash-flow problems stemming from past management decisions.

C. Village Development Trust is newly independent of SPATF and has close ties to National Equipment (the company that produces wokabout somils), with which it is co-located. The goal of Village Development Trust is to bring industry into the hands of resource owners. It is conducting extension activities in wokabout somils, and hopes to initiate a seedling replanting program in conjunction with it. It has one paid employee and other volunteers. It is funded by FSP/United Kingdom through FSP/PNG.

D. Melanesian Environment Foundation (MEF) was created in 1986 with a mandate to promote landowner environmental awareness, especially related to logging and mining. It publishes environmental education materials and imparts the information through its traveling village-based literacy campaign. It has made some landowners so acutely aware of the value of their forest resources, how to manage them for the long-term, and alternatives to logging for cash incomes that they have written to MEF to ask how they can displace logging companies. MEF hopes to create information packages covering the legal steps landowners can take to redress environmental pollution, such as informing landowners that there is a legal basis for closing down logging companies when they pollute bodies of water. MEF has one U.N. Volunteer executive secretary and about ten committed student volunteers. A series of small grants cover MEF's program expenses, and the Department of Forestry donates its space and pays for its rent and electricity - - environmental protection and forestry acting in partnership. Supporting this organization would likely fill a critical niche in expanding profitable environmental protection in PNG.

E. Wau Ecology Institute operates a landowner awareness program, and is working on expanding food plant areas for insect farming. The representative from Wau is the NGO representative from NANGO on the Task Force for Forestry Management.

F. Friends of the Earth is addressing primarily forestry issues in PNG. Its activities include producing newsletters (forestry has been the major subject of its last four); running a one-day forestry seminar in November 1990 that included representatives from the academic, government, landowner and industrial communities; and conducting an environmental awareness campaign over twice-monthly half-hour radio programs.

It also introduced cash-cropping and agroforestry activities to a community in Medang Province that was searching for profitable alternatives to a logging company producing woodchips. The effort was so successful that it spread from one village to about five. Friends of the Earth has 20 paid members throughout PNG. It is trying to begin an environmental information center at UPNG, and to incorporate and fund students to attend an environmental science specialization within the degree program in Library Information and Science offered at UPNG.

G. National Council of Women has 35 institutional members: 20 provinces, five churches and five NGOs. It recently hosted a workshop on credit systems, viability and access for small-scale businesses in PNG. One of its objectives is to redress the bias of extension and credit systems towards men, and to reinvest in private motor vehicles, trade stores and other profitable enterprises. The Council is considering designing an environmental awareness program in the provinces to mitigate environmental disasters such as freshwater degradation. It is also interested in women's role in marketing community-based timber production within villages and communities, particularly in the New Ireland, Morobe, Sepik, Medang and Central Provinces. In 1991, the Council will implement literacy programs for women in 20 provinces.

H. Melanesian Council of Churches held an environmental conference in 1986 that led to the creation of the Melanesian Environment Foundation with the mandate to promote landowner awareness. Beyond this, the Council has no working environmental program at present.

I. The Research and Conservation Foundation (RCF) of PNG, Ltd. was incorporated in 1986 to promote and preserve the rich and unique flora and fauna of PNG, in particular to preserve Birds of Paradise in their natural environment. Several groups support RCF: domestically, Pacific Helicopter Group (Goroka), Trans Niugini Tours (Mount Hagen), the Biology Department of UPNG, the Department of Environment and Conservation (Port Moresby); and, overseas, Wildlife Conservation International; The Research Foundation of the City University of New York; and the Zoological Society of San Diego.

J. Yangpel Didiman/Lutheran Technical Services is involved in village-based small-scale agricultural enterprises.

K. Strat Pasim Stoa Association conducts training in store management.

NON-INDIGENOUS NGOs

Until recently, PNG garnered little attention from non-indigenous NGOs in the environmental arena, perhaps because of the lack of immediate threat to the environment, PNG's relatively small role in the world economy, and the lack of any endangered "charismatic megafauna." However, attention has been increasingly rapidly, advanced in part by PNG's recent TFAP development exercises. The Ambassador of PNG to the U.S. is recruiting many major international, environmental NGOs (in the PNG Interest Group) in Washington, D.C. to participate in saving the forests of PNG.
These groups may make serious commitments to undertaking environmental work in PNG. Activities by non-indigenous NGOs to
date in PNG include the following.

A. Foundation for the Peoples of the South Pacific (FSP)/PNG is the most active non-indigenous NGO in PNG: it has been involved significantly in the TFAP for PNG, working, among others, with the Department of Environment and Conservation. It works closely with indigenous PNG NGOs NANGO, SPATF and VDT on environmental activities, and also works with Wildlife Conservation International and the Peace Corps on eco-tourism and conservation efforts at Ubaigubi Crater Mountain in the Eastern Highlands. FSP/PNG has proposed several sensible conservation and profit-oriented projects, among them orchid farming and wokabout somils. FSP is the alternate NGO representative in the Task Force for Forestry Management chaired by the Department of Environment and Conservation to evaluate timber proposals until the TFAP is in effect.

B. Wildlife Conservation International has a research station in the PNG Eastern Highlands, and also supports eco-tourism to protect the habitats for birds of paradise at a nearby location.

C. Worldwide Fund for Nature (WWF) has given institutional grants to FSP/PNG, and also some funding to the Melanesian Environment Foundation.

D. Hans Seidel Foundation held a seminar in 1989 that brought together government, private sector (mining etc.) and NGO representatives, to find common ground.

E. International Institute for Environment and Development (IIED) produced a 53-minute videotape on landowner awareness, and conducted two consultancies in 1988 and 1990 at the request of SPATF and National Equipment, respectively, to consider the environmental impacts of the industry associated with wokabout somils.

F. Friederich Ebert Stiftung, a German NGO, supports KUM-GIE, PNG's first nationally-owned consulting firm.

G. The Summer Institute of Linguistics is a Christian organization that has a strong village base throughout PNG, particularly specializing in appropriate technology.

H. Australian Freedom from Hunger Campaign promotes non-formal education, including environmental awareness.

OTHER DONORS

A. The Australian International Development Assistance Bureau intends to support three activities under the Tropical Forestry Action Plan for PNG: Rapid Resource Assessment; institutional strengthening in the Department of Environment and Conservation for management of national parks, and support for the Task Force on Environmental Planning in World Heritage areas. Additionally, it is contributing A$76,000 to the Foundation for the Peoples of the South Pacific for forest utilization education work; and supporting research on bait fish biology and data collection for improved fisheries conservation and management.

B. New Zealand, Ministry of External Relations and Trade is "loaning" at least one of its employees to the PNG Government a mapping/forestry resource information advisor.

C. Japan International Cooperative Assistance provides technical assistance from fisheries gear experts.

D. South Pacific Commission operates a master fisherman program yearly at the request of Provinces for deep water fishing with trolling and handreels.

E. European Economic Community is in the process of discussing its next five-year program (1991-1996) with the Government of PNG. Under the TFAP, the EEC could be involved directly with environmental protection under a national program and do regional work. It already grants some scholarships to PNG nationals to study forestry and related subjects in Europe.

F. United States Peace Corps has many volunteers in PNG serving on rural community development projects. Some projects have possible parallels with PEP-like activities, such as the site-stable agriculture and income generation project (called GROW) in the Eastern Highlands. If this project is successful, it may be expanded into beekeeping in another location in PNG. A Peace Corp Volunteer is being recruited to work with the FSP/WCI Bird of Paradise eco-tourism project.

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G. International Labour Organization/UNIFEM of the United Nations worked with the National Council of Women to sponsor a 1990 workshop to assess the viability of a small-scale business credit system and the relationship of policy to credit (e.g. must women have their husband's signature to secure loans).

H. The United Nations Economic and Social Council for Asia and the Pacific may participate in the designation of World Heritage sites within PNG.

I. The United Nations Development Program is applying $2 million to write National Forestry Activities Planning Guidelines and to secure donors to support it. It is currently recruiting two foresters, one environmentalist and one NGO expert for the task.

J. The World Bank is the lead donor in the coordinating the Tropical Forestry Action Plan for PNG.

K. The United Nations Development Program has been involved in a series of forestry consultancies, forest management research activities and providing support for the TFAP, as well as conducting a fisheries sector survey and fish stock program for the Sepik River.

GOVERNMENT STRUCTURE

A. The Department of Environment and Conservation (DEC)

1. Forestry Activities. DEC would like to use the Tropical Forestry Action Plan (TFAP) as the vehicle for developing a network of biological diversity conservation areas, with the areas having various degrees of conservation. Initially, it is targeting to place 20 percent of lands under conservation status under the World Heritage criteria. This would include providing short-term incentives packages to include infrastructure (e.g. roads, bridges, aid posts, and schools), village-based timber production, and establishing an eco-tourism industry at a cost of about US $30-40 million. Over the next ten years, DEC estimates that these activities will cost US $100-200 million.

The short-term means of meeting these long-term objectives are to develop a landowners incentives document over the next six months to convince landowners and politicians that DEC has something to offer with respect to promoting environmental conservation.

Also, DEC chairs a task force for forest management which meets twice monthly to evaluate timber proposals until the TFAP is in effect.

2. Wildlife Activities. The Wildlife Division addresses wildlife, parks and marine issues. It has established several national parks and small reserves. It also contains a unit that operates a crocodile farm, does crocodile population monitoring through licensing fees, provides provincial governments limited extension in crocodile farming (advice to villagers on farming/harvesting). DEC is making K60,000 from management levies and K450,000 from customs taxes per annum on crocodile exports, yet still subsidizes the overall industry.

B. The Department of Forests has three divisions: Operations, Research and Training, and Management. It is widely regarded as understaffed and underbudgeted by about 200 percent to meet the constitutional goal of managing forested lands for the benefit of future generations. It is believed, by some, to lack direction. It mostly does planning. It has no extension services; nor does it raise seedlings for replanting deforested areas. The Department of Forests expressed keen interest in the U.S. undertaking the one-year Rapid Resource Appraisal under the TFAP to identify areas that need further conservation and study, and the more extensive five-year Forest Resource Inventory to identify sensitive areas to be spared from commercial logging.

C. The Forest Industries Council is a statutory body that merges government and private sector interests to develop and promote the timber industry in Papua New Guinea. Salaries are paid by large-scale commercial logging companies, but the wage scales are set by the government. The Forest Industries Council can inform industry about government policy but also work to condition that policy. It has just appointed a new executive director and Board, subsequent to the dismissal of the former due to the findings of the Barnett investigation into the timber industry. The new Executive Director is experienced, and the new board is composed of representatives from the government Departments of Forestry, Environment and Conservation, and Trade and Industry, and the Forest Industries Association.

A major objective of the Executive Director is to persuade logging companies to de-emphasize logging and marketing and increase emphasis on processing commercially logged wood domestically. Legislation on this is about to be debated.

Council funds budgeted to train small-holders in 1990 may continue in 1991, and could be applied to participants in community-based timber production/wokabout somils and implemented through UPNG or UNITECH.

D. Department of Public Works is responsible for roadbuilding, which generally entails consultations between the government and landowners. To construct a road, the citizens request it first. If the government wants to construct one and the landowners oppose it, the government must compensate the landowners.

E. The Fisheries Division is trying to move beyond its traditional production orientation, encouraged by politicians, to improving natural resource management and marketing. It has identified four major problems: overemphasis on production; insufficient research and understanding of species declines, particularly in the wake of changing technology and production increases; insufficient resource management research; and a need for examining fisheries management and marketing. To redress long-standing enforcement problems (as traditional marine management is weak), the Inspection Branch is becoming more active. In early 1990 it caught several people employing illegal fishing methods. Those found dynamiting were tried and fined K1,000 (about US $1,100). To promote environmental awareness, the Extension and Training Branch conducted a radio show on fisheries techniques and distributed 300 letters to fishermen about the disadvantages of dynamiting. To advance research and rationalize domestic fish marketing, the Resource Development Branch has established research stations in eight provinces with staff, vehicles, boats, cold storage, ice making and marketing facilities. In isolated areas, the government marketing outlets are reputed to function better than former private arrangements. To help PNG assure proper revenue from exported marine products, the Marketing Information Branch examines export prices of fish and cross-checks them with prices received internationally.

F. The Minister of the Ministry of Trade and Industry is eager to document within the next few months the economic viability of developing a village-based timber production industry based upon wokabout somil technology, as an antidote to persuade the government to replace large-scale commercial logging. His ministry has a small business department that provides extension services.

G. The Law Reform Commission is a permanent body provided for in the Constitution of PNG. While the Constitution does not define its purpose explicitly, the Commission has developed into essentially a research body. It reviews legislation in both theory and practice, evaluates it with respect to the Constitutional goals, and critiques existing legislation and recommends its reform. It does this through publications. It has no authority to act upon these recommendations. In 1989 the Commission began reevaluating aspects of natural resource development in PNG, including a broad review of national resource development policy, a study of adherence to gillnet fishing legislation by foreign vessels, and a critique of the Tropical Forestry Action Plan. Several of these studies have already been published.

H. Marketing boards exist for copra, coffee, and cocoa.

I. Provincial governments are the only link legislated between villages and the central government. One effect of the Organic Law on Provincial government was to transfer the majority of forestry field staff to provincial governments in 1978.

GOVERNMENT POLICY

A. Overall Policy. PNG has enshrined sustainable natural resource management and environmental protection in the Constitution, as follows:

- We declare our fourth goal to be for PNG's natural resources and environment to be conserved and used for future generations. Accordingly, we call for: Wise use to be made of our natural resources and the environment in and on the land or seabed, in the sea, under the land, and in the air, in the interest of our development in trust for future generations; and The conservation and replenishment, for the benefits of ourselves and posterity, of the environment and its sacred, scenic, and historical qualities; and All necessary steps to be taken to give adequate protection to our valued birds, animals, fish, insects, plants, and trees.

- Government forestry policy is to use forests to generate government revenue. Pressure to generate revenues from commercial logging is becoming particularly strong since the recent closing of the Bougainville Copper Mine.

B. Legislation. In general, environmental legislation in PNG is excellent. The problems lie in its implementation, monitoring and enforcement. The legislation includes the following.

1. Forest legislation is contained in the Forestry Act (Amalgamated) of 1983, the Forestry (Private Dealings) Act, and their subsidiary regulations. Forestry is also a subject under the Organic Law on Provincial government. Legislation is pending to re-centralize forestry responsibilities and make them responsive to a forestry board.

   The legislation provides for the issuance of Timber Extraction Permits which include requirements for reforestation as well as for protection for mangroves. The government may require timber harvesters and developers to reserve certain areas for wildlife.

Logging is forbidden within 20 m of permanent watercourses, within 50 m of major rivers and on slopes over 25°.

There are three means for exploiting forest resources Timber Rights Purchase is the method for large scale exploitation, under which the government acquires timber rights from willing customary owners with the royalties shared by the landowners, and the provincial and national governments. Timber Authority is mostly for the harvesting of small timber volumes by permitting forest inspectors to issue the authority for any person to purchase directly from customary owners. The Forestry (Private Dealings) Act enables customary landowners to sell their timber to any person provided that the Minister of Forests is satisfied that the owners' interests are protected, there is no conflict with the national interest, and the prospects for economic development are acceptable.

2. Environmental legislation. The Environmental Planning Act of 1985 requires that environmental planning be undertaken as part of project planning, including sociological and ecological impact evaluations. The Environmental Contaminant Act of 1978 affects air, land and water pollution. The Water Resource Act of 1981 affects the discharge of materials into waterways. The Conservation of Areas Act of 1978 provides for the protection of certain sites, lands, landforms, etc., that are considered part of PNG's national heritage. The Mining Act (Amalgamated) of 1977 provides for government control of all mining and prospecting activities and all land reclamation following mining. The National Parks Act of 1976 establishes a board to provide for the development of national parks. Other legislation has banned the use of cyanide powder in destructive fishing practices and pollution of the marine environment or dumping of waste at sea.

3. Protected Species Legislation. The Fauna (Protections and Control) Act of 1966 provides for the establishment of Wildlife Management Areas including Sanctuaries and Protected Areas for land held under customary tenure, provides for the protection of certain threatened species of wildlife (but does not limit hunting by indigenous people using traditional methods for non-commercial purposes). Under the Act, certain species have been declared protected (including undersized brown and rainbow trout, all birds of paradise and several others, seven butterfly species, some fish, dugongs and an echidna, and Boelen's python); declared that only citizens of PNG can hunt or keep protected wildlife; declared areas of land to be sanctuaries or Wildlife Management Areas (and provided for landowner owners to form a management committee, draft management plans and rules and direct management practices) and appointed rangers to enforce the law.

The Crocodile Trade (Protection) Act of 1966 regulates the size of crocodiles taken, requires licenses to buy or export crocodile products, and requires that reports of these activities be made. These laws seem to be having a positive impact in increasing the number of crocodiles in PNG.

PNG is a member of the Convention on International Trade in Endangered Species and protects and seeks to prohibit the export of wild orchids. The problem of wild orchid exports was highlighted most recently by the massive export of wild orchids by an expatriate group touring in PNG. The Government of PNG enacted new ordinances swiftly in the wake of this event.

The Customs (Prohibited Export) Regulations of 1973 require that any person wanting to export any kind of wildlife, dead or alive or any animal parts, must have a written permit from the Conservator of Fauna. Further, a 1975 government decree permits only PNG nationals to export non-protected species for profit.

4. The Fisheries Act of 1974 provides for a system of licenses to control over-exploitation of marine resources.

C. Trends. Environmental protection has not yet developed into a major political issue in PNG. Currently, environmental issues revolve around landowner benefits and government corruption, and shortages of personnel and finances to monitor the existing logging industry. These were highlighted in the Barnett Inquiry, resulting in the firing of many government officials, and in a 1990 review conducted by the World Bank for the Tropical Forestry Action Plan.

The Government of PNG has been slow to prosecute corrupt politicians implicated by the Barnett Inquiry, who include the current Deputy Prime Minister. The current attempt by the Minister of Forests to make exceptions to his own ban on issuing new logging contracts also brings the Government's commitment and political will towards conservation into question. Further, the closure of the Bougainville Copper Mine is eliciting calls for accelerated exploitation of other natural resources to replace the lost revenue. Nonetheless, the majority of government officials contacted appear genuinely interested in conservation and are somewhat aware of its benefits. Several actions indicate this, including the government-initiated requests for independent reviews of forestry management (the Barnett Commission) and policy (the World Bank Review). Also, its readiness to act upon the recommendations of these reviews, exemplified by the recent decisions to seek World Heritage status for several sites and establish a commitment to sustainable forestry, suggest grounds for optimism.

With respect to logging, there is a general sense that the government is amenable to community-based timber production involving portable sawmills, although it has yet to address it significantly at the policy, extension and marketing levels. Professionals both inside and outside the Department of Forests believe that policy guidelines should be drafted before this industry becomes entrenched in PNG, and that the industry needs government promotion, backup, and regulations to promote and protect it, particularly to face the stiff competition and likely opposition from existing logging interests. Further, good marketing for the wood is needed. At present, provincial authorities have greater control than the central Government on the use of wokabout somils, should they wish to wield it.

COUNTRY PROFILE

TUVALU

STATUS OF ECOSYSTEMS AND SPECIES

Tuvalu is consists of nine coral atolls (eight of them inhabited), with a total land area of 25.9 km^2 and a sea area of 1.3 million km^2 (900,000 km^2 of which is declared EEZ).

Tuvalu's economy is basically at the subsistence level. The only cash crop is copra, and there is no tourism. Marine resources are the country's most promising asset, but the lagoon fishery resources are being depleted in Funafuti. Turtles and birds have become scarce. Non-biodegradable rubbish, particularly empty imported food tins is causing increasing waste disposal problems, particularly in Funafuti. However, it is used to fill in borrow pits.

Freshwater lenses are few and not used for drinking water. Instead, people use catchments.

THREATS TO BIODIVERSITY

A. Overfishing is becoming a problem in Funafuti. License fees for fishing are an important source of revenue.

B. Introduction of New Species such as trochus and Tridacna derasa (a giant clam), may lead to a decline in indigenous species.

C. Overhunting of turtles and white and black seabirds is occurring.

D. Lack of understanding of adverse environmental impacts/and limited future orientation. People are just beginning to realize the long-term nature of adverse environmental impacts. For example, women on Funafuti now realize that buried plastic rice bags will not degrade when composted with other matter.

ENVIRONMENTALLY RESPONSIBLE ENTERPRISE

A. Community Level. Some island council presidents and their elected members have restricted some fishing activities to protect the environment.

B. Business Level. Clam shells are sold to the domestic market in Funafuti, and exported to Fiji and New Zealand. Taiwanese interests have advanced a proposal to develop black coral in Tuvalu.

The copra co-operative is investigating possibilities to diversify by exporting whole coconuts, particularly to Pacific islanders living overseas in Australia and New Zealand. A local group has purchased an aluminum recycling operation initiated by Save the Children.

INDIGENOUS NGOs

The Tuvalu Women's Committee and Tuvalu Women's Council are very strong. They have established small handcrafts centers on different islands.

DONORS

A. Governments. New Zealand, Australia, United Kingdom, Canada, Korea, West Germany, and Japan have all provided or planned to provide technical assistance and/or equipment to develop the fishery sector.

B. UNDP has also provided technical assistance and/or equipment to develop the fishery sector.

C. SOPAC is prospecting in the area for manganese nodules and black coral.

D. UNICEF has a vegetable gardening and nutrition project.

GOVERNMENT

A. The Agricultural Department is the focal point for SPREP. It is proposing to establish an environmental unit as a separate body that will have its own constitution/mandate.

B. Fisheries Division, Ministry of Commerce and Natural Resources is undertaking a complete review of the fisheries sector. The Fisheries Ordinance of 1977 provides for the conservation and management of fisheries resources. Deep water fishing is strictly regulated, and use of explosives is forbidden.

COUNTRY PROFILE

FIJI

BACKGROUND

Fiji is an archipelagic nation consisting of over 300 islands. The two largest of these, Viti Levu and Vanua Levu, make up 87 percent of the total land area. Fiji's islands are mostly volcanic, with numerous low lying atolls and elevated reefs lying to the east towards Tonga. The two largest islands have a diverse range of terrestrial ecosystems, including extensive remaining areas of indigenous forest. They also have distinct wet and dry ranges due to prevailing wind patterns. Arable land for agriculture and flat land for industrial and urban development is limited. Coastal ecosystems include mangroves, algae and seagrass beds in shallow reef and lagoon systems, and various reef types such as barrier, fringing platform, and atoll reefs.

STATUS OF ECOSYSTEMS AND SPECIES

A. Ecosystems. The tropical rainforest and reef-lagoon systems play central roles in Fijian lives, especially for indigenous Fijians. The tropical forests have historically provided housing materials, fruits, and medicinal leaves and roots, while the reef lagoons provided rich feeding and spawning grounds for fish populations. Fish is a diet staple for most Fijians.

The pursuit of economic development has entailed several environmental costs, including:

1. increasing pressure on coastal ecosystems for industrial, tourist, and agricultural developments;

2. eroding watershed catchments and steep uplands through unsound agricultural and forestry practices, leading to downstream siltation effects and degraded water quality;

3. polluting air and water from industrial and agricultural development;

4. losing natural shorelines from filling to create more land, and;

5. in general, converting previously undisturbed lands with little or no land use analysis, planning, or environmental management.

The adverse impacts to the South Pacific's only sand dunes at Sigatoka by cows and fires is a specific example of ecosystem degradation.

B. Species. Fiji has an exceedingly high rate of species endemism. For example, of the approximately 2500 vascular plant species found in Fiji, some 50 percent are endemic while some 40 percent have been introduced. Fiji has 27 species of reptiles and amphibians, including eight endemic (and threatened) species and one endemic genus. Sixty-eight native bird species remained in Fiji as of 1984, while five of Fiji's native bird species are now extinct. Three endemic fruit bat species are considered threatened, as are 18 invertebrate species, 13 bird species, and seven mammalian species.

THREATS TO BIODIVERSITY

Development pressure and population growth threaten lowland ecosystems. General environmental declines result from accelerated timber harvesting in the uplands; soil destruction from overgrazing, deforestation, and mining; and the spread of anthropogenic grasslands as a result of fire and overgrazing.
Indigenous forests in Fiji undergo degradation from both human activity and natural events. Commercial logging has somewhat polarized indigenous Fijian communities, as perceived economic values often clash with the traditional cultural values of forest resources. Disputes over land ownership, and thus the rightful claim of timber royalties, are common.

Investors in logging operations are reluctant to make the long-term commitments necessary for proper forest management and reforestation. Instead, they prefer to reduce their liabilities by cutting and departing in the shortest time possible. Moreover, abandoned logging roads provide easy access for additional land clearing and human settlement, further reducing total forest productivity. In 1983, heavy rains caused serious landslides in logging areas on Viti Levu. Apart from the loss of human life, massive siltation of important fishing grounds resulted.

The sale of conch shells for quick cash is responsible for a growing imbalance in reef ecosystems. Conch is a natural predator of sea urchins, which in turn consume live coral. Coupled with siltation, which gradually suffocates the coral polyps forming the reef, this general imbalance in the natural community can lead to serious decline in productivity.

Illegal fishing techniques, including dynamiting and poisoning, continue, sometimes with devastating effects on inshore fisheries.

TENURE

Customary lands comprise 83 percent of total land area in Fiji. Indigenous Fijians own approximately 70 percent of the total land area and fishing grounds. The proprietary land owning unit is the mataqali. Some 430,186 hectares (28%) of mataqali land is leased for various activities, ranging from forestry to urban development. The Native Land Trust Board administers approximately 25,000 individual leases on behalf of traditional land owners. Of the remaining land area, 8.4 percent is state land (80% of which is leased), and 8.2 percent freehold. Of the latter, freehold land can be sold, but only to residents of Fiji or with approval from the Ministry of Finance (generally for development projects).

PROFITABLE ENVIRONMENTAL PROTECTION

A. Community Scale

1. Financing. The Fiji Development Bank has a special loan program for indigenous Fijians, and tries to encourage enterprise development that would have conservation spinoffs. Apparently, few Fijians have taken advantage of this opportunity, however, while many have borrowed money to operate taxi or other 'fast cash' businesses.

2. Timber. Community-scale timber production involving landowner groups, such as practiced in the Solomon Islands and Papua New Guinea, does not occur in Fiji. However, small Fijian-owned lumber processing companies are springing up throughout the country.

3. Tourism. Tourism is one of Fiji's main revenue sources, with more than US$327 million collected in gross receipts last year. 1990 tourist arrivals are up 15 percent over total figures for 1989 of over a quarter million visitors. The Fiji Tourist Bureau projects visitor arrivals to surpass the 400,000 per annum mark by 1995. Most of this tourism is conventional. However, the potential for community-scale tourism and/or eco-tourism opportunities appears considerable.

   Twenty to thirty SCUBA dive businesses operate in Fiji, mostly from the major resort hotels. Access to reefs is subject to customary reef owners who often demand compensation from the business owners. For example, one operating from the Pacific Harbor resort on the Coral Coast of Viti Levu pays $100 per month to a reef owner. However, two other customary groups have recently claimed ownership of the same reef area and requested similar compensation.

There are several village-level tourist operations:

- One that began in 1990 takes tourists on day trips up the Navua River by villager-operated boats to a traditional village where they are accorded the Fijian welcome ceremony, served a lunch of local foods, sight-see waterfalls in the area and go swimming. All fees collected from the tourists are paid into the village account. The Ministry of Tourism assists in advising the villagers. Profits generated during the project's first six months of operation totalled F$17,000.

- At Yanuca Lailai, tourists pay for Fijian-style accommodations and meals in a local village.

- In Waikatakata, one scheduled to open by the end of 1990 will have forest walkways, picnic sites, hot spring pools and swimming pools. Visitors will be charged entrance fees, of which the landowners will receive some amount. It is being developed with assistance from the Ministry of Forestry and SPREP.

- At Bouma National Park in Taveuni, villagers have built small shops that sell shells, clothing and T-shirts with their own design to tourists who come to the coastal village to see terrestrial ecosystems. Approximately 200 visitors from the all over the world sign the visitors book at Bouma each month. This project benefits local landowners through tourist-generated fees.

- A trekking route from Lautoka Town to the Abaca Village and its waterfalls (Waikaka Falls) has fallen into disrepair due to a dispute between the villagers and their chief over the use of fees levied on hikers. Reportedly, the chief misused the funds and the villagers lost interest in the project. This project was first organized by a Peace Corps volunteer.

B. Private Enterprise Scale

1. Tourism. Fiji is a world reknowned tourist destination, famous for its white sand beaches and prolific marine life. Most of the numerous resorts in operation offer diving or other water sports. While the conservation of marine and other natural resources adjacent to these developments ought to be a logical priority for the operators, they have made no systematic attempt to ensure that the proper monitoring occurs, or to investigate opportunities for restoration or enhancement.

The expansion of the lucrative Japanese tourist trade, which supports the bulk of many dive businesses, is expected to continue into the immediate future.

2. Recycling. There is only one local commercial waste recycling company: it purchases old vehicle bodies and exports them to Japan for recycling. The local brewery also recycles beer and soft drink bottles. A comprehensive study of Fiji's waste stream, including quantities, types, and potential for recycling or reutilization, could help Fiji significantly in addressing its waste management challenge.

INDIGENOUS NGOs

The Fiji Council of Social Services (FCOSS) is an overarching national body that organizes non-governmental organizations. FCOSS is responsible for coordinating all requests for funding from any organization other than the Fiji Government. While this type of coordination has merit in enabling some NGOs that are less successful in competing for overseas funding, some believe that the more established NGOs should be free to request overseas assistance independently of the review of the national board.

FCOSS recently began supporting environmental awareness workshops for the NGO community. It has formed environmental working committees in Suva, Lautoka, and Labasa, though their exact function is not well understood.

The South Pacific Action Committee on Human Ecology and the Environment (SPACHEE) is an established NGO with the primary goals of environmental education and activism. Its main strategy is to improve communication and encourage cooperation between NGOs interested in environmental management, environmental and human ecological research, and education in the University of the South Pacific (USP) region. SPACHEE also aims to provide seed money to environmental groups throughout the South Pacific and to establish an environmental resource center at the University of the South Pacific.

NON-INDIGENOUS NGOs

A. The Foundation for the Peoples of the South Pacific (FSP) has its regional office in Suva. FSP has several environmental protection and sustainable resource development elements, including vegetable garden rotation, contour gardening, backyard gardening and fish farming. It supports the Komiti for the Advancement of Nutrition and Agriculture (KANA).

B. The World Conservation Union is supporting international consultants to develop Fiji's national environment strategy.

OTHER DONORS

A. South Pacific Regional Environmental Program (SPREP). SPREPs major project in Fiji for 1990 entails a grant of $8,000 to the Waikatakata Archeological Park and Forest Reserve in Nadroga Province, which is being developed as an eco-tourist site.

B. United Nations Development Program. The UNDP organized and funded the South Pacific Regional Workshop on Environmental Management and Sustainable Development, held in Suva in early 1990. Total funding for the five-day workshop was US$60,000.

C. Asian Development Bank (ADB). The ADB supports environmental projects through its technical assistance grants. In Fiji, ADB has approved: environmental management planning (US$60,000); and regional technical assistance to SPREP for an Environmental Impact Assessment Training Course (US$70,000).

D. Australia (AIDAB). AIDAB has contributed A$12,000 to the Waikatakata Archaeological Park and Forest Reserve project.

E. Government of New Zealand. The New Zealand Government is funding a similar Park and Forest Reserve project in Bouma, Taveuni to benefit local landowners through tourist-generated fees at the coastal village with waterfalls. It has donated NZ$50,000 for the project, to be used in part for additional on-site training. It has also contributed NZ$15,000 toward planting pine forests in Fiji, and funded most of the mahogany reforestation scheme.

F. United Kingdom (UK). The UK contributed F$22,000 to upgrade swimming pools, hiking trails, and picnic sites at the popular Colo-i-Suva Forest Park near Suva.

G. France. The French Government is funding the Fiji Coconut Tree Rehabilitation Project on Mua Estate, in Taveuni. The estate is owned by the Fiji Government, and a total of F$360,000 is earmarked for the project. Two French scientists are working for the Ministry of Energy and the South Pacific Applied Geoscience Commission (SOPAC) in studying ways to prevent coastal erosion.

H. The International Union for the Conservation of Nature has engaged consultants in fields such as economics, pollution, legislation, remote sensing and coastal zone management to assist development of the Fiji National Environment Strategy.

GOVERNMENT STRUCTURE/ATTITUDE

The Government of Fiji has several ministries whose activities relate to the environment, the Ministries for: Forestry; Primary Industry (includes the Department of Agriculture and Fisheries); Lands and Mineral Resources; Tourism, Civil Aviation and Energy; Finance and Economic Planning; Education; and Housing and Urban Development.

A. Environmental Management Unit. Within the last resides the Department of Town and Country Planning, and within it the Environmental Management Unit. The basis of the Environmental Management Unit was provided for in the Town Planning Act. This Unit is responsible for performing environmental impact assessments of development plans, including providing policy advice for economic summits, the South Pacific Forum etc.; and for conserving natural and cultural resources through the preparation of Town Planning Schemes. It is Fiji's focal point for administering the environmental activities of SPREP, UNDP, ESCAP, etc. Its single largest undertaking is the two-year development of a national environmental strategy called the "National Environmental Management Project." This project has four stages:

1) a national environmental assessment, the major thrust of which is to identify ecologically sensitive areas. The methodology to be used (e.g. priority, use, intrinsic value etc.) has yet to be determined;
2) assessing the institutional and legislative situation and drafting proposals for change to improve it;
3) drafting detailed management plans for two to six ecologically sensitive areas; and
4) establishing environmental monitoring procedures. One or more local NGOs will be contracted to conduct a public environmental awareness campaign throughout these four stages.

The Environmental Unit has also participated in a Fiji Roundtable Meeting on national development assistance, which has a single project proposal that links the development of national parks and reserves with heritage conservation.

Additionally, the Director of Town and Country Planning chairs Fiji's Environmental Management Committee, which comprises representatives from both the government and NGO communities: the National Trust for Fiji; the Central Board of Health; the Departments of Forestry, Fisheries, Energy, and Mineral Resources; the Meteorological Office; the Ministries of Lands and Labor; the Central Planning Office; and the Institute of Natural Resources at the USP.

B. Ministry for Forestry. The Ministry for Forestry is working to develop the Waikatakata Archeological Park and Forestry Reserve in Nadroga Province.

Also, chaired by the Deputy Conservator of Forests, A committee to draft a Fiji National Code of Logging Practice was established in 1986. The seventh draft of the Code was completed in July 1990, and has been distributed by members of the Forestry Training School to the 37 Timber Production Supervisors of the Forestry Department. The Code attempts to standardize the timber industry's logging practices to ensure that worker safety and the environment (specifically proper road construction and selective clearing) are not compromised in the push for greater production.

GOVERNMENT POLICY EVOLUTION

A. Policy Statements. The Environment Policy and Strategies paper presented during the Fiji National Economic Summit in 1989 states the government policy as: "to integrate environmental management into the planning and development process in order to safeguard the environment and its regenerative capacity while improving economic productivity of resources."

The development plan (DPIX) states the aim of the Fiji Government as the: "maintenance of Fiji's healthy environment through protection and conservation of its unique features and the judicious utilization of its resources (which) form an integral part of development."

B. Policy Actions. In April 1989, the Cabinet approved a technical assistance grant from the ADB to strengthen the Environmental Management Unit of the Department of Town and Country Planning. The project will have major implications for environmental conservation and management in Fiji: setting in place legislation and providing the basis for an EIA process. The establishment of the Environmental Management Unit 18 months ago, other recent policy initiatives, and Fiji's participation in a recent world climate change meeting in Geneva indicate that Fiji's government is committed to developing an effective national environmental program.

In 1988, the Cabinet agreed to establish the Sigatoka Sand Dunes National Park, Fiji's first. The area is significant not only for its unique dune formations, but also as one of the most important archaeological sites in the South Pacific. The National Trust of Fiji will oversee the project and enforce park regulations.

C. Legislation. Fiji has several laws related to biodiversity conservation. They include: Native Land Regulations, Native Lands Act of 1905, Birds and Game Protection Act of 1923, Public Health Act of 1937, Native Land Trust Act of 1940, Fisheries Act of 1942 plus Regulations of 1965-72, Town Planning Act of 1946, Forests Act of 1953, Land Conservation and Improvement Act of 1953, Water Supply Act of 1955, Land Development Act of 1961, Mining Act of 1966,

Continental Shelf Act of 1970, National Trust Act of 1970, Pesticides Act of 1972, Land Sales Act of 1973, and Harbor Act of 1974.

Fisheries regulations enacted in recent years established size and/or export limitations on several species, including sea turtles (shells for export), lobsters, deep water snappers, mangrove crabs, and various reef and lagoon fishes.

Among other protective measures, Fiji has prohibited the export of unprocessed turtle shells and the sale of turtle eggs during their four-month breeding season.

D. Conventions. Fiji has ratified several international treaties or conventions. They include: Convention of the Continental Shelf, Convention on Fishing and Conservation of the Living Resources of the High Seas, Convention on the High Seas, Convention for the Protection of the Natural Resources and Environment of the South Pacific (SPREP Convention), International Convention on Civil Liability for Oil Pollution Damage, International Convention on the Prevention of Pollution of the Sea by Oil, International Union for the Conservation of Nature, Plant Protection Agreement for the South East Asia and Pacific Region, South Pacific Forum Fisheries Agency Convention, and the UN Convention on the Law of the Sea.

In September 1989, the Fiji Government acceded to the "Convention for the Protection of Natural Resources and Environment of the South Pacific and Related Protocols", and the "Convention of Nature in the South Pacific."

In November 1989, Cabinet acceded to the "Convention Concerning the Protection of the World Cultural and Natural Heritage," otherwise known as the World Heritage Convention.

In October 1989, the Fiji Government signed the Montreal Protocol on "Substances that Deplete the Ozone Layer".

Fiji, would like to sign the Convention for International Trade in Endangered Species, but first supporting legislation
will be required.

COUNTRY PROFILE

KIRIBATI

Kiribati, comprising 33 atolls, with a land area of 280 sq. miles and an ocean expanse of 2,000,000 square miles, is the largest coral atoll nation, in sea area, in the South Pacific. All the islands except for Tamana have lagoons.

The 66,000 people live mainly on the wetter northern islands, one-third of them around the government center of Tarawa, where the small cash economy is centered.

STATUS OF ECOSYSTEMS AND SPECIES

A. Ecosystems. The atoll ecosystems of Kiribati remain largely intact from devastations from natural causes. Due to the low elevations of the islands, however, the entire country is very susceptible to the adverse affects of possible sea level rise.

The forests are dominated by coconut trees. Copra is the major source of income. Coconut trees apparently are being destroyed faster than they are being replaced.

In areas with high human population concentrations, particularly Tarawa, water quality and the abundance of reef and bottom fish have decreased dramatically.

B. Species. There are numerous types of corals throughout Kiribati: red, white, blue ridge, brain and black.

THREATS TO BIODIVERSITY

Net human population growth at approximately two percent annually is causing the largest impacts upon the environment, particularly in Tarawa, which has population concentrations rivaling that of Hong Kong.

To terrestrial ecosystems, coconut forests are being cleared to construct homes and build roads. In Tarawa alone, nearly 3,000 trees have been felled to make a road. Normally, these trees would only be cut and burnt once they become senile and were no longer able to produce copra.

Natural increase in human population has injured water quality and depleted the abundance of fish for human consumption. Terrestrial and marine ecosystem degradation may likely increase as the bridges and causeways being constructed in North Tarawa make the area more accessible and affect nutrient systems in the lagoons.

Fishing methods practiced by foreign operations may be having adverse impacts upon fisheries: gill netting (pelagic drift netting) occurs in Kiribati waters, often unobserved due to the difficulty and expense of surveillance within the Exclusive Economic Zone; overfishing migratory tuna stocks is another possibility; as is the likelihood that foreign vessels may be making private arrangements on rural atolls for purchasing turtle, lobster, giant clams etc. in excess of their reproductive capacities.

Bulldozing to construct new houses and widening the road, has caused the destruction of nearly 3,000 trees in South Tarawa, the capital of Kiribati. In the outer islands people cut and burn the trees that are unproductive. They do plant the coconut seedlings, but it takes more than five years for a coconut tree to bear fruit, depending on the variety. The babai pit which is dug down to the water lens level can also be a cause of soil erosion. Apart from coconuts, the babai, breadfruit, pandanus, te-non,te-ren are important trees on the islands. The Kasaurina has been introduced to prevent soil erosion. The Ministry of Natural Resources and Development has agricultural assistants posted on many islands to help in research and coconut replanting. They however have limited training and knowledge about which trees and plants need to be protected and promoted. Planning is virtually nonexistent as far as agroforestry or horticulture are concerned.

Lagoon and Reef Degradation.

Many people have noticed in recent times a marked decrease in biological productivity in both the lagoon and the reef. Some of the notable causes are as follows.

Overfishing.

Fish is I-Kiribati's staple food, so every family consumes an average, of four to six pounds of fish per large meal. If the catch is good then extra fish is salted and dried.

The 'Te Mautari' is the national fishing corporation. It catches on an average 462.3 metric tons within six months, for export. There is no environmental control. The fish normally caught are (1) skip jack, 80-90 percent, (2) Beak Eye, and (3) Yellow fin tuna. Fish under four lbs are not accepted in overseas markets, so are sold locally.

Sand Mining.

The removal of beach sands illegally for the construction of family homes is common. The Land and Tenure department has put up signs on South Tarawa beaches declaring this a prohibited act. But the damage has already been done. At high tide the waves cross over from the oceanside to the lagoon side, over the causeway, because there is no beach. A beach renourishment could be useful.

Waste Water Disposal

Sewerage threatens the water lens, the lagoon and the reef because there are no public sewerage systems. The local houses have either no toilets or do not build them with Septic tanks. Consequently, cess pools are formed that seep into the water lens. On the other hand, the sewerage pipe from the hospital is taken far into the ocean for disposal.

Construction in sensitive coastal areas

The development of a 300 Bed hospital and a 40 room hotel have been implemented without addressing environmental issues.

Coral harvesting

A coral export firm sells at 45 cents per coral to an export firm in Fiji, which in turn exports to the U.S.A. They have recently been asked to stop harvesting coral from South Tarawa, and go to the outer islands. The exports are Blue ridge coral, red coral, and white finger coral. The export firm also sells clam shells in all sizes. Aquarium fishing is done by a private entrepreneur.

TENURE

A. Land - In Kiribati, te kainga (clan) is the basic landowning unit, which usually consists of the eldest child te batua (head of the family) and his/her siblings and their families. Land is owned collectively through this eldest child, who determines the daily agricultural work to be performed on it by family members. Land is transferred intergenerationally both maternally and paternally from the eldest child. Traditionally, clans own land on many islands, such that on average one clan will have claim to land in at least 2/3 of all the islands throughout Kiribati. This leads to the dispersed clan-owned lands being visited and maintained irregularly, and is one reason for failure of these lands to produce high yields.

Additionally, each island has an Island Council, which is responsible for people and their lands in a local form of government. Thus, land issues are handled through both clans and Island Councils.

Individual trees (e.g. coconut, breadfruit and pandanus) and plants (e.g. babai [swamp taro]) belong to the landowner.

ENVIRONMENTALLY RESPONSIBLE ENTERPRISE

A. Community-Scale - On Abiang Island, people cultivate seaweed and sell it for cash to collectors who come from Tarawa. The collectors transport it to Tarawa and export it.

Copra production is the major economic activity throughout Kiribati. Copra is sent to Tarawa and marketed though the Copra Export Board.

B. Private-Sector Scale - As noted, a firm in Betio-Tarawa collects and exports blue ridge coral, white coral and giant clam shells.

Another firm exports aquarium reef fish, which may or may not be conducted at "sustainable" levels.

In Tarawa, there is a market for small-scale commercial fisheries products, including various tunas and bottom fish, sold largely through the Te Mautari fishing company both locally and abroad (to Fiji). Otherwise, subsistence fishing is practiced throughout the country.

Pandanus, breadfruit, coconut and shellfish are sold, as is agriculture produce that includes pumpkin and papaya.

Local NGOs and small stores conduct profit-oriented handicraft businesses, selling products made from pandanus and coconut. The leaves of both these trees are utilized but the tree left standing. Dried, fallen Pandanus leaves are also utilized for roof thatching.

NON-GOVERNMENTAL ORGANIZATIONS

A. The Foundation for the Peoples of the South Pacific is engaged in a home gardening promotion project with the Ministry of Home Affairs concentrating on local plants and fruit trees.
FSP had helped in establishing a Solar Energy Corporation which is now a owned by the Government. With funds from USAID, a Control and Prevention Project on Vitamin A deficiency will help to protect Kiribati's, Vitamin A plants and promote the marketing of all growable vegetables.

B. Partners in Progress is establishing a seed center.

C. Local NGOs (i.e. AMAK, Catholic Women's Association, and Girl Guides) conduct profit-oriented handcraft businesses, selling products made from pandanus and coconut.

D. Greenpeace has made a visit.

OTHER DONORS

A. Australia has funded the construction of bridges and causeways on North Tarawa.

B. U.S. A.I.D has a project on lagoon ecosystem research with the Atoll Research Unit of USP in Tarawa as part of PIMAR.

C. The European Economic Community is providing tuna vessels and training to Kiribati.

GOVERNMENT STRUCTURE

The Ministry of Natural Resources has two major departments, the Fisheries Department and Agricultural Department. There is no environment desk.

The Fisheries Department is in charge of the Te Mautari fishing corporation which exports fish to PAFCO FIJI. Every six months, some 4623 metric tons of fish are caught and an average income of US$720 per ton is received. The Skip Jack is in greater demand than the Break Eye or Yellow Fin Tuna.

The Seaweed Project is for export to Denmark. Abaiang islanders do sea-weed farming and send dry sea-weed to Tarawa. According to information received they get an average of US$675 per metric ton. The government plans to form a company in 1991. Milk fish farms are set up in Temaiku and Ambo in South Tarawa, Beru and Malana. The milk fish is a cultured bait which sells in Tarawa for AU$2.50 kg. Nauru and Marshall islands also buy the fish. A thirteen fish farms construction project is to be funded in the coming years by Japan.

The Fisheries Department is encouraging giant clam forming in Abemama, Tarawa, Beru and Abaiang.

The Agriculture Department. Local Government Councils have an agricultural assistant on each island to help the people in coconut replanting and growing of other trees. There is a grow-a-tree-day in November, when all over Kiribati trees are planted.

No department has made an attempt to record agricultural or marine practices in detail. A Culture Center is being built and a person has been sent abroad for training in the management of the Center.

The Tourism Department puts out a newsletter and information about tourists and conservation parks. The only bird sanctuary exists on Kiritimati (Christmas) Island, which can be reached by air from Honolulu. They have posters on Kiribati and pamphlets on Tarawa and Kiritimati.

Ministry of Home Affairs. - There is a National Womens Federation called AMAK, which sells handicrafts from outer islands. These handicrafts are collected in their centers on every island, and brought to Tarawa. The women are paid after the handicraft is sold. They offer training to their women in sewing and handicrafts.

The Catholic Womens Association also has a handicraft store. They have sewing, nutrition, home gardening courses for women of the outer islands. FSP has been helping in building their institution.

Income generating activities consist of selling handicrafts, dresses, ice-cream and catering for parties. The Girl Guides also sell handicrafts for fund raising. There also are the Scouts and the Youth clubs that do a bit of community work.

The Foundation for the Peoples of South Pacific has implemented the Cancare Project, where the community collects aluminum canes and the entrepreneur pays each collector before crushing them. He then exports them to Australia for recycling. This helps to keep the beaches clean and stop the breeding of mosquitos. This was a USAID funded project. FSP also has helped to bring attention to major issues of Atoll Research in development in a consultation between the government and outside agencies, funded by USAID. This meeting has led to a USAID grant to the University of South Pacific, Atoll Research and Development Unit in Tarawa which is getting started. The USP has also appointed an agronomist under an EEC grant to work on plant varieties.

LEGISLATION

The only legislation containing conservation provisions is in the Fisheries Ordinances of 1977 and 1978, which decrees conservation of all fish and protection of certain species, and the Wildlife Conservation Ordinance of 1972, which provides for protection of birds or animals to be specified by the Minister of Natural Resources.

Island Councils on several outer islands prohibit fishing practices, such as use of pressure lamps, netting of flying fish, and motor boats, within their lagoons or three-mile fishing areas.

COUNTRY PROFILE

TONGA

The country comprises 160 islands, 36 of them inhabited, in three main island groups. About one-quarter of the 100,000 people live in the capital, Nuku'alofa. Many island are low, and at risk from rises in sea level.

STATUS OF ECOSYSTEMS AND SPECIES

A. Terrestrial. Only an estimated 4,000 hectares of native forests in Tonga remain, mostly in inaccessible and steep forest reserve areas of the island of 'Eua. Only a small area of lowland rainforest remains on Tongatapu.

Habitat destruction is reportedly reducing species numbers and abundance. The red breasted musk (a parrot endemic to 'Eua) and a favorite for visitors to observe in the wild is one of several species that are threatened or perhaps endangered.

B. Marine. The exact number and extent of threatened coral reefs is not known, but they are predictably found around growing settlements where human activities degrade wetlands and lagoons. Former prime fishing grounds are no longer productive, while fish consumed from these areas may occasionally represent significant human health threats. The many natural functions of mangroves such as protecting the shoreline from heavy storms and providing fish spawning habitat, have in many places been lost through cut and fill, posing increased threat to the people living along the shore.

Black coral, highly valued by jewelry makers and collectors and for traditional handcrafts, has been virtually eliminated at shallow depths and is only accessible now by using SCUBA gear. The Pacific triton is extremely scarce today, though it may be more abundant in deeper waters. Tritons prey upon coral-consuming crown-of-thorns starfish, keeping their populations in check. Giant clams are also scarce in Tonga now.

THREATS TO BIODIVERSITY

Rapid human population growth is the primary cause of ecosystem destruction in Tonga. It puts land at a premium and creates the pressure to use lands along the shoreline more intensely, or to occupy previously undeveloped areas. The rapid human population growth also places unprecedented demand on productive coastal ecosystems. Natural shorelines are filled in to create new residential areas, wreaking havoc on coral reefs through increased siltation.

These settlements' solid waste and sewerage outfall meets the limited capacities of the lagoonal systems for natural mixing and flushing, particularly on Tongatapu and Vava'u. Fecal coliform and other nutrient or heavy metal loading degrade water quality significantly.

Polyps that form the reef are gradually suffocated through increased siltation from mining sand and coral for construction purposes. Fishing practices such as breaking and overturning coral, for example, damage reef communities severely. Overharvesting of certain species contributes as well. Locals value tritons for its meat, and tourists pay high prices for its beautiful shell. Giant clams, traditionally a primary food source for Tongans, have also been overharvested. The culmination of these activities may adversely impact the returns to the national economy from the annual tens of thousands of visitors and by reducing the natural resource base.

These pressures have now overshadowed the remnants of a traditional environmental ethic. While a public environmental awareness of these problems and relationships is growing, it does not drive daily decision making. The public sector system mobilizes very slowly, if at all, on critical environmental issues.

TENURE

Ultimately, the King of Tonga owns all land, and assigns portions to different nobles to administer on behalf of their own constituencies. In practice, however, most nobles live in Nuku'alofa (the capital), and the degree to which they are willing to allocate land to the commoner varies greatly among them.

When allocated, land is provided in the form of 'api's (plots), both in town (for residential purposes) and in the bush (for farming). Individuals can register land in their name with the consent and approval of the controlling agent (often their noble.) Either the Crown or the Government owns the remaining land.

Registered land is leasehold via lifetime leases that are transferrable to heirs; or by permits to the lessee to use land for a specified length of time. Oral agreements for such arrangements are common.

The Crown owns all land within 50 feet of the mean high water line. Within limits, everyone has free access to the sea for personal use. For example, one can collect food in the intertidal zone for subsistence purposes, but will require special permission to build a semi-permanent structure such as a fish trap. The Crown owns all underground resources.

ENVIRONMENTALLY RESPONSIBLE ENTERPRISE

A. Community Scale. From a technical standpoint, opportunities appear to abound for community-based enterprise development related to some aspect of mitigation, restoration, or enhancement of the environment. In particular, mariculture (oysters, giant clams, mussels), solid waste recycling, and ecological tourism are promising.

Limited trials in culturing oysters (including pearl oysters), giant clams, mussels, sea turtles, mullet, lapila, molly, milkfish, and transplanting black coral for controlled harvesting have been attempted in Tonga. Most of these trials had initial problems that were not resolved due to poor management or insufficient capital. The information and research data on these projects are probably available, but not compiled or applied usefully. With the proper mix of technical assistance and start-up capital, many forms of aquaculture would lend themselves nicely to community-based forms of enterprise development.

B. Private Enterprise Scale. Few commercial enterprises appear to have environmental protection as operational objectives or subsidiary benefits. However, the local brewery (Royal Beer) recycles its own bottles on a cash paid basis for bottles returned to the brewery; a few entities recycle aluminum cans profitably; a limited amount of paper recycling occurs; and there is limited removal and recycling of lead from spent car batteries. Other forms of waste recycling or reutilization are either absent or remain unidentified.

Efforts to spawn giant clams have met with marginal success.

INDIGENOUS NGOs

None of Tonga's several NGOs is organized specifically for environmental conservation. Yet, several of them attended recent workshops on "Environmentally Sustainable Development" and "NGOs and Disaster Preparedness."

The Tonga Community Development Trust works primarily with village women's groups, bringing to them information and appropriate technology needed for home and village life improvements.

NON-INDIGENOUS NGOs

Tonga has several non-indigenous NGOs: The Foundation for the Peoples of the South Pacific, Rotary Club, Lions Club, World Vision International, YWCA, Salvation Army, International Women's Association, Soroptomist, and the Agricultural Cooperative Development International.

The Foundation for the Peoples of the South Pacific and the Tonga Community Development Trust have submitted for USAID consideration
a proposal to carry out a national environmental program in Tonga. The proposal calls for identifying and protecting degraded ecosystems, promoting environmentally sound income generating activities, and implementing a country-wide environmental education campaign.

OTHER DONORS

A. The Brehm Fund is sponsoring a Bird Research and Sanctuary Project in Veitongo, Tongatapu.

B. ESCAP funded and organized an Environmental Management Symposium as part of an effort to coordinate inter-ministerial input for the Kingdom's Environmental Management Plan.

C. The East-West Center conducted a baseline study on the forests of 'Eua; and plans a follow-up study.

D. SPREP has produced a substantial amount of environmental education materials, most of which have not been fully utilized as yet by either the public schools or the general public.

E. AIDAB will fund a study of Fanga'uta Lagoon (Tongatapu).

F. Earthwatch members have assisted occasionally with giant clam circle experiments.

G. EarthQuest, a London-based volunteer organization, conducted a coral survey, the report of which is forthcoming.

H. Asian Development Bank. Tonga is reportedly one of five countries to be targeted by the Regional Environmental Technical Assistance program for the development of an environmental management plan. Such a plan, however, was recently completed under the auspices of ESCAP.

I. The New Zealand Government supports the Forestry Division in Tonga, which has a staff of 18 and employs more than 100 daily laborers.

J. Volunteer organizations include the U.S. Peace Corps, Australian Volunteers Abroad, New Zealand's VSA, and the United Kingdom's VSO. A Peace Corps volunteer arrived in November 1990 to conduct lagoon research in conjunction with an Australian conservationist. Another works in the Ministry of Lands, Survey and Natural Resources.

GOVERNMENT STRUCTURE

Environmental protection has been a longstanding stated goal of the Tongan Government. It has passed several acts to regulate the human and natural environment (e.g. the Bird and Fish Preservation Act [1934, amended 1974]; the Public Health Act; the Garbage Act; the Land Act; the Forest Act; the Minerals Act; the Petroleum Act; the Parks and Reserves Act; the Tourist Act; and the Whaling Industry Act).
However, it is very cautious to sanction violators of these acts. Poor inter-ministerial coordination and enforcement bar effective environmental management.

The Ministry of Lands, Survey, and Natural Resources retains the greatest responsibility for environmental planning and management. Its specific mandates include: establishing national parks and reserves in both marine and terrestrial areas, conserving and managing typical and unique ecosystems and natural areas, protecting endangered species, maintaining water quality, and improving sewerage and drainage systems in urban and rural areas to meet acceptable standards. Actual implementation has been extremely slow, and the one marine park created in the early 1980s exists, for all practical purposes, only on paper.

A Land and Environmental Planning Bill submitted to the Legislative Assembly failed to gain approval on the first attempt, but is being revised for re-introduction in an upcoming legislative session.
The Tonga Fisheries Division has recently become interested in exploring aquaculture potentials again. It has a giant clam hatchery underway, and fisheries officers are abroad studying aquaculture.

Forestry Division headquarters is on Tongatapu, which is also the facility for running the Mataliku Sawmill Centre and Tokomolo nursery. A district office on 'Eua runs a plantation forest, sawmill, and nursery. On Vava'u a nursery raises seedlings for agroforestry plantings. The Niua's are currently managed from the Vava'u district office. Ha'apai is managed from headquarters. The government owns a portable sawmill on Ha'apai and has recently started a nursery there.

GOVERNMENT POLICY

The July 1990 Environmental Management Plan for the Kingdom of Tonga is the most significant step ever in Tonga's environmental policy. It represents considerable public and governmental input on environmental problems facing Tonga.

It is up to the Tongan Government to decide if and how it will adopt the Plan. It will examine the Plan's major policy recommendations on institutional, legislative, and regulatory aspects of environmental planning and management. Priority environmental concerns addressed by the Plan include: the need for hazardous waste legislation, the need for careful land use planning, problems associated with urban drift, creating more marine and terrestrial parks and reserves, the need for mangrove and coastal marsh protection, problems associated with sand mining for construction purposes, fisheries resource depletion, and the need for increased public awareness to safeguard ecosystems. This awareness has increased significantly recently.

COUNTRY PROFILE

COOK ISLANDS

The Cook Islands is a small country comprising 15 islands in northern and southern clusters about 500 miles apart, with a population of about 16,000. With the main exception of the high volcanic island of Rarotonga, most are coral formations, atolls in the north and atolls and uplifted islands in the south.

STATUS OF ECOSYSTEMS AND SPECIES

The population is declining slightly due to emigration to New Zealand. Yet population pressure can be locally high on atolls, where landlessness is a social problem. On the outer islands traditional conservation practices are still followed if human pressure is not overwhelming.

A. Ecosystems. Tourism, based on clean beaches and pristine lagoons abundant in marine life, is the mainstay of the Cook Islands economy at present and for the projected future. Many businesses catering to the tourist industry (e.g. hotels, entertainment groups, a dive shop and fledgling sailing school) would seriously suffer should the marine environment be degraded significantly.

B. Species.

1. Rarotongan Flycatcher (Kakeroi). Only 30 known individuals of this land bird remain.

2. Tamanu, Tou and Ngangie trees. Ngangie trees are almost extinct.

3. The coastal swamp near the Sheraton Hotel construction site contains several endemic, and now threatened, plant species.

4. Plants in the mist zone on the island of Takutea.

THREATS TO BIODIVERSITY

Ecosystem degradation in general is a result of land use pressures from local residents.

A. Soil erosion. Bulldozing to construct new homes with attendant taro gardens in the hillsides is a growing phenomenon in the last 2-3 years and the major cause of soil erosion. It is aided by the recent availability of infrastructure (paved roads, power, water, etc.) around the perimeter of Rarotonga. Bulldozing

generally entails clearing a road and a level platform for a house foundation. Machinery operators most often work without site or excavation plans, and grade beyond plot boundaries, as they are paid by the hour. When topsoil is not stockpiled, to be re-used later after construction is complete, heavy rains wash away the valuable soil easily. A single hour of heavy rainfall can thus destroy what took centuries for natural processes to accumulate.Poor agricultural practices also contribute to soil erosion. Vertical rather than horizontal rows are used as a matter of convenience. Few if any soil control measures, such as contour hedgerows, siltation curtains, or diversion ditches are practiced by farmers. Little agroforestry is evident.

Government crews have limited knowledge or concern for the environmental consequences of their actions. Power line crews, for example, often cut down trees along the coast to make room for power lines overhead. A little planning, along with trimming, could save most of the trees, which offer important defense against storm surge.

B. Lagoon and Reef Degradation. Many people, particularly the elderly but even recent immigrants, comment on marked decreases in biological productivity they have observed in the lagoon and reefs. This degradation stems from five major causes:

1. Overfishing. The introduction several years ago of SCUBA-assisted spearfishing has resulted in reef areas being overfished. In addition, overharvesting of giant clams occurs on Aitutaki, where Cook Islanders preparing to return to New Zealand harvest more than is biologically sustainable. The Island Council has recently halted this practice.

2. Siltation. Suffocation of the coral polyps through siltation occurs when surface water runoff following heavy rain carries sediments and agricultural chemicals directly onto the reefs.

3. Sand Mining. The removal of beach sands, illegal in the Cook Islands, is a continuing local practice for the construction of family homes. Sand mining accelerates beach erosion and poses an expensive future liability for government, which is responsible for shoreline protection. Shoreline erosion problems are well known by the islanders, and photographs taken over a period of years demonstrate the problem clearly. Sand mining can be avoided by using different building materials, including sand dug from pits on land. Beach renourishment schemes are cost prohibitive and not a viable alternative.

4. Fishing with the use of poisons. Plant extracts from Barringtonia asiatica and Derris roots (indigenous to PNG and introduced to the Cooks by early

missionaries) are used to stun fish for easy capture. The process also kills juvenile fish. Local governments are trying to stop this illegal practice.

5. Water pollution from garbage, sewage etc. - Solid waste collection systems are poorly developed, and recycling or reutilization, other than with aluminum, is not practiced. There is also no public sewer infrastructure anywhere in the country.
Individual septic tanks are used in some cases, but are generally not constructed to standards. Both groundwater and nearshore water quality suffers from cumulative human waste impacts.

6. Construction in sensitive coastal areas. The development of a 200-unit Sheraton Hotel without an EIA is currently a major public and governmental concern. Several environmental impact issues have not been addressed.

7. Coral overharvesting for the tourist market must be having a cumulatively deleterious impact on reef communities and marine ecosystems.

C. Overharvesting of tropical hardwoods. The indiscriminate harvesting of precious hardwoods diminishes the diversity of forest and other unique ecosystems. The problem stems from the various uses of hardwoods for charcoal production, carving Tamanu trees (for religious/cultural purposes and to supply the tourist market), and building construction. Ngangie trees are rare and grow on only a few islands. They reportedly take 2,000 years to grow to maturity and are being used for charcoal. Tou trees, found on only three islands, also need protection.

D. Banana production on Aitutaki. The forest on Aitutaki was bulldozed for plantations to grow bananas for export to NZ. This led to a few good initial crops, but was followed by ever-decreasing production. Heavy fertilizer applications then killed honey bees, drastically reducing pollination and honey production. The chemicals reportedly killed many birds, as well as seaweed and other coastal organisms.

E. Loss of cultural knowledge associated with flora and fauna should not be underestimated as a contributing factor to further environmental degradation.

H. Coral overharvesting for the tourist market should also be examined for its cumulative impacts on reef communities and marine ecosystems.

TENURE

Land in the Cook Islands is divided into tracts that extend from the mountain peaks to the mean high water line. The Crown owns the reefs and submerged lands plus land extending 50-meters inward from the mean low waterline. Clans called "ngati" own most other tracts and seem very clear on their demarcations. A land ownership map drawn in approximately 1910, on display at the museum in Rarotonga, remains virtually unchanged today. Several households tend to occupy one tract of land. Landowner cooperation for common causes is reportedly difficult to achieve and land ownership is often disputed. Land cannot be sold, it is only leased for periods of up to 60 years. The society has not yet addressed the issue of what happens if structures (like hotels with concrete foundations for example) degrade the land permanently during the term of the lease.

ENVIRONMENTALLY RESPONSIBLE ENTERPRISE

A. Community Scale.

1. The FSP-established aluminum-can crushing operation has gone very well. Even though people are only paid one cent per can now, they still collect the aluminum and want to expand the aluminum operation to Aitutaki and to establish a bottle crushing operation in Rarotonga.

2. Villagers collected and burned crown-of-thorns starfishes in the early 1980s when their population underwent a bloom that dramatically destroyed vast areas of the country's coral reefs.

3. The Aitutaki Island Council stopped the harvesting of giant clam by Cook Islanders from New Zealand, who used to return home to New Zealand with coolers full of clams.

4. A water catchment demonstration project is underway on nine outer islands. One catchment per island will be first built; these will be monitored and evaluated before additional catchments are constructed. Local women's groups provide the labor for this USAID-funded project.

B. Private Enterprise Scale.

1. An expatriate-owned firm, is providing consulting services to clients, most of whom have suffered landscaping problems subsequent to improper road and home construction. The firm has one full-time employee and another on a part-time basis.

2. A Rarotongan woman has her own business of growing and distributing various rare, potted plants. Her work is promoted by a women's cooperative in Rarotonga that conducts quarterly "health inspections" to promote good home management and potted plants distribution.

3. Two perfume factories use island-grown flowers and plants in their preparations.

4. Owners of the Sheraton property are proposing to construct an all-acrylic undersea viewing facility (tunnel) in a passage known for its abundant and unusual marine life.

INDIGENOUS NGOs

Although there are no indigenous NGOs that conduct environmental work specifically, there is talk of one forming that would combine the interests of fisheries, conservation and tourism; others address the environment to some degree in their programs, as follows,

A. AWARE is a watchdog group having approximately 60 women members who cajole the government into enforcing standards. Its main focus for 1990 is health and corrective services. The group has expressed interest in bottle recycling, but in general does not place the environment at the top of its agenda.

B. National Council of Women. Recently sponsored a five-day Income Generation and Environmental Awareness Workshop. Its main thrust was to educate the ten or so women coming mostly from the southern islands about environmental issues and how to plan for tourism development. A secondary objective was to push government officials into responding to public concerns by involving them as workshop facilitators. Workshop topics included business skills training, handicrafts, marketing handicrafts, food catering, clothing, loans, environmental awareness, land rights, leadership, and politics.

C. Rotary Club of Rarotonga. Rotary International has promoted the environment as its major theme this year. This club is composed mostly of expatriate businessmen who appear to have a high level of awareness about environmental issues, but are generally less action-oriented.

D. Chamber of Commerce Tourism Subgroup, Accommodation Council. The approximately 25 locally-based tourist operators (representing about 350 rooms) are reportedly willing to enforce environmental regulations. This contrasts with the few foreign investors (representing another 350 rooms) who generally disregard local regulations.

E. Business and Professional Women's Association Subcommittee on Conservation and Environment.

F. National Youth Council.

NON-INDGENOUS NGOs

There are no foreign NGOs/PVOs operating in the Cook Islands consistently, although the following have been active periodically:

A. Worldwatch has worked with the newly-formed (1990) Ministry of Cultural Development to protect sacred grounds (called moraigs).

B FSP has initiated a successful aluminum can-recycling program.

C. The Nature Conservancy/Honolulu has expressed interest in inventorying and classifying the country's ecosystems.

OTHER DONORS

A. New Zealand has the closest ties with the Cook Islands. As noted above, NZ is sponsoring the Income Generation and Environmental Awareness Workshop. It is also providing NZ$190,000 in grants for a Coastal Defense Management Center, which will explore solutions to coastal erosion and shoreline protection.

B. ADB, through RETA, assists outer island conservation planning will initiate coastal management planning for Rarotonga and Aitutaki next year, and may conduct an EIA workshop. ADBs Industry Development Branch in conjunction with the Tourist Authority, will sponsor a workshop to formulate an eight-year Tourism Strategy. The planning process will be in consultation with the relevant community groups.

D. USAID has a pearl culture subproject of its PIMAR project, which will undergo an environmental impact analysis.

E. U.S. Peace Corps has three volunteers in the Cooks, working in outer islands on agricultural or education projects. They are backstopped by Peace Corps/Western Samoa.

GOVERNMENT STRUCTURE

A. The Conservation Service was established as a corporation in 1988 under the Conservation Act of 1986, making it independent of the Cook Islands Public Service. The corporation, funded by Government, is under the control of the Conservation Council, which consists of five members appointed by the Minister of Conservation. The Council Chair, who is also the Director of Conservation, is the administrative head of the corporation. The activities of the Director are subject to the consent of the Council, and in appointing new staff his/her decisions are also subject to the approval of the Minister.

The function of the Conservation Service is to promote the conservation of the environment of the Cook Islands for the use and enjoyment of this and future generations. Its activities include wildlife conservation, education, public information, and significant work in shoreline management.

B. Local Government Councils. All islands, except Rarotonga, maintain effective Island Councils. It has been proposed to introduce three district councils for the island of Rarotonga.

C. The Tourism Authority is a statutory body responsible for both tourism promotion and regulation. Its board is comprised of one government employee plus private sector representatives.

D. A new licensing authority has recently been established to oversee licensing in the tourism industry. At present the licensing of restaurants and hotels is conducted through routine permitting procedures, with little control over standards such as fire and health codes. These standards are now being developed and enforced.

E. The Fisheries Department effectively prohibited fishing for aquarium fish on Aitutaki. This activity was found to be incompatible with subsistence fishing and tourism.

GOVERNMENT POLICY

The Cook Islands is one of the most environmentally active island nations in the South pacific.

Government officials are generally aware of the major environmental disturbances and their effects in the Cook Islands. The Conservation Service and Ministry of Cultural Development are particularly strong in this regard. The Fisheries Department and Tourism Authority are also fairly environmentally pro-active. Government is beginning to address and find coordinated solutions to environmental problems. For example, it

has recently passed a regulation that requires new buildings to be constructed at least 50 meters inward from the high tide line.

A. Protective Activities.

Although no specific protective activities in this arena have got off the ground yet, several are in the works:

1. The Conservation Service prepared a concept paper regarding the establishment of a nature reserve to protect the Rarotongan Flycatcher. Its director recognizes that landowners of the proposed site must profit from the reserve and be included in its planning and management. The Conservation Service has met with the landowners and the Council of Chiefs. Concept papers have also been prepared for the establishment of the Te Manga Nature Reserve (for endemic cloud forest plants) and Takutea Nature Reserve (a breeding ground for several seabird species).

2. The Ministry of Cultural Development, established in 1990, is planning two workshops for the purposes of:

   a. recording cultural knowledge related to the various traditional uses of native plants; and

   b. creating a list of all plants, including their Maori and English names.

   This five-year, US$10,000 project will be conducted by the Ministry of Cultural Development with the support of USP, traditional leaders, and the Ministry of Interior and Educational Affairs.

3. Additional replanting trees along the shore by the Boys' and Girls' Brigade is a possibility.

4. The Ministry of Youth and Home Affairs has funds to implement wood carving workshops on outer islands, in part to contribute to the 1992 Festival of Arts. It is also working to establish nurseries for plants having cultural value, starting in urban Rarotonga as a rebeautification activity. This ministry is considered best for conducting such programs because it works with youth who are both in and out of school.

5. The Ministry of Planning and Economic Development is proposing to develop a marine park adjacent to the site slated for the construction of a Sheraton hotel, also a government project.

B. Practical Application

1. The government has apparently decided to restrict the number of visitors to the Cook Islands to 1,500 at a time.

2. The construction of the 200-unit Sheraton is managed and developed by the state-owned enterprise, ECIL. The land is owned by a sole landowner, a unique case in Rarotonga that has enabled the development to proceed with little delay. ECIL has been encouraged to sell all or most of its stock to private investors once the resort has opened. The government has no legal requirement for an EIA on this project.

3. Other structural barriers to environmental protection:

   a. Landowner participation in the establishment of national parks is not specifically addressed in the Conservation Service Act;

   b. Although building codes exist for structures, there are no grading or excavation standards that would assist to minimize soil erosion;

   c. The government's general licensing and permitting system is weak. There is a lack of interagency coordination for the review and comment on proposed developments and their environmental impacts;

   d. People in the Cook Islands are generally unaware of pesticide safety practices and pesticide "dumping" from developed countries has occurred. DDT, for example, was marketed in the Cooks Islands long after being banned elsewhere;

   e. EIA requirements and enforcement are generally lacking.

COUNTRY PROFILE

VANUATU

The Vanuatu archipelago consists of a Y-shaped chain of some 80 islands. Of the total land area of 12,000 km^2, Santo, the largest island accounts for about one-third. Most islands are mountainous and rugged, but a number of low-lying islands are present, in the Maskelyne Islands off southeast Malekula and among the offshore islands east of Santo and Malekula. In addition, there are a number of major platform reefs, the most notable of which are Cook Reef and Reef Islands.

The population was estimated to total about 143,000 in 1989; about 80 percent is rural, leading a traditional way of life in which shifting agriculture provides most food, supplemented by hunting and fishing. The capital, Port Vila, on Efate Island is the largest urban center, with 20,000 people; the other major center is Luganville on Santo.

The islands are diverse culturally, with 114 languages, the highest number of languages per capita in the entire world.

Most Vanuatu cultures are strongly agrarian. Ecosystem management revolves mostly around terrestrial issues, and reef degradation is not yet considered a significant problem.

STATUS OF ECOSYSTEMS AND SPECIES

A. Ecosystems. The greatest pressure on Vanuatu's natural resources is in the coastal regions, where population densities are highest (up to 200 per km^2 in the Maskelyne Islands). Overall, the level of development is relatively low, the impact of traditional agricultural and modern development programs on coastal waters is minimal, and problems of severe loss or degradation of natural flora and fauna, soil erosion and pollution are still unknown. Aside from Vanuatu's three mangrove swamps, no particular ecosystems were identified as severely degraded. But pressure is increasing in exploitation of forests and extension of cultivation. Marine ecosystems are generally threatened by a combination of agricultural pollution, soil erosion from logging, and sewerage outfall.

B. Species reported as threatened include coconut crabs, fruit bats (called flying fox), lobsters, a bird referred to locally as a pigeon, megapode birds, dugongs (a close cousin of manatees), trochus, triton shells, and kaurie trees.

THREATS TO BIODIVERSITY

A. Overhunting, Habitat Loss, Technology, Accident. Overhunting of delicacies for the traditional diet or the growing tourist market affects coconut crabs, lobsters, fruit bats, and megapode birds (the eggs are large and tasty). The problem is overhunting rather than hunting per se. Coconut crabs are reportedly "cleaned out" near Port Vila, while some northern islands are still "just crawling with them." However, this situation is changing:crabs flown from northern islands to Port Vila supply the "eat one quick before they're extinct" tourist market and, some suspect, export trade involving resident foreign populations in Port Vila. Management plans do not yet exist, and in fact little is known about the coconut crab's life cycle, although they are believed to take 10-20 years to reach market size.

Habitat loss from deforestation endangers fruitbats. In addition, islanders now hunt them more effectively with guns than with the arrows and stones of the past. Fruit bats have almost been eliminated on Efate, yet remain more plentiful in the northern islands, such as Tegua.

Trochus are overharvested to make buttons and jewelry (there are four shell factories in Vanuatu) to supply the tourist and export market. Some trochus suppliers are pressuring the government to reduce the legally harvestable size from 9cm to 7cm. Fisheries officers based in Port Vila are often unable to take rural people to court for collecting undersized shells. Tritons (a large and pretty shellfish) are also exported. Since tritons are one of the few predators of crown-of-thorns starfish, many scientists believe their overharvest contributes to outbreaks of the starfish, which in turn has destroyed up to 95 percent of coral reefs in some territories in the region (e.g. American Samoa in 1978).

Dugongs are endangered through accidental mortality from boat motors and fishing nets, pollution, loss of seagrass beds (their staple food), and from the noise of boat motors (thought to lower their reproductive rates.) However, some people refuse to eat dugongs for cultural reasons as they are considered to be their ancestors.

Vanuatu's three mangrove swamps are under threat. One in Malakula was damaged by a timber company. The others are threatened by encroaching human activities, such as the use of mangrove wood for house construction, and waterfront developments (wharves, fishing infrastructure, warehouses and commercial centers).

B. Circumvention of Law People who sell lobsters and coconut crabs to restaurants circumvent both the laws specifying their take, and the requirement to market them through the government-owned Natai Fish Store.

C. Improper Large-Scale Logging by Foreign Companies. Foreign logging companies operating in Malakula, Santo and Erromango are accused of damaging the environment without undertaking proper mitigation and replanting activities.

> A Taiwanese company has wreaked considerable environmental havoc: damaging one of the country's three mangrove stands destroying a waterhole used by local women and children while bulldozing a site to build homes; and running over a graveyard to clear land for the mill, office and company housing. All of this occurred while the actual logging permit was still pending. It is speculated that public reaction to the company's lack of sensitivity will force it to leave.

D. Lack of Information and Awareness. Communities, bereft of the information and awareness to make informed choices, have unwittingly allowed logging companies to damage their land. Many have subsequently asked for a post-damage environmental impact assessment.

Also, there is little appreciation of the need for precise measurement when mixing agricultural chemicals, termed "white man's medicine" (e.g. any fractional amount between 0-1 is considered one-half.)

E. Commercial Agricultural Development

1. Road Construction. Roads to the interior are being constructed to open the forest to commercial agriculture, where formerly slash-and-burn agriculture prevailed. The roads will destroy habitat and increase siltation effects on downstream lagoons.

2. Agricultural Chemicals. Pesticides are used indiscriminately. Chemical containers are rinsed in waters that enter surface streams. The human health and environmental impacts from this practice are not fully documented, but should be significant in the long-term. Fortunately, the use of retail agricultural chemicals is limited by the number of outlets. There are only two, and pesticide "dumping" by foreign countries is not an identified problem as yet in Vanuatu.

F. Residential Construction. Port Vila's residents indicate that sewerage problems are getting worse, and will exacerbate localized marine pollution and reef degradation as additional homes are constructed near the first and second lagoon areas. The poor natural flushing capacity of these lagoons has been hindered further by the construction of a causeway which now links the lagoons and impedes natural water circulation.

LAND TENURE

At independence in 1980, all land was returned to its customary owners, effectively barring expatriate land ownership. In Vanuatu, land tenure is a mixture of geographic and use-specific user rights allocated to tribal groups, clans and/or individuals. Geographic boundaries are passed down through oral tradition and never charted or written. They are often subject to considerable dispute. User rights do not necessarily correspond to geographic claims, even when they can be resolved. Hence, one piece of land may be claimed by several parties and for various purposes. Traditional land tenure rights have been further obscured by 100 years of annexation by foreign powers. Today, efforts by foreigners to purchase specific rights, such as buying trees, can often resurface old land disputes. The only tenure norm (geographic or use-specific) that appears to prevail is that village chiefs exert considerable control over resource use, and must be consulted in virtually all matters.
The chiefs, and sometimes the Council of Chiefs, must be involved in every resource use decision. Coastal villages or individual residents of these villages have customary ownership over marine resources, and may or may not deny their access to others within their village or to neighboring inland villages.

Land can only be leased, not bought or sold, and therefore cannot be used for collateral in loans (at least for the Asian Development Bank).

Land disputes are settled first by the Land Disputes Committee, then by a land referee, then by the Supreme Court and finally by the High Court (presided over by a British judge.) This process may change after a constitutional review committee considers proposed amendments to the constitution.

ENVIRONMENTALLY RESPONSIBLE ENTERPRISE

A. Community-Scale

1. Nature User Fees. People on Tanna and elsewhere in Vanuatu collect user fees from tourists visiting their volcano or waterfalls.

2. Leasing for Preservation. On Erromango Island, a plot of land with rare Kauri trees was leased for 70 years to preserve their seed stock.

3. Natural Resource Management by Traditional Leaders. Chiefs or entire islands occasionally place taboos on the harvesting of ornamental shells, trochus, mussels, clams of certain finfishes to curb overfishing. In eastern Efate, people are reportedly trying to ban the harvest of large shells and certain finfish.

And chiefs on Ambrym have (periodically) banned the harvesting of adult female megapode birds and the taking of their eggs, which are highly sought for supplementing local diets. Chiefs determine the punishment for violators.

B. Private Enterprise Scale

1. Tourism Seminar Proposal. A local company, proposes to conduct nature tourism seminars for all the Local Island Government Councils, the Malfatumauri (Council of Chiefs) and government officials who may also benefit from and contribute to the seminar. The seminars would impart basic comprehension of the worldwide tourism industry (including explaining to villagers what tourists want), and examine critically Vanuatu's resources (physical, human and capital) and how they might interact with tourism in the communities' best long-term interests.

2. Business Proposal. There is also a proposal for tourism development that identifies the construction of a nation-wide chain of about ten bungalow resorts in areas where tourism is both desirable and viable. Locals would provide accommodation, meals and entertainment. The tour company in Port Vila would act as an agent for people and the tourists, and retain shares in each resort. Each resort would be co-owned by, the village/area council, the local island or local government council, and a holding company with 12 or 13 shareholders.

3. Can Crushing. An aluminum can crushing project in Mele (a Port Vila suburb) is reportedly seeking a grant of $13,000 for its initial six months of operations.

4. Bottle Recycling. The new brewery initiated a bottle recycling program. After two months of operation, a reported 8,000 bottles out of 250,000 sold were returned. People are paid ten vatu (approximately 11 cents) per bottle returned.

5. Coconut Crab Farming. A private interest tried to farm coconut crabs years ago, but the venture failed for unknown reasons.

6. Village-Based Timber Production. Employing walkabout sawmills is widely believed to have promise for the country. However, a forester cautioned that, while "in theory, the approach should be quite good," by enabling communities to cut their own timber, the communities must sustain the cost of the milling equipment.

This means that serious marketing issues must also be addressed: how much timber can be supplied, the regularity of the supply, and under what conditions the industry can sustain itself. Further, the authorities must retain control over how much of the forest is cut once local people have the tools to do so.

7. An expatriate-owned and managed timber company, Pacific Veneer, has made considerable investments in local processing/production for export.

8. Private-Sector Environmental Consultants. There is at least one privately employed environmental consultant in Vanuatu, an expatriate whose work in environmental impact assessment is highly regarded. Also, an agriculture and resource management consulting company has prepared EIAs for many agriculture and forestry projects.

9. Problems with Private-Sector Led Environmental Protection

   a. Management. Port Vila's new waste disposal site will be operated by the municipality. Government believes it will have more success at managing the landfill than if it was contracted out to the private sector.

   b. Education and Skills. Local business skills are generally weak, owing to an educational system that instructs in Western languages and only graduates one to two percent of children from high school.

   c. Lack of Interest. The Forestry Department had a program that provided seedlings and extension workers to plant on community lands and supply the domestic market for wood. The costs of operating the program were to be deducted from the proceeds of selling the mature timber. However, when the program was suspended for lack of government funds, the landowners did not pick it up and it fell into disrepair, reportedly for lack of interest.

INDIGENOUS NGOs

A. Vanuatu Natural Science Society (VNSS). VNSS is ten years old, and has an all-volunteer part-time staff of professionals who are also fully employed elsewhere. It recently requested $5,000 from SPREP to fund its first person on a part-time basis. VNSS has conducted a conservation play in schools, organized seminars, meetings, forestry field trips for school children, radio programs, invited guest speakers to a program on cultural diversity in Vanuatu, published 34 newsletters and, most notably, recently published a book in simple English and French

featuring student drawings, called Island Environments. The book is being distributed to primary and secondary schools.

B. National Council of Women (NCW). The NCW is funded by the International Church Coordinating Committee Organization in the Netherlands. It is looking to support entrepreneurial activities and is examining opportunities to process senile coconut trees (which have twice the density of oak) into lumber as a possible source of income. It is considering a project to utilize indigenous hardwoods in the manufacture of flooring, utensils, etc.

The NCW has established 75 area and 13 island councils and holds a national conference every two years. Its recent 10th Anniversary Celebration was successful in terms of participation, variety of activities, and impact. The NCW is widely considered to have a positive impact through its low-key cooperation with male-dominated local government councils in addressing issues such as sanitation, violence against women, alcohol, and public awareness to increase recognition of the value of women's labor. The active involvement of the Prime Minister's wife on the Council has increased its visibility and credibility.

C. Rural Development and Training Centers Association (RDTC). RDTC receives financial support from numerous external sources including FSP, AIDAB, Community Aid Abroad and the New Zealand High Commission. Internally, it has the support of the National Planning and Statistics Office, Ministry of Home Affairs and Social Development Department. Started by International Human Assistance Program in 1987, FSP took over its management responsibilities in 1988.

RDTC trains trainers for the Rural Training Centers (RTCs), which are mostly run by churches. Eight RTCs meet RDTC curriculum criteria for teaching appropriate technologies. The RTCs target youth with few skills and alternatives, and who have been forced to quit school. Courses run 1-3 years,five days a week, and cost US $40 for each 3-month period. The program has graduated about 250 students. A recent survey of 130 graduates found that the majority of students had returned to their villages and many were self-employed with skills they learned in the course, such as furniture making and cash cropping.

In 1990, RDTC hopes to bring chainsaw mini-mills, which cost about US $1,400 each, to replace mills in Santo.

D National Community Development Trust (NKDT). NKDT is re-establishing itself after its programs were suspended in late 1988 due to management and accountability problems. FSP will provide management support.

In the environmental arena, NKDTs emphasis is to educate communities about their choices, thereby empowering them to tap resources and become self-sufficient in the protection of their environment. NKDT hopes to develop programs on the islands of Malakula, Santo, Efate and others further south where logging potentials and their environmental impacts are much greater; and to replant forest clearings with fruit trees etc. by paying for their seedlings.

E Wan Smolbag Theater Group. The name is pidgin for one small bag, owing to its few props. It is a 5-member group, funded by Community Aid Abroad. It has applied to SPREP for additional support via the government's Environmental Unit. It conducts a series of plays in English, French, and Bislama, the national language of Vanuatu. Government agencies and other NGOs often use Wan Smolbag to convey their educational messages. The plays are about the environment, health, AIDs prevention, etc. The group started part-time in February 1989, and will go full-time in November 1990.

F. TAFEA Cooperative Association Limited. TAFEA is an acronym for five islands in Vanuatu (Tanna, Anatom, Futuna, Erromango, Anewa.) A new store in Port Vila sells handcrafts from these islands and returns the profits through village, youth and women's projects.

NON-INDIGENOUS NGOS WITH ENVIRONMENTAL PROJECTS

A. Foundation for the Peoples of the South Pacific. FSP is introducing the concept of sustainable village-based timber production, and is training people in the use of chainsaw mini mills, portamills (bandsaws), and walkabout sawmills.

B. Conservation International. Conservation International reportedly has expressed interest in the nature tourism industry in Vanuatu recently.

OTHER DONORS

A. World Bank. The World Bank is working to relocate the current waste disposal site to a new location.

B. Asian Development Bank. In Vanuatu, the ADB has little environmental work and admits to doing EIAs in only a cursory manner. The ADB's Environment Unit consists of one person who works from its Manila office. ADB funded the rehabilitation of a wharf in Port Vila and is now funding one in Santo. ADB is also working with SPREP to conduct an EIA training course. In November 1989, ADB contracted a consultant to evaluate environmental legislation in Vanuatu.

The consultant returned in 1990 to present suggestions to the government for strengthening environmental legislation.

C. Canadian Universal Service Organization (CUSO). CUSO is a social justice organization that strives to empower people to control their own environment and destiny. CUSO efforts are largely responsible for the development of small-scale commercial fisheries in Vanuatu. It is currently developing a counter proposal to one presented to the Fisheries Department and key government officials by a consortium of interests from New Zealand, Australia and Japan. This consortium supposedly aspires to control all fish marketing (not the fishing itself) in the country, and reportedly has no interest in making the fishery itself sustainable. It reportedly wants to lease all the marine resources in Vanuatu and serve as middle-men (with 4000% profit margins) for fish marketing. The counter proposal would follow an effective model already in place on Santo, in which the fish marketing system is under local control. Local control of fish marketing nation-wide would circumvent the prevailing tendency for the government to take an interest in a fishery for only the few years it is elected to office.

Beyond this, CUSOs agenda for the next ten years is to define the process of land/sea tenure user rights in Vanuatu. This is necessary because, unlike countries such as the Philippines, where lack of access to land tenure provides a clear developmental barrier, in Vanuatu the issue is who has tenure, how to define it, and what to do once it is defined. CUSOs vision is to develop an economic model for the Pacific Islands that may differ from the Western economic model.

D. New Zealand. New Zealand is funding consultants to establish a rural skills training project (October 1990) to impart to villagers the skills that would enable them to remain in rural areas.

E. Australian International Development Assistance Bureau. AIDAB is funding a National Forest Inventory (terrain, flora and fauna) for A$2.4 million over a 4-year period. AIDAB also supports a cocoa development project with the Department of Agriculture. There are 24 Australians in Vanuatu, funded by AIDAB under the Australian Staffing Assistance Scheme. AIDAB funded the Survey of Marine Resources in Vanuatu, and is contributing A$100,000 to advance the National Conservation Strategy. Phase one of the Strategy (Prospectus), completed two years ago, was funded by CIDA.

F. South Pacific Regional Environmental Programme. SPREP is well-regarded in Vanuatu. Its publications, including The Status of the Dugong in Vanuatu, have been widely used.

Various posters and pamphlets sent to the Ministry of Education have been dispatched to rural schools, and the Department of Forestry is working with SPREP to prepare training materials for village-based timber production.

G. Commonwealth Development Corporation (CDC). CDC Supports (1) cocoa production in Malekula in a joint venture with the GOV and a private French Organization; (2) a South Central Cattle Project with the Department of Agriculture and two Australian ranchers; and (3) the Tanna Coffee Development Company with the Department of Agriculture and a French company.

H European Economic Community. The EEC is involved in a small-holder cattle ranching project in Santo, and coconut and pepper development projects with the Government of Vanuatu, Department of Agriculture.

I. Japanese International Cooperative Agency. JICA has funded waterfront development projects such as wharves, fishery installations, warehouses and commercial centers.

J. Food and Agriculture Organization of the United Nations. The FAO has a regional forestry project with a well-respected forester new on staff. He is considering using a model (from Malaysia's Sabah Foundation) in Vanuatu to conserve tropical forests. FAO funded an FSP person to train in a walkabout sawmill course in PNG. It also conducts two to three week training courses in small-scale milling, including that for coconut trees.

Environmental management problems arise when one ministry opposes the decisions of another. For example, a prospective timber company deals directly with the Ministry of Agriculture, Forestry and Livestock and need not consult the Ministry of Home Affairs, where the Environmental Unit resides.

GOVERNMENT STRUCTURE

Responsibility for environmental matters is generally fragmented, except for the centralization of a number of activities in the Environment and Conservation Unit of the Ministry of Home Affairs. Coordination among ministries with specific interests is weak, and the Environment Unit is thinly staffed.

The National Advisory Committee on Environment (NACE), consisting of representatives of all ministries concerned with the environment, reviews major development projects for their environmental impact and makes its recommendations to the National Planning Office.

Assessment and monitoring activities are dependent on external financial assistance.

A. Ministry of Home Affairs

1. Environmental Unit. General responsibility for environment and conservation is vested in the Environment and Conservation Unit within the Ministry of Home Affairs, and the Physical Planning Unit of the same ministry. The Unit, with its very small staff, has formal responsible for the National Conservation Strategy, advises government on the environmental impacts of development projects, prepares legislation, undertakes environmental surveys and monitoring, initiates education programs, identifies areas needing protection, and serves as focal point for Vanuatu's participation in international environmental programs and organizations. This new entity acts as an advisory body within the Ministry of Home Affairs with no regulatory authority. Among its priorities are:

   a. advancement of the National Conservation Strategy, which concentrates on education; in 1990 public seminars were held to generate public support for conservation;

   b. advice to government on project proposals, as to whether an environmental impact strategy (EIS) is necessary. An EIS must be carried out by private consultants at the developer's cost. They are reviewed and assessed by a national committee comprised of directors of all government departments. Even without the approval of this committee, however, the developer can still proceed with approval from the Council of Ministers.

   c. on the information front, an annual environment week, a campaign to inform shopkeepers that some of the items they sell (ivory, whalebone, and similar products) are banned by the CITES Convention, radio campaigns, and outreach to outer islands.

2. Director of Local Government. Oversees the 11 Local Government Councils in Vanuatu and two Municipal Councils which in turn oversee 68 Area Councils and numerous village councils. This structure was established in the Decentralization Act of 1980 to return control of local decisions to the grassroots level. The 11 Local Government Councils are responsible for promoting infrastructure development in their areas.

B. Ministry of Agriculture, Forestry and Livestock.

a. The Department of Forestry conducted a National Forest Inventory in 1990-1991 to survey existing and potential land-use patterns. The results from this inventory, combined with a cultural database being developed by the Cultural Center (on archaeological sites, traditional uses of trees, etc.), will constitute the database for Vanuatu's National Conservation Strategy. The Inventory is a first, broad effort to chart the predominant vegetation and to flag other interesting qualitative observations in footnote form (such as the traditional uses, names, etc. of various trees). The charts portray areas as resource mapping units but they do not identify endemic and endangered species, although this more specific work could follow the initial inventory.

The Department of Forestry is also working closely with FSP to advocate village-based timber production enterprise using portable sawmills. It expects first to realize in-country import substitution and local income generation, before moving into the export market.

The Department of Forestry regards training as the next major step. It is attempting to get short-term assistance from SPREP to prepare training materials. At present, there is no policy within the Forestry Department to engage in public education and extension. This would be both effective and efficient, as the Forestry Department is not large enough to enforce forestry regulations itself, and the landowners can do so much better if they are educated.

The Department of Forestry is also developing a standardized form and the procedures for agreement between landowners and logging companies. Landowners can check their preferred options on the form. A Forestry Officer must be present as a witness to the agreement, and explain its ramifications to both parties. He/she must also check the credentials of the landowner. Once executed, the agreement is taken to Port Vila and the Director of Forests must approve of the agreement before it can be legally binding. The government also requires logging companies to have an independent person conduct an EIS and archeological survey prior to being awarded a concession.

For Phase one of the portable sawmill work, the Department has a budget and a coordinator. It has two sawmills for demonstration purposes, one in Efate (Tagabe area) and one in Santo, and is demonstrating how to use them to make timber from aged coconut and other trees.

Mill operators usually begin with chainsaw mini mills, of which there are about 50 in Vanuatu, costing about $1,000 each. Then they "graduate" to walkabout sawmills, which are less portable. These mills are often put in central areas and used to glean what multinational logging companies have left behind.

b. The Department of Agriculture promotes cattle ranching in Vanuatu, as well as other agricultural products including cocoa and coffee. The Department believes that forests should be left on land that is not suitable for cultivation, and that industrial agro-forestry plantations (e.g., growing peppers under the controlled shade of coconut palms) should be promoted.

A review issued in July 1990 raises three major environmental concerns with cattle ranching: soil erosion from clearing vast amounts of land, clearing areas alongside creeks and river banks, and reducing habitat for wildlife. Its other environmental concerns are the potential for increased herbicide runoff, especially into rivers, the possibilities for erosion of the undulating land in the 500-hectare Tanna coffee development, and additional erosion from activities of numerous small landholders. The use of herbicides and fertilizers is roughly ten years old, and is generally limited since only very large companies with experience are using them.

The Department's initiatives include: (1) conducting applied research on contour planting of fruit, timber and fuelwood trees in coordination with the Department of Forestry, South Pacific Commission, IBSPRAM, and OBSNAT (international research organizations); (2) development projects in coconut, cocoa, and pepper production; and (3) conducting education programs to reduce soil erosion.

C. Ministry of National Planning and Statistics Office. NPSO identifies aid projects, largely in infrastructure development, and seeks donors for them. It is largely expatriate-staffed.

D. Ministry of Education. The primary education curriculum has an environmental studies unit that is mostly family and domestic oriented. At the secondary level, pesticides are discussed within the agricultural curriculum, and forestry and agriculture are included in the social studies/geography curriculum. However, school is taught in either English or French rather than Bislama (the national language,); so much education is lost. Since few people become literate in the local vernacular, particularly with the low rates of school graduates at all levels, environmental education is perhaps imparted best through diagrams, posters, radio, public announcements, pamphlets, photographs and videos.

E. The Cultural Center links cultural and environmental conservation through education and outreach programs including videotapes, radio programs and seminars.

GOVERNMENT POLICY

A. Perceived Role of Environment in Economic Development. Environmental management generally is not regarded as a vital issue in the economic development of Vanuatu, and is seen in many cases as a barrier to development. Hence, the environment has little currency in discussions of Vanuatu's development. This is reflected in the advisory status of the Environmental Unit with its two employees, as opposed to the five or six coordinators of foreign assistance housed in the National Planning and Statistics Office. It is also exemplified in a recent decision to award a logging contract to a particular company against the advice of the forestry department and without consulting Environment Unit.

B. Political Will and Ability. The government's central rather than decentralized structure will shape its environmental approaches. As one government leader stated, "the political will to decentralize is not there yet," and officials want to strengthen their individual departments. He is trying to build pressure to decentralize from below, by empowering church, chief, women's and youth groups.

The legislated role of the Council of Chiefs allows chiefs to wield dominant control in Vanuatu, and creates a solid base for developing and conserving both natural and cultural resources.

C. Legislation

1. General. Since independence in 1980, Vanuatu has incorporated environmental concerns in its constitution (Article 7,d) and it national development plan. The thirdsecond objective of the second Plan, 1987-1991, refers to productive utilization of the natural resource lease as a means of generating viable and sustainable economic growth, which is explained to refer to exploitation of land, fishery, forestry and mineral resources at a pace and in a manner which neither compromises development in the future nor leaves present opportunities untouched. The sixth object is to ensure that the unique environmental and cultural heritage is not damaged in the process of economic development and change.

2. Environmental. The country does not have comprehensive legislation related to environmental control Provisions are fragmented in specific acts dealing with a variety of subjects. These are frequently circumvented, as enforcement is generally not well coordinated. A more general legislative approach has been proposed and is under consideration.

- The Fisheries Act of 1982 prohibits fishing for marine mammals within Vanuatu waters, requires permits for the use of explosives or poison in fishing, provides for the declaration of marine reserves, and prohibits commercial exploitation of marine reptiles and giant clams. Mela Bay, near Port Vila, has been "declared" a marine reserve by Hideaway Island Resort, for use by divers. Local people own part of the resort and have apparently agreed not to fish in Mela Bay.

- The Forestry Act of 1982 requires approval for clearing operations using heavy machinery on land within 15 meters of any stream, river or shoreline. It also contains provisions for prevention of soil erosion, preservation of the ecology and of land of scenic, cultural, historical or national interest and reservation of land for recreational purposes.

- Mining is controlled, under Joint Regulations No. 2 of 1957, through a licensing system.

- Other regulations prohibit capture of undersize crayfish, or those carrying eggs, restrict export of green snail, regulate seasonal take and size of coconut crab and lobster, and protect indigenous bird species.

- The International Trade (Fauna and Flora) Act of 1989 implements the country's obligations under the CITES convention to control and regulate export and import of specified endangered species.

Pending environmental legislation:

- There is as yet no legislation to control importation and use of pesticides, though a proposal is in draft.

- The need for better ability to deal with water pollution is recognized, but legislation is not yet drafted.

- The objective of protecting the natural and cultural heritage has not yet been implemented through designation of protected areas. A proposed act would include sites of biological, geological and cultural importance.

- Guidelines for environmental impact statements have been drafted but not yet adopted; these would apply to all types of development in general and specifically to coastal tourism and mining projects.

- The Forestry Department is developing a new form and the procedures for agreement between landowners and logging companies.

Support Program

ANNEX N

28 August 1991

Bruce Grogan and Jim Osborne
USAID/South Pacific
% Travelodge
Suva, Fiji
Fax #: 679-300251

Dear Bruce and Jim:

Bruce's fax of 28 August to Janis Alcorn requested formal notification of the interests of the Biodiversity Support Program (BSP) in [illegible] I am writing this letter to be appended to the PEP Project Paper.

Sy Sohmer (BSP Project Manager in [illegible]), Gary Hartshorn (until recently Director of BSP) and Janis Alcorn (the Senior Program Officer for Asia/Pacific in BSP) have had numerous discussions with you and AID/W, as well as among themselves, about BSP's possible role in PEP. Sy Sohmer earlier this month responded to Allison Herrick and indicated that the Mission's proposed $145,000 buy-in would be acceptable to BSP. I have been briefed on these discussions and submit the following statement for your appendix.

The Biodiversity Support Program is very interested in a buy-in from PEP provided that, upon review of the Final Project Paper, it is clear that biodiversity conservation will be successfully integrated with the development activities planned by the project. BSP has already assisted in PEP development through the efforts of Janis Alcorn and Bruce Leighty during the past year. We are interested in seeing the final form taken by PEP after the design team's work during August.

Should a buy-in occur, BSP would be especially interested in assisting PSP to design and implement the monitoring and evaluation component, and in carrying out studies and analyses necessary for successful linkage of development and conservation (e.g., baseline social, tenurial, economic, and biological data collection from sites selected for pilot projects). BSP would

c/o World Wildlife Fund • 1250 24th Street, NW • Washington, DC 20037 • Tel: (202) 293-4800 • Fax: (202) 293-9211 • Telex: 64505 PANDA

also be interested in participating in an "advisory group", as outlined in your 28 August fax, which would provide meaningful guidance during project implementation. We look forward to reviewing the final Project Paper and to further discussions with you about the most effective contributions that BSP can make to the PEP project.

Best wishes in completing project design.

Sincerely,

Bruce Leighty for

Kathryn A. Saterson
Director

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ANNEX O

Mike

AGENCY FOR INTERNATIONAL DEVELOPMENT
OFFICE OF WOMEN IN DEVELOPMENT
3725A-NS
320 21ST ST., N.W.
WASHINGTON, D.C. 20523-0041

ACTION | INFO

DATE: September 13, 1991

PLEASE DELIVER THE FOLLOWING PAGES TO

NAME: MIKE HUFFMAN, PDO

OFFICE: USAID/SUVA

FAX NUMBER: 679 300 075 TELE NUMBER: 679 311 399

THIS MESSAGE IS FROM: KATHERINE BLAKESLEE, ACTING DIRECTOR, S&T/WID

NUMBER OF PAGES INCLUDING THIS COVER SHEET: 1

COMMENTS: WE RECEIVED YOUR FAX REGARDING WID FUNDING OF $300,000 FOR THE PROFITABLE ENVIRONMENTAL PROTECTION PROJECT. THERE WAS SOME DELAY AND IT ARRIVED IN OUR OFFICE ON 9-12-91. WE HAVE REVIEWED THE PROPOSED WID ACTIVITIES AND CONSIDER THEM HIGHLY FUNDABLE AND THEREFORE ANTICIPATE APPROVAL. AS YOU KNOW, WE CANNOT MAKE A FINAL FIRM COMMITMENT UNTIL OUR NOVEMBER REVIEW CYCLE WHEN FY 92 FUNDS ARE ALLOCATED. A NEW DIRECTOR WILL BE JOINING OUR OFFICE SOME TIME IN OCTOBER, BUT WE DO NOT ANTICIPATE A MAJOR SHIFT IN PRIORITIES. WE WISH YOU ALL SUCCESS ON THIS IMPORTANT PROJECT.

TO SEND US A FAX, CALL (202) 647-9390
TO TALK TO US, CALL (202) 647-3992

COMPLETED

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SUBJECT: PROFITABLE ENVIRONMENTAL PROTECTION PROJECT (0700033) - AID/W PID REVIEW

1. THE SUBJECT PID WAS REVIEWED 2/6/91. MISSION IS

COMMENDED FOR DEVELOPING INNOVATIVE APPROACH TO ADDRESSING PRIORITY CONCERN OF ENVIRONMENTAL PROTECTION THROUGH THE APPLICATION OF SUSTAINABLE, PRIVATE SECTOR DELIVERY MECHANISMS. THIS APPROACH IS FULLY CONSISTENT WITH BUREAU PHILOSOPHY AND WOULD SERVE AS A TESTING GROUND FOR ENVIRONMENTAL PROTECTION PROJECTS ELSEWHERE. MISSION IS AUTHORIZED TO PROCEED WITH PP DEVELOPMENT, AND AD HOC PROJECT AUTHORIZATION AUTHORITY IS HEREBY DELEGATED TO THE REGIONAL DIRECTOR, SOUTH PACIFIC.

2. THE PROJECT REVIEW COMMITTEE CONSISTED OF REPRESENTATIVES FROM APRE/PD, TR, A, I, EM, SMIE, SPEE, PPC/PB, PPC/WID, ST/TENR, ST/AGR, STATE/OES/ENV, AND STATE/EAP/PIA. A TOTAL OF TWELVE ISSUES WERE DISCUSSED WITH MISSION REPRESENTATIVES JIM OSBORN AND AMY NOLAN OSBORN.

3. THE FOLLOWING PP PREPARATION GUIDANCE RESULTED FROM

THE REVIEW AND SUBSEQUENT MEETINGS:

A. BUSINESS DEVELOPMENT VS. ENVIRONMENTAL PROTECTION EMPHASIS - IT WAS UNCLEAR TO THE COMMITTEE AS TO WHICH OF THE TWO PROJECT THEMES WOULD BE THE DRIVING FORCE IN DETERMINING PROJECT FOCUS. IT WAS LEARNED FROM THE MISSION REPRESENTATIVES THAT NATURAL RESOURCE CONSERVATION WOULD BE THE MAJOR EMPHASIS AND THAT BUSINESS DEVELOPMENT WOULD REPRESENT THE CHOSEN AID PROJECT DELIVERY MECHANISM. THE ESTABLISHMENT OF THIS UNDERSTANDING AS A GUIDING PRINCIPAL IS IMPORTANT TO PRODUCE FOCUSED CRITERIA FOR ACTIVITY SELECTION TO BE

APPLIED DURING PROJECT DESIGN AND IMPLEMENTATION. IN A

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LARGE REGION WITH ENDLESS ENVIRONMENTAL NEEDS AND VARIOUS COMMERCIAL OPPORTUNITIES, SELECTIVELY SCREENING POSSIBLE ACTIVITIES FIRST FOR THEIR ENVIRONMENTAL VALUE AND SECONDLY FOR THEIR COMMERCIAL VIABILITY IS THE KIND OF PROJECT DIRECTION REQUIRED TO SIFT THROUGH THE TOWERING IDEAS THAT MAY SURFACE DURING A MULTI YEAR PROJECT.

B. ENVIRONMENTAL ASSESSMENTS AND PROJECT FOCUS - THE BUREAU ENVIRONMENTAL COORDINATOR, HOLLY KUX ESTABLISHED THE NEED FOR ENVIRONMENTAL ASSESSMENTS FOR PROJECT ACTIVITIES. NOT ONLY WILL THIS REQUIREMENT ASSURE THAT THE ACTIVITIES ARE ENVIRONMENTALLY SOUND, BUT CAN BE USEFUL TO FASHIONE FURTHER PROJECT FOCUS. THE COMMITTEE BELIEVED THAT PROJECT ACTIVITIES SHOULD BE CAREFULLY SELECTED AND PROBABLY LIMITED TO SI THAT HAVE THE BEST CHANCE OF SUCCESS AND THAT HAVE THE MOST LIKELIHOOD OF DEMONSTRATING ENVIRONMENTAL PROTECTION THROUGH COMMERCIAL VENTURES. MARINE RESOURCES SHOULD BE INVESTIGATED AS ONE POSSIBILITY.

C. IDENTIFICATION OF CONSTRAINTS TO SMALL BUSINESS DEVELOPMENT - THE COMMITTEE BELIEVES THAT PP DEVELOPMENT SHOULD, INTER ALIA, FOCUS ON IDENTIFICATION OF THE POLICY AND OTHER CONSTRAINTS TO SMALL BUSINESS DEVELOPMENT. ASSUMING THAT THERE ARE OBSTACLES PREVENTING THE ESTABLISHMENT OF MORE ENVIRONMENTAL PROTECTION ENTERPRISES AT PRESENT, WHAT IS THE NATURE OF THE BOTTLENECKS, ARE THEY LEGAL, BUREAUCRATIC, TECHNICAL, INFORMATIONAL, INFRASTRUCTURAL, FINANCIAL OR

MANAGERIALY A CLEARER UNDERSTANDING SHOULD PROVE VALUABLE IN IDENTIFYING THE TYPE OF BUSINESS DEVELOPMENT EXPERTISE THAT WILL BE NECESSARY DURING PROJECT IMPLEMENTATION AND, HENCE, THE BEST CHOICE OF TECHNICAL ASSISTANCE.

D. PROJECT MANAGEMENT BECAUSE THE PROJECT WILL DEAL WITH BUSINESS DEVELOPMENT AS WELL AS ENVIRONMENTAL PROTECTION, THESE TWO QUITE DIFFERENT SKILL AREAS SHOULD BE REPRESENTED ON THE MISSION PROJECT IMPLEMENTATION COMMITTEE. THIS MAY HAVE IMPLICATIONS FOR FUTURE MISSION DIRECT HIRE STAFFING. THE ADDITION OF A DIRECT HIRE PRIVATE SECTOR OFFICER POSITION TO RDO/SP STAFFING PATTERN IS NOT ONLY INDICATED FOR THIS PROJECT, BUT OTHERS, E.G., MARC AND CAD.

E. GENDER ANALYSIS - IT WAS AGREED THAT THE PP DESIGN SCOPE OF WORK WILL INCLUDE APPROPRIATE GENDER ANALYSIS, INCLUDING THE FORMULATION OF A PLAN TO COLLECT AND MONITOR GENDER DISAGGREGATED INFORMATION DURING PROJECT IMPLEMENTATION. PPC/WID STANDS READY TO IDENTIFY/PROVIDE SPECIALIZED EXPERTISE FOR THIS DESIGN TASK.

F. LINKAGE WITH CENTRAL PROJECTS - THE COMMITTEE RECOMMENDS THAT THE PP IDENTIFY WHICH CENTRAL PROJECTS MAY BE UTILIZED BY THE PROJECT AND THE APPROXIMATE FUNDING WHICH WILL BE SET ASIDE FOR BUY-INS. THIS WILL REQUIRE DETAILED DISCUSSIONS BETWEEN THE PP DESIGN TEAM AND THE MANAGERS OF THE APPROPRIATE CENTRAL PROJECTS. A MECHANISM FOR GETTING THE PROJECT FUNDS ASIDE FOR THE

BUYINS ALSO NEEDS TO BE IDENTIFIED.

4. APRE/DR/PD AWAITS A REVISED IEE, INCLUDING THE EA REQUIREMENT REFERRED TO IN PARA 3B ABOVE, FOR TR APPROVAL AND INCLUSION IN THE FINALIZED PID. EAGLEBURGER

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5C(2) - ASSISTANCE CHECKLIST

Listed below are statutory criteria applicable to the assistance resources themselves, rather than to the eligibility of a country to receive assistance. This section is divided into three parts. Part A includes criteria applicable to both Development Assistance and Economic Support Fund resources. Part B includes criteria applicable only to Development Assistance resources. Part C includes criteria applicable only to Economic Support Funds.

Profitable Environmental Protection Project 879-0023

CROSS REFERENCE: IS COUNTRY CHECKLIST UP TO DATE?

Yes, See MARC PP

A. CRITERIA APPLICABLE TO BOTH DEVELOPMENT ASSISTANCE AND ECONOMIC SUPPORT FUNDS

1. **Host Country Development Efforts** (FAA Sec. 601(a)): Information and conclusions on whether assistance will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture, and commerce; and (f) strengthen free labor unions.

Assistance is for environmental improvement but should have some positive impact on (a), (b), and (e)

2. **U.S. Private Trade and Investment** (FAA Sec. 601(b)): Information and conclusions on how assistance will encourage U.S. private trade and investment abroad and encourage private u.s. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).

U.S. PVO implementing the project will use services of U.S. private organizations

3. **Congressional Notification**

a. **General requirement** (FY 1991 Appropriations Act Secs. 523 and 591; FAA Sec. 634A): If money is to be obligated for an activity not previously justified to Congress, or for an amount in excess of amount previously justified to Congress, has Congress been properly notified (unless the notification requirement has been waived because of substantial risk to human health welfare)?	Congress has been notified
b. **Notice of new account obligation** (FY 1991 Appropriations Act Sec. 514): If funds are being obligated under an appropriation account to which they were not appropriated, has the President consulted with and provided a written justification to the House and Senate Appropriations Committees and has such obligation been subject to regular notification procedures?	NA
c. **Cash transfers and nonproject sector assistance** (FY 1991 Appropriations Act Sec. 575(b)(3)): If funds are to be made available in the form of cash transfer or nonproject sector assistance, has the Congressional notice included a detailed description of how the funds will be used, with a discussion of U.S. interests to be served and a description of any economic poolicy reforms to be promoted?	NA
4. **Engineering and Financial Plans** (FAA Sec. 611(a)): Prior to an obligation in excess of $500,000, will there be: (a) engineering, financial or other plans necessary to carry out the assistance; and (b) a reasonably firm estimate of the cost to the U.S. of the assistance?	Yes, see PP

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5. **Legislative Action** (FAA Sec. 611(a)(2)): If legislative action is required within recipient country with respect to an obligation in excess of $500,000, what is the basis for a reasonable expectation that such action will be completed in time to permit orderly acconplishment of the purpose of the assistance?

No legislative Action needed

6. **Water Resources** (FAA Sec. 611(b); FY 1991 Appropriations Act Sec. 501): If project is for water or water-related land resource construction, have benefits and cos@s been computed to the extent practicable in accordance with the principles, standards, and procedures established pursuant to the Water Resources Planning Act (42 U.S.C. 1962, et seq.)? (See A.I.D. Handbook 3 for guidelines.)

NA

7. **Cash Transfer and Sector Assistance** (FY 1991 Appropriations Act Sec. 575(b)): Will cash transfer or nonproject sector assistance be maintained in a separate account and not commingled with other funds (unless such requirements are waived by Congressional notice for nonproject sector assistance)?

NA

8. **Capital Assistance** (FAA Sec. 611(e)): If project is capital assistance (e.g., construction), and total U.S. assistance for it will exceed $1 million, has Mission Director certified and Regional Assistant Administrator taken into consideration the country's capability to maintain and utilize the project effectively?

NA

9. **Multiple Country Objectives** (FAA Sec. 601(a)): Information and conclusions on whether projects will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage

Same answer as # 1 above

monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.

10. **U.S. Private Trade** (FAA Sec. 601(b)): Information and conclusions on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).

Same asnwer as # 2 above

11. **Local Currencies**

a. **Recipient Contributions** (FAA Secs. 612(b), 636(h)): Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the U.S. are utilized in lieu of dollars.

As regional project to private sector, countries are not required to contribute local currency

b. **U.S.-Owned Currency** (FAA Sec. 612(d)): Does the U.S. own excess foreign currency of the country and, if so, what arrangements have been made for its release?

No

c. **Separate Account** (FY 1991 Appropriations Act Sec. 575). If assistance is furnished to a foreign government under arrangements which result in the generation of local currencies:

NA

(1) Has A.I.D. (a) required that local currencies be deposited in a separate account established by the recipient government, (b) entered into an agreement with that government providing the amount of local currencies to be generated and the terms and conditions under which the currencies so deposited may be utilized, and (c) established by agreement the responsibilities of

A.I.D. and that government to monitor and account for deposits into and disbursements from the separate account?

(2) Will such local currencies, or an equivalent amount of local currencies, be used only to carry out the purposes of the DA or ESF chapters of the FAA (depending on which chapter is the source of the assistance) or for the administrative requirements of the United States Government?

(3) Has A.I.D. taken all appropriate steps to ensure that the equivalent of local currencies disbursed from the separate account are used for the agreed purposes?

(4) If assistance is terminated to a country, will any unencumbered balances of funds remaining in a separate account be disposed of for purposes agreed to by the recipient government and the United States Government?

12. **Trade Restrictions**

a. **Surplus Commodities** (FY 1991 Appropriations Act Sec. 521(a)): If assistance is for the production of any commodity for export, is the commodity likely to be in surplus on world markets at the time the resulting productive capacity becomes operative, and is such assistance likely to cause substantial injury to U.S. producers of the same, similar or competing commodity? NA

b. **Textiles (Lautenberg Amendment)** (FY 1991 Appropriations Act Sec. 521(c)): Will the assistance (except for programs in Caribbean Basin Initiative countries under U.S. Tariff Schedule "Section 807," which allows reduced tariffs on articles assembled abroad from U.S.-made components) be used directly to procure feasibility No

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studies, prefeasibility studies, or project profiles of potential investment in, or to assist the establishment of facilities specifically designed for, the manufacture for export to the United States or to third country markets in direct competition with U.S. exports, of textiles, apparel, footwear, handbags, flat goods (such as wallets or coin purses worn on the person), work gloves or leather wearing apparel?

13. **Tropical Forests** (FY 1991 Appropriations Act Sec. 533(c)(3)): Will funds be used for any program, project or activity which would (a) result in any significant loss of tropical forests, or (b) involve industrial timber extraction in primary tropical forest areas?

No. Project might help preserve tropical forests

14. **Sahel Accounting** (FAA Sec. 121(d)): If a Sahel project, has a determination been made that the host government has an adequate system for accounting for and controlling receipt and expenditure of project funds (either dollars or local currency generated therefrom)?

NA

15. **PVO Assistance**

a. **Auditing and registration** (FY 1991 Appropriations Act Sec. 537): If assistance is being made available to a PVO, has that organization provided upon timely request any document, file, or record necessary to the auditing requirements of A.I.D., and is the PVO registered with A.I.D.?

Yes

b. **Funding sources** (FY 1991 Appropriations Act, Title II, under heading "Private and Voluntary Organizations"): If assistance is to be made to a United States PVO (other than a cooperative development organization), does it obtain at least 20 percent of its total annual funding for international activities from

Yes

sources other than the United States Government?

16. **Project Agreement Documentation** (State Authorization Sec. 139 (as interpreted by conference report)): Has confirmation of the date of signing of the project agreement, including the amount involved, been cabled to State L/T and A.I.D. LEG within 60 days of the agreement's entry into force with respect to the United States, and has the full text of the agreement been pouched to those same offices? (See Handbook 3, Appendix 6G for agreements covered by this provision).

NA. No project agreement will be signed

17. **Metric System** (Omnibus Trade and Competitiveness Act of 1988 Sec. 5164, as interpreted by conference report, amending Metric Conversion Act of 1975 Sec. 2, and as implemented through A.I.D. policy): Does the assistance activity use the metric system of measurement in its procurements, grants, and other other business-related activities, except to the extent that such use is impractical or is likely to cause significant inefficiencies or loss of markets to United States firms? Are bulk purchases usually to be made in metric, and are components, subassemblies, and semi-fabricated materials to be spfcified in metric units when economically available and technically adequate? Will A.I.D. specifications use metric units of measure from the earliest programmatic stages, and from the earliest documentation of the assistance processes (for example, project papers) involving quantifiable measurements (length, area, volume, capacity, mass and weight), through the implementation stage?

NA

18. **Women in Development** (FY 1991 Appropriations Act, Title II, under heading "Women in Development"): Will assistance be designed so that the

Yes

percentage of women participants will be demonstrably increased?

19. **Regional and Multilateral Assistance** (FAA Sec. 209): Is assistance more efficiently and effectively provided through regional or multilateral organizations? If so, why is assistance not so provided? Information and conclusions on whether assistance will encourage developing countries to cooperate in regional development programs.

Some project assistance will be provided to regional organization

20. **Abortions** (FY 1991 Appropriations Act, Title II, under heading "Population, DA," and Sec. 525):

a. Will assistance be made available to any organization or program which, as determined by the President, supports or participates in the management of a program of coercive abortion or involuntary sterilization?

No

b. Will any funds be used to lobby for abortion?

No

21. **Cooperatives** (FAA Sec. 111): Will assistance help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward a better life?

Yes if active in environmental matters

22. **U.S.-Owned Foreign Currencies**

a. **Use of currencies** (FAA Secs. 612(b), 636(h); FY 1991 Appropriations Act Secs. 507, 509): Describe steps taken to assure that, to the maximum extent possible, foreign currencies owned by the u.s. are utilized in lieu of dollars to meet the cost of contractual and other services.

No foreign exchange owned

b. **Release of currencies** (FAA Sec. 612(d)): Does the U.S. own excess foreign currency of the country and, if so, what arrangements have been made for its release?

No

23. **Procurement**

a. **Small business** (FAA Sec. 602(a)): Are there arrangements to permit U.S. small business to participate equitably in the furnishing of commodities and services financed? — Yes

b. **U.S. procurement** (FAA Sec. 604(a)): Will all procurement be from the U.S. except as otherwise determined by the President or determined under delegation from him? — Yes

c. **Marine insurance** (FAA Sec. 604(d)): If the cooperating country discriminates against marine insurance companies authorized to do business in the U.S., will commodities be insured in the United States against marine risk with such a company? — NA

d. **Non-U.S. agricultural procurement** (FAA Sec. 604(e)): If non-U.S. procurement of agricultural commodity or product thereof is to be financed, is there provision against such procurement when the domestic price of such commodity is less than parity? (Exception where commodity financed could not reasonably be procured in U.S.) — NA

e. **Construction or engineering services** (FAA Sec. 604(g)): Will construction or engineering services be procured from firms of advanced developing countries which are otherwise eligible under Code 941 and which have attained a competitive capability in international markets in one of these areas? (Exception for those countries which receive direct economic assistance under the FAA and permit United States firms to compete for construction or engineering services financed from assistance programs of these countries.)	NA
f. **Cargo preference shipping** (FAA Sec.603)): Is the shipping excluded from compliance with the requirement in section 901(b) of the Merchant Marine Act of 1936, as amended, that at least 50 percent of the gross tonnage of commodities (computed separately for dry bulk carriers, dry cargo liners, and tankers) financed shall be transported onprivately owned U.S. flag commercial vessels to the extent such vessels are available at fair and reasonable rates?	No
g. **Technical assistance** (FAA Sec. 621(a)): If technical assistance is financed, will such assistance be furnished by private enterprise on a contract basis to the fullest extent practicable? Will the facilities and resources of other Federal agencies be utilized, when they are particularly suitable, not competitive with private enterprise, and made available without undue interference with domestic programs?	Yes. TA will be provided by U.S. PVO
h. **U.S. air carriers** (International Air Transportation Fair Competitive Practices Act, 1974): If air transportation of persons or property is financed on grant basis, will U.S. carriers be used to the extent such service is available?	Yes
i. **Termination for convenience of U.S. Government** (FY 1991 Appropriations Act Sec. 504): If the U.S. Government is a	Yes

party to a contract for procurement, does the contract contain a provision authorizing termination of such contract for the convenience of the United States?

j. **Consulting Services** (FY 1991 Appropriations Act Sec. 524): assistance is for consulting service through procurement contract pursuant to 5 u.s.c. 3109, are contract expenditures a matter of public record and available for public inspection (unless otherwise provided by law or Executive order)? — Yes

k. **Metric conversion** (Omnibus Trade and Competitiveness Act of 1988, as interpreted by conference report, amending Metric Conversion Act of 1975 Sec. 2, and as implemented through A.I.D. policy): Boes the assistance program use the metric system of measurement in its procurements, grants, and other business-related activities, except to the extent that such use is impractical or is likely to cause significant inefficiencies or loss of markets to United States firms? Are bulk purchases usually to be made in metric, and are components, subassemblies, and semi-fabricated materials to be specified in metric units when economically available and technically adequate? Will A.I.D. specifications use metric units of measure from the earliest programmatic stages, and from the earliest documentation of the assistance processes (for example, project papers) involving quantifiable measurements (length, area, volume, capacity, mass and weight), through the implementation stage? — No bulk purchases planned

l. **Competitive Selection Procedures** (FAA Sec. 601(e)): Will the assistance utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise? — Justification made for non-competitive award of grant

24. **Construction**

a. **Capital project** (FAA Sec. 601(d)): If capital (e.g., construction) project, will U.S. engineering and professional services be used? — NA

b. **Construction contract** (FAA Sec. 611(c)): If contracts for construction are to be financed, will they be let on a competitive basis to maximum extent practicable? — NA

c. **Large projects, Congressional approval** (FAA Sec. 620(k)): If for construction of productive enterprise, will aggregate value of assistance to be furnished by the U.S. not exceed $100 million (except for productive enterprises in Egypt that were described in the Congressional Presentation), or does assistance have the express approval of Congress? — NA

25. **U.S. Audit Rights** (FAA Sec.301(d)): If fund is established solely by U.S. contributions and administered by an international organization, does Comptroller General have audit rights? — Yes for grants to international organization

26. **Communist Assistance** (FAA Sec. 620(h). Do arrangements exist to insure that United States foreign aid is not used in a manner which, contrary to the best interests of the United States, promotes or assists the foreign aid projects or activities of the Communist-bloc countries? — Yes

27. **Narcotics**

a. **Cash reimbursements** (FAA Sec. 483): Will arrangements preclude use 0@ financing to make reimbursements, in the form of cash payments, to persons whose illicit drug crops are eradicated? — Yes

b. **Assistance to narcotics traffickers** (FAA Sec. 487): Will arrangements take "all reasonable steps" to preclude use of financing to or through individuals or entities which we know or have reason to — Yes

believe have either: (1) been convicted of a violation of any law or regulation of the United States or a foreign country relating to narcotics (or other controlled substances); or (2) been an illicit trafficker in, or otherwise involved in the illicit trafficking of, any such controlled substance?

28. **Expropriation and Land Reforn** (FAA Sec. 620(g)): Will assistance preclude use of financing to compensate owners for expropriated or nationalized property, except to compensate foreign nationals in accordance with a land reform program certified by the President? — Yes

29. **Police and Prisons** (FAA Sec. 660): Will assistance preclude use of financing to provide training, advice, or any financial support for police, prisons, or other law enforcemegt forces, except for narcotics programs? — Yes

30. **CIA Activities** (FAA Sec. 662): Will assistance preclude use of financing for CIA activities? — Yes

31. **Motor Vehicles** (FAA Sec. 636(i)): Will assistance preclude use of financing for purchase, sale, long-term lease, exchange or guaranty of the sale of motor vehicles manufactured outside U.S., unless a waiver is obtained? — Waiver given for one vehicle

32. **Military Personnel** (FY 1991 Appropriations Act Sec. 503): Will assistance preclude use of financing to pay pensions, annuities, retirement pay, or adjusted service compensation for prior or current military personnel? — Yes

33. **Payment of U.N. Assessments** (FY 1991 Appropriations Act Sec. 505): Will assistance preclude use of financing to pay U.N. assessments, arrearages or dues? — Yes

34. **Multilateral Organization Lending** (FY 1991 Appropriations Act Sec. 506): Will assistance preclude use of financing to pay U.N. assessments, arrearages or dues? — Yes

35. **Export of Nuclear Resources** (FY 1991 Appropriations Act Sec. 510): Will assistance preclude use of financing to finance the export of nuclear equipment, fuel, or technology? Yes

36. **Repression of Population** (FY 1991 Appropriations Act Sec. 511): Will assistance preclude use of financing for the purpose of aiding the efforts of the government of such country to repress the legitimate rights of the population of such country contrary to the Universal Declaration of Human Rights? Yes

37. **Publicity or Propoganda** (FY 1991 Appropriations Act Sec. 516): Will assistance be used for publicity or propaganda purposes de$igned to support or defeat legislation pending before Congress, to influence in any way the outcome of a political election in the United States, or for any public@ty or propaganda purposes not authorized by Congress? No

38. **Marine Insurance** (FY 1991 Appropriations Act Sec. 563): Will any A.I.D. contract and solicitation, and subcontract entered into under such contract, include a clause requiring that u.s. marine insurance companies have a fair opportunity to bid for marine insurance when such insurance is necessary or appropriate? Yes

39. **Exchange for Prohibited Act** (FY 1991 Appropriations Act Sec. 569): Will any assistance be provided to any foreign government (including any instrumentality or agency thereof), foreign person, or United States person in exchange for that foreign government or person undertaking any action which is, if carried out by the United States Government, a United States official or employee, expressly prohibited by a provision of United States law? No

B. CRITERIA APPLICABLE TO DEVELOPMENT ASSISTANCE ONLY

1. **Agricultural Exports (Bumpers Amendment)** (FY 1991 Appropriations Act Sec. 521(b), as interpreted by conference report for original enactment): If assistance is for agricultural development activities @specifically, any testing or breeding feasibility study, variety improvement or introduction, consultancy, publication, conference, or training), are such activities: (1) specifically and principally designed to increase agricultural exports by the host country to a country other than the United States, where the export would lead to direct competition in that third country with exports of a similar commodity grown or produced in the United States, and can the activities reasonably be expected to cause substantial injury to U.S. exporters of a similar agricultural commodity; or (2) in support of research that is intended primarily to benefit U.S. producers?	NA
2. **Tied Aid Credits** (FY 1991 Appropriations Act, Title II, under heading "Economic Support Fund"): Will DA funds be used for tied aid credits?	No
3. **Appropriate Technology** (FAA Sec. 107): Is special emphasis placed on use of appropriate technology (defined as relatively smaller, cost-saving, labor-using technologies that are generally most appropriate for the small farms, small businesses, and small incomes of the poor)?	Yes
4. **Indigenous Needs and Resources** (FAA Sec. 281(b)): Describe extent to which the activity recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage institutional development; and supports civic education and training in skills required for effective participation in governmental and political processes essential to self-government.	Project to help environment of cooperating countries and will use capacities of their peoples

5. **Economic Development** (FAA Sec. 101(a)): Does the activity give reasonable promise of contributing to the development of economic resources, or to the increase of productive capacities and self-sustaining economic growth?	Yes
6. **Special Development Emphases** (FAA Secs. 102(b), 113, 281(a)): Describe extent to which activity will: (a) effectively involve the poor in development by extending access to economy at local level, increasing labor-intensive production and the use of appropriate technology, dispersing investment from cities to small towns and rural areas, and insuring wide participation of the poor in the benefits of development on a sustained basis, using appropriate U.S. institutions; (b) encourage democratic private and local governmentalinstitutions; (c) support the self-help efforts of developing countries; (d) promote the participation of women in the national economies of developing countries and the improvement of women's status; and (e) utilize and encourage regional cooperation by developing countries.	Project will help in all five ways as described in PP
7. **Recipient Country Contribution** (FAA Secs. 110, 124(d)): Will the recipient country provide at least 25 percent of the costs of the program, project, or activity with respect to which the assistance is to be furnished (or is the latter cost-sharing requirement being waived for a "relatively least developed" country)?	Not required as this is regional project
8. **Benefit to Poor Majority** (FAA Sec. 128(b)): If the activity attempts to increase the institutional capabilities of private organizations or the government of the country, or if it attempts to stimulate scientific and technological research, has it been designed and will it be monitored to ensure that the ultimate beneficiaries are the poor majority?	Yes

9. **Abortions** (FAA Sec. 104(f); FY 1991 Appropriations Act, Title II, under heading "Population, DA," and Sec. 535):

a. Are any of the funds to be used for the performance of abortions as a method of family planning or to motivate or coerce any person to practice abortions? No

b. Are any of the funds to be used to pay for the performance of involuntary sterilization as a method of family planning or to coerce or provide any financial incentive to any person to undergo sterilizations? No

c. Are any of the funds to be made available to any organization or program which, as determined by the President, supp@rts or participates in the management of a program of coercive abortion or involuntary sterilization? No

d. Will funds be made available only to voluntary family planning projects which offer, either directly or through referral to, or information about access to, a broad range of family planning methods and services? NA

e. In awarding grants for natural family planning, will any applicant be discriminated against because of such applicant's religious or conscientious commitment to offer only natural family planning? NA

f. Are any of the funds to be used to pay for any biomedical research which relates, in whole or in part, to methods of, or the performance of, abortions or involuntary sterilization as a means of family planning? No

g. Are any of the funds to be made available to any organization if the President certifies that the use of these funds by such organization would violate any of the above provisions related to abortions and involuntary sterilization? No

10. **Contract Awards** (FAA Sec. 601(e)): Will the project utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise?	Justification for Non-competition in PP
11. **Disadvantaged Enterprises** (FY 1991 Appropriations Act Sec. 567): What portion of the funds will be available only for activities of economically and socially disadvantaged enterprises, historically black colleges and universities, colleges and universities having a student body in which more than 40 percent of the students are Hispanic Americans, and private and voluntary organizations which are controlled by individuals who are black Americans, Hispanic Americans, or Native Americans,or who are economically or socially disadvantaged (including women)?	PVO will use such organizations to extent possible
12. **Biological Diversity** (FAA Sec. 119(g): Will the assistance: (a) support training and education efforts which improve the capacity of recipient countries to prevent loss of biological diversity; (b) be provided under a long-term agreement in which the recipient country agrees to protect ecosystems or other wildlife habitats; (c) support efforts to identify and survey ecosystems in recipient countries worthy of protection; or (d) by any direct or indirect means significantly degrade national parks or similar protected areas or introduce exotic plants or animals into such areas?	(a) Yes (b) Yes (c) Yes (d) No
13. **Tropical Forests** (FAA Sec. 118; FY 1991 Appropriations Act Sec. 533(c)-(e) & (g)):	
a. **A.I.D. Regulation 16: Does** the assistance comply with the environmental procedures set forth in A.I.D. Regulation 16?	Yes
b. **Conservation:** Does the assistance place a high priority on	Yes

conservation and sustainable management of tropical forests? Specifically, does the assistance, to the fullest extent feasible: (1) stress the importance of conserving and sustainably managing forest resources;	(1)	Yes
(2) support activities whicb offer employment and income alternatives to those who otherwise would cause destruction and loss of forests, and help countries identify and implement alternatives to colonizing forested areas;	(2)	Yes
(3) support training programs, educational efforts, and the establishment or strengthening of institutions to improve forest management;	(3)	Yes
(4) help end destructive slash-and-burn agriculture by supporting stable and productive farming practices;	(4)	Yes
(5) help conserve forests which have not yet been degraded by helping to increase production on lands already cleared or degraded;	(5)	Yes
(6) conserve forested watersheds and rehabilitate those which have been deforested;	(6)	Yes
(7) support training, research, and other actions which lead to sustainable and more environmentally sound practices for timber harvesting, removal, and processing;	(7)	No as training & research not in project
(8) support research to expand knowledge of tropical forests and identify alternatives which will prevent forest destruction, loss, or degradation;	(8)	No
(9) conserve biological diversity in forest areas by supporting efforts to identify, establish, and maintain a representative network of protected tropical forest ecosystems on a worldwide basis, by making the establishment of protected areas a condition of support for activities involving forest clearance or degradation, and by helping to identify tropical forest ecosystems and species in need of protection and establish and maintain appropriate protected areas;	(9)	Yes
(10) seek to increase the awareness of U.S. Government agencies and other donors of the immediate and long-term value of tropical forests;	(10)	Yes
(11) utilize the resources and abilities of all	(11)	NA

relevant U.S. government agencies; (12) be based upon careful analysis of the alternatives available to achieve the best sustainable use of the land; and (13) take full account of the environmental impacts of the proposed activities on biological diversity?	(12) Yes (13) Yes
c. **Forest degradation:** Will assistance be used for: (1) the procurement or use of logging equipment, unless an environmental assessment indicates that all timber harvesting operations involved will be conducted in an environmentally sound manner and that the proposed activity will produce positive economic benefits and sustainable forest management systems; (2) actions which will significantly degrade national parks or similar protected areas which contain tropical forests, or introduce exotic plants or animals into such areas; (3) activities which would result in the conversion of forest lands to the rearing of livestock; (4) the construction, upgrading, or maintenance of roads (including temporary haul roads for logging or other extractive industries) which pass through relatively undergraded forest lands; (5) the colonization of forest lands; or (6) the construction of dams or other water control structures which flood relatively undergraded forest lands, unless with respect to each such activity an environmental assessment indicates that the activity will contribute significantly and directly to improving the livelihood of the rural poor and will be conducted in an environmentally sound manner which supports sustainable development?	No
d. **Sustainable forestry:** If assistance relates to tropical forests, will project assist countries in developing a systematic analysis of the appropriate use of their total tropical forest resources, with the goal of developing a national program for sustainable forestry?	Yes through help to private sector

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e. **Environmental impact statements:** Will funds be made available in accordance with provisions of FAA Section 117(c) and applicable A.I.D. regulations requiring an environmental impact statement for activities significantly affecting the environment? — Yes

14. **Energy** (FY 1991 Appropriations Act Sec. 533(c)): If assistance relates to energy, will such assistance focus on: (a) end-use energy efficiency, least-cost energy planning, and renewable energy resources, and (b) the key countries where assistance would have the greatest impact on reducing emissions from greenhouse gases? — NA

15. **Sub-Saharan Africa Assistance** (FY 1991 Appropriations Act Sec. 562, adding a new FAA chapter 10 (FAA Sec. 496)): If assistance will come from the Sub-Saharan Africa DAa'ccount, is it: (a) to be used to help the poor majority in Sub-Saharan Africa through a process of long-term development and economic growth that is equitable, participatory, environmentally sustainable, and self-reliant; (b) to be used to promote sustained economic growth, encourage private sector development, promote individual initiatives, and help to reduce the role of central governments in areas more appropriate for the private sector; (c) being provided in accordance with the policies contained in FAA section 102; (d) being provided in close consultation with African, United States and other PVOs that have demonstrated effectiveness in the promotion of local grassroots activities on behalf of long-term development in Sub-Saharan Africa; (e) being used to promote reform of sectoral economic policies, to support the critical sector priorities of agricultural production and natural resources, health, voluntary family planning services, education, and income generating opportunities, to bring about appropriate sectoral restructuring of the Sub-Saharan African economies, to — NA

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support reform in public administration and finances and to establish a favorable environment for individual enterprise and self-sustaining development, and to take into account, in assisted policy reforms, the need to protect vulnerable groups; (f) being used to increase agricultural production in ways that protect and restore the natural resource base, especially food production, to maintain and improve basic transportation and communication networks,to maintain and restore the renewable natural resource base in ways that increase agricultural production, to improve health conditions with special emphasis on meeting the health needs of mothers and children, including the establishment of self-sustaining primary health care systems that give priority to preventive care, to provide increased access to voluntary family planning services, to improve basic literacy and mathematics especially to those outside @he.formal educational system and to @Rprove primary education, and to develop income-generating opportunities for the unemployed and underemployed in urban and rural areas?

16. Debt-for-Nature Exchange (FAA Sec. 463): If project will finance a debt-for-nature exchange, describe how the exchange will support protection of: (a) the world's oceans and atmosphere, (b) animal and plant species, and (c) parks and reserves; or describe how the exchange will promote: (d) natural resource management, (e) local conservation programs, (f) conservation training programs, (g) public commitment to conservation, (h) land and ecosystem management, and (i) regenerative approaches in farming, forestry, fishing, and watershed management. NA

17. Deobligation/Reobligation (FY I991 Appropriations Act Sec. 515): If deob/reob authority is sought to be exercised in the provision of DA assistance, are the funds being obligated for the same general purpose, NA

and for countries within the same region as originally obligated, and have the House and Senate Appropriations Committees been properly notified?

18. Loans NA

a. **Repayment capacity** (FAA Sec. 122(b)): Information and conclusion on capacity of the country to repay the loan at a reasonable rate of interest

b. **Long-range plans** (FAA Sec. 122(b)): Does the activity give reasonable promise of assisting long-range plans and programs designed to develop economic resources and increase productive capacities?

c. **Interest rate** (FAA Sec. 122(b)): If development loan is repayable in dollars, is interest rate at least 2 percent per annum during a grace pe@iod which is not to exceed ten years, and at least 3 percent per annum thereafter?

d. **Exports to United States** (FAA Sec. 620(d)): If assistance is for any productive enterprise which will compete with U.S. enterprises, is there an agreement by the recipient country to prevent export to the U.S. of more than 20 percent of the enterprise's annual production during the life of the loan, or has the requirement to enter into such an agreement been waived by the President because of a national security interest?

19. **Development Objectives** (FAA Secs. 102(a), 111, 113, 281(a)): Extent to which activity will: (1) effectively involve the poor in development, by expanding access to economy at local level, increasing labor-intensive production and the use of appropriate technology, spreading investment out from cities

Same answer as # 6 above

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to small towns and rural areas, and insuring wide participation of the poor in the benefits of development on a sustained basis, using the appropriate U.S.institutions; (2) help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward better life, and otherwise encourage democratic private and local governmental institutions; (3) support the self-help efforts of developing countries; (4) promote the participation of women in the national economies of developing countries and the improvement of women's status; and (5) utilize and encourage regional cooperation by developing countries?

20. **Agriculture, Rural Development and Nutrition, and Agricultural Research** (FAA Secs. 103 and 103A):

a. **Rural poor and small farmers:** If assistance is being made available for agriculture, rural development or nutrition, describe extent to which activity is specifically designed to increase productivity and income of rural poor; or if assistance is being made available for agricultural research, has account been taken of the needs of small farmers, and extensive use of field testing to adapt basic research to local conditions shall be made.

Project to help rural & urban private sector with profitable enterprises

b. **Nutrition:** Describe extent to which assistance is used in coordination with efforts carried out under FAA Section 104 (Population and Health) to help improve nutrition of the people of developing countries through encouragement of increased production of crops with greater nutritional value; improvement of planning, research, and education with respect to nutrition, particularly with reference to improvement and expanded use of indigenously produced foodstuffs; and the undertaking of pilot or demonstration programs explicitly

NA

addressing the problem of malnutrition of poor and vulnerable people.

c. **Food security:** Describe extent to which activity increases national food security by improving food policies and management and by strengthening national food reserves, with particular concern for the needs of the poor, through measures encouraging domestic production, building national food reserves, expanding available storage facilities, reducing post harvest food losses, and improving food distribution. NA

21. **Population and Health** (FAA Secs. 104(b) and (c)): If assistance is being made available for population or health activities, describe extent to which activity emphasizes low-cost, integrated delivery systems for health, nutrition and family planning for the poorest people, with particular attention to thr needs of mothers and young children, using paramedical and auxiliary medical personnel, clinics and health posts, commercial distribution systems, and other modes of community outreach. NA

22. **Education and Human Resources Development** (FAA Sec. 105): If assistance is being made available for education, public administration, or human resource development, describe (a) extent to which activity strengthens nonformal education, makes formal education more relevant, especially for rural families and ur@an poor, and strengthens management capability of institutions enabling the poor to participate in development; and (b) extent to which assistance provides advanced education and training of people of developing countries in such disciplines as are required for planning and implementation of public and private development activities. NA

23. **Energy, Private Voluntary Organizations, and Selected Development Activities** (FAA Sec. 106): If

assistance is being made available for energy, private voluntary organizations, and selected development problems, describe extent to which activity is:

a. concerned with data collection and analysis, the training of skilled personnel, research on and development of suitable energy sources, and pilot projects to test new methods of energy production; and facilitative of research on and development and use of small-scale, decentralized, renewable energy sources for rural areas, emphasizing development of energy resources which are environmentally acceptable and require minimum capital investment; — NA

b. concerned with technical cooperation and development, expecially with U.S. private and voluntary, or regional and international development, organizations; — Implementation is by U.S. PVO

c. research into, and evaluation of, economics development processes and techniques; — NA

d. reconstruction after natural or manmade disaster and programs of disaster preparedness; — NA

e. for special development problems, and to enable proper utilization of infrastructure and related projects funded with earlier U.S. assistance; — To promote profitable businesses that conserve the environment

f. for urban development, especially small, labor-intensive enterprises, marketing systems for small producers, and financial or other institutions to help urban poor participate in economic and social development. — NA

24. **Sahel Development** (FAA Secs. 120-21). If assistance is being made available for the Sahelian region, describe: (a) extent to which there is — NA

international coordination in planning and implementation; participation and support by African countries and organizations in determining development priorities; and a long-term, multidonor development plan which calls for equitable burden-sharing with other donors; (b) whether a determination has been made that the host government has an adequate system for accounting for and controlling receipt and expenditure of projects funds (dollars or local currency generated therefrom).

C. CRITERIA APPLICABLE TO ECONOMIC SUPPORT FUNDS ONLY NA

1. **Economic and Political Stability** (FAA Sec. 531(a)): Will this assistance promote economic and political stability? To the maximum extent feasible, is this assistance consistent with the policy directions, purposes, and programs of Part I of the FAA?

2. **Military Purposes** (FAA Sec. 531(e)): Will this assistance be used for military or paramilitary purposes?

3. **Commodity Grants/Separate Accounts** (FAA Sec. 609): If commodities are to be granted so that sale proceeds will accrue to the recipient country, have Special Account (counterpart) arrangements been made?

4. **Generation and Use of Local Currencies** (FAA Sec. 531(d)): Will ESF funds made available for moddodity import programs or other program assistance be used to generate local currencies? If so, will at least 50 percent of such local currencies be available to support activities consistent with the objectives of FAA sections 103 through 106?

5. **Cash Transfer Requirements** (FY 1991 Appropriations Act, Title II, under heading "Economic Support Fund," and Sec. 575(b)). If assistance is in the form of a cash transfer:

a. **Separate account:** Are all such cash payments to be maintained by the country in a separate account and not to be commingled with any other funds?

b. **Local currencies:** Will all local currencies that may be generated with funds provided as a cash transfer to such a coutnry also be deposited in a special account, and has A.I.D. entered into an agreement with that government setting forth the amount of the local currencies to be generated, the terms and conditions under which they are to be used, and the responsibilities of A.I.D. and that government to monitor and account for deposits and disbursements?

c. **U.S. Government use of local currencies:** Will all such local currencies also be used in accordance with FAA Section 609, which requires such local currencies to be made available to the U.S. government as the U.S. determines necessary for the requirements of the U.S. Government, and which requires the remainder to be used for programs agreed to by the U.S. Government to carry out the purposes for which new funds authorized by the FAA would themselves be available?

d. **Congressional notice:** Has Congress received prior notification providing in detail how the funds will be used, including the U.S. interests that will be served by the assistance, and, as approriate, the economic policy reforms that will be promoted by the cash transfer assistance?

INITIAL ENVIRONMENTAL EXAMINATION

Project Location	:	South Pacific Regional
Project Title	:	Profitable Environmental Protection
Project Number	:	879-0023
Life of Project	:	Three Years, Three Months
LOP Funding	:	$2.4 million from RDO/SP OYB and $330,000 from other AID sources
IEE Prepared by	:	Michael Huffman, APRE/DR/PD
Recommended Threshold Decision	:	Positive Determination
Regional Director's Concurrence	:	John B. Woods 9/6/91 Date
APRE Bureau Environmental Coordinator's Concurrence	:	M. Kox, APRE/DR – per addition on p. 4 of IEE attached 9-7-91 Date

A. Description

In the South Pacific region, world-class concentrations of tropical forests and coral reefs are at risk -- habitats to species of plants and animals of incalculable value to future generations -- and, in the case of forests, precious to the planet's climatic balance. These same ecosystems have central importance to the economic life and future economic growth of economies in the region -- through fishery, agriculture, forestry and tourism. Thresholds of irreversible destruction have not been reached.

In South Pacific societies, it is not the governments which control these resources for the most part, but communities, many of them quite isolated and traditional in their views of sharing income and maintaining a balance with nature. Throughout the region, pressures from central governments and big business impact on these communities and tempt them to permit extraction or destruction of their forests, lagoons and reefs. However, to the extent they are influential, central government policies are conflicted, between perceived national growth needs and conservation obligations.

It is the owners and occupants of valuable ecosystems by and large who must determine the environment's fates. These people need attractive sustainable conservation options. The purpose of the PEP project is to demonstrate working models of profitable commercial and community enterprises that enable the long-term conservation of biologically and economically vital ecosystems.

The project will assist the development of profitable enterprise approaches and technologies, seek out and support entrepreneurs and small businesses to apply them, assess results and disseminate models and case studies. It will engage experts from both the conservation science and enterprise development fields and work with and support the South Pacific Regional Environment Program to accelerate the circulation of ideas and energize interest throughout the Pacific and beyond. At the same time, it will support classification of the critical ecosystems or Environmental Management Units (EMU's) the project seeks to protect. And it will provide assistance to governments and non-governmental organizations to fashion and promote policy reforms, regulations and incentive packages, as necessary, to enhance the chances of the enterprises' success.

In sum, the environmental systems treated by the project are important. Activities directly supported by the project will be small in scale, innovative and, in part, experimental in character. However, it is intended that the demonstration effect and influence of the project will be large and lasting.

B. Discussion

In the life of the project it is unlikely that activities will be supported that cumulatively could have a significant direct effect on the environment. Not only s the scale of the project modest, but by design it will spread activities widely among types of ecosystems, societies and islands in up to six countries in the Pacific, working at a very small scale in each case. The project will provide technical assistance, studies and information transfers and small grants. As such it would normally qualify for a categorical exclusion from further environmental scrutiny under section 22CFR Parts 216.2(c) (1) (i) and (iii), and 216.2 (c) (2) (i), (ii), (iii), (v) and (vi).

However, longer term significant environmental effects of the project are central to its purpose and must be considered. The project identifies a general absence throughout the South Pacific region and beyond of enterprises that protect vital ecosystems. It argues that it is necessary to develop models of such enterprises, disseminate them and have them widely adopted if conservation of forest and marine habitats of biodiversity and tropical forests is to succeed there. Examples of enterprises being considered for support are community scale selective logging, tourism development, and collection or cultivation for sale to lucrative markets of butterflies, tropical fish, giant clams and the like. Each one of these involves a resource or class of resources that is fragile and at risk in various locations in the area.

It is recognized that the combination here of resource types, their biological importance and the present vulnerability of their habitats on the one hand and the intention of the project to create the conditions for broad adoption of enterprise approaches that profit from dealing with them, on the other, presents some potential risk. A given enterprise approach, such as "walkabout sawmills", if promoted unintelligently and promiscuously in primitive areas, could conceivably do severe damage -- in that case to the rain forest. Urging on of communities or entrepreneurs to assume debt and other obligations and then the enterprise failing could have a more deleterious effect on the environment (as desperation sets in to recoup losses) than nature having been left to take its course.

The important possible negative impacts of the project would be those arising from poor design and execution of enterprise assistance packages combined with a failure to foresee longer-term effects or predict malign results due to an order of magnitude change, once a model was adopted. These potential impacts include hastened destruction of the forest and reef habitats of endangered species and upset to natural trophic systems on which agriculture and fishery depend. It is essential, therefore, that the project not support profitable enterprise creation or expansion until the

potential impact on the environment is assessed.

C. RECOMMENDED ENVIRONMENTAL THRESHOLD DECISION

A positive determination is recommended.

PEP is intended to entail development and broad dissemination of models of enterprise that protect vital ecosystems. While the project itself is small and consists of technical assistance, studies and small grants only, its consequences are intended to be large. Its purpose is environmentally benign, but if the enterprise models turn out to be environmentally unsound, considerable damage could be done in the long run. Therefore a positive determination is recommended:

Because the test enterprises with which the project will work are not yet identified, environmental assessments of those enterprises will be deferred in accordance with 22 CFR Part 216, Section 2163 (7) "Environmental Review After Authorization of Financing". Due to the nature of the PEP project and the need to assemble both positive and negative environmental effect information over time, the IEE step will be passed over and EA's will be conducted on each enterprise. No assistance will be rendered to potential test enterprises until an EA has been conducted on the enterprise (this is assured by a condition precedent to enterprise assistance in the grant to the implementing organization). Only those enterprises which are shown to have a net positive effect on the environment will be helped. Once an enterprise "passes" the EA test and assistance starts to be rendered, the nature of the assistance will tend to promote environmentally sound actions and to discourage ones which are not. Furthermore, the enterprise will be constantly and closely monitored to determine its actual environmental effects, both beneficial and adverse. The collection of this environmental affect information is central to the project. This is the information the project will disseminate to try to validate the thesis that some profitable enterprises can actually have a positive net effect on the environment.

The AID officer responsible for making environmental decisions for the project is the same officer who has decision making authority for other aspects of implementation: Assistant Regional Director, James Osborn.

The EAs prepared under the PEP project under Sec 216.3 (7) for environmental review after authorization will also follow the process outlined in Sec. 216.3 (4) for scoping and Sec 216.3 (6) for processing and review which requires review and approval of the Scoping Statement and the Environmental Assessment by the Bureau Environmental Officer.

(final paragraph was added by M. Kux Bureau Env. Officer 9-7-91)

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