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CONSERVATION INTERNATIONAL

Biodiversity in Regional Development (BiRD)

Cooperative Agreement No. LAG-A-00-98-00059-00

July 31, 2000

Ms. Cynthia Gill
Biodiversity Specialist
Global Bureau, Environment Center
USAID
Ronald Reagan Bldg 3.08-151
1300 Pennsylvania Ave., NW
Washington, DC 20523-3800

Re: June 15, 2000 Semi-Annual Report

Dear Cynthia,

Please find attached two copies of the June 15, 2000 Semi-Annual Report for Conservation International's *Biodiversity in Regional Development (BiRD)* project. This report covers the period from October 1, 1999 through March 31, 2000 for activities completed under our cooperative agreement with USAID/Global Bureau, Cooperative Agreement No. LAG-A-00-98-00059-00.

I am submitting this report both in email format to you directly, as well as in hardcopy format via the US Postal Service. I look forward to answering any of your questions or providing more detailed information as requested. I can be reached at (202)331-3407 or via email at t.drake@conservation.org.

Best regards,

Theresa M. Vermeulen Drake
Manager, USAID Global Cooperative Agreements

CC: Cynthia Gill, USAID/G/ENV
D. Mason, USAID/Bolivia
E. Stoner, USAID/Brazil
E. Pilla, USAID/Brazil
A. Paterson, USAID/Indonesia
F. Pollock, USAID/Indonesia
W. Sahanaya, USAID/Indonesia
USAID/CDIE/DI

Conservation International
Biodiversity in Regional Development (BiRD)

June 15th Semi-Annual Report
FY00: October 1, 1999– March 31, 2000

Biodiversity in Regional Development (BiRD)
Cooperative Agreement No. LAG-A-00-98-00059-00

Introduction

This Report covers the first six-month period of FY00 from October 1, 1999 through March 31, 2000 for activities completed under the USAID BiRD cooperative agreement. For FY00, obligated funding for the BiRD cooperative agreement supported activities in Bolivia, Brazil, Indonesia, and Papua New Guinea.

Highlights

1) CI-Bolivia

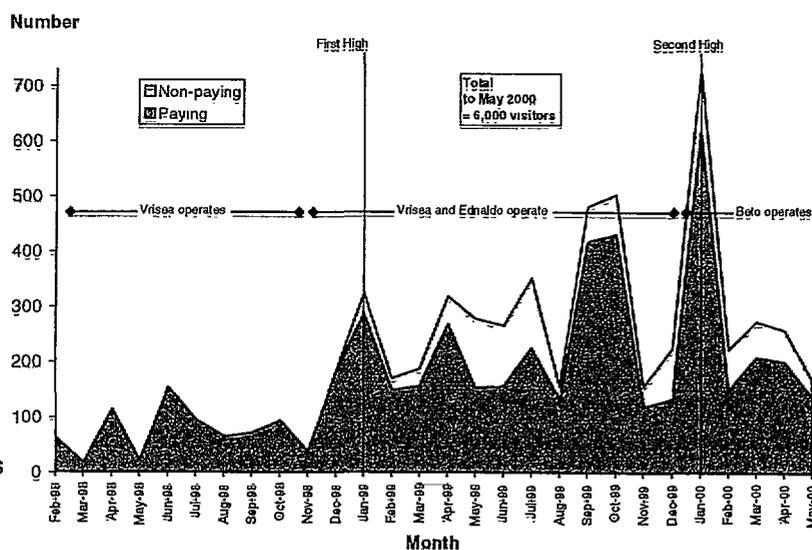
- As part of the activities for the project, the final version of the bi-national biological corridor has been obtained, including the protected areas of Tambopata – Madidi.
- For purposes of establishing a complete database for the PN ANMI Madidi and its zone of influence (between 5 and 10 km from the established limits), a diagnostic of the existing information between the different government entities and NGO's working in northern La Paz has been developed. The second step has been the accomplishment of an interinstitutional meeting held with the National Service for Protected Areas (SERNAP), National Institute of Agricultural Reform (INRA), Institute of Ecology (IE), Natural History Museum Noel Kempff Mercado (MHNNKM), Cultural Defense Center (CEDEC), Wildlife Conservation Society (WCS) and Land Use Plan for La Paz (PLUS): At this meeting, CI-Bolivia presented the objectives of the BiRD Project, the need of existing information and proposed the adequate mechanisms for the exchange and feedback of the information. These two activities have enabled the government entities and NGOs working in northern La Paz have CI-Bolivia to provide the following information:
- CI-Bolivia has signed an agreement with the Institute of Ecology (IE) and consequently, with the Bolivian Fauna Collection (CFB) and the National Herbarium of Bolivia (HNB) for purposes of fulfilling the Bolivian legal regulations relating scientific research, species collection of biological diversity and work in protected areas. This agreement enables students, graduates and professionals to participate in the scientific research.
- Through interinstitutional coordination between CI and WCS, it has been agreed that, by the end of May, after together finalizing the document of threats to the Madidi, the consultations to all the government entities and NGO's working in Northern La Paz will take place. This consultation will enable the document to receive suggestions and contributions before beginning the diffusion process of the results to the financial cooperations and the local performers.
- With the intention to fulfill this purpose, CI-Bolivia has taken the roll of the leader to form the "Inter-institutional Coordination of PN ANMI Madidi". Initially, the first meeting was called for October, 1999, where information was exchanged with regards to the projects in execution or to be executed at the PN ANMI Madidi. The parties participating in this initiative were: CARE, American Museum of Natural History, CI-Bolivia, World Wildlife Fund (WWF) and SERNAP.

- the threats analysis, which took place together with the persons in charge of PN ANMI Madidi and CI-Bolivia was the most important provision for the development of the 4-P Workshop and for the formulation of the Communication Strategy.
- CI will promote “Madidi Week”, which will coincide with the creation date of the protected area (September 21). CI plans to present the following items, among others, in Rurrenabaque and/or La Paz: the baseline studies, threats analysis, logo and mascot of the protected area, radio spots, programmed visits for authorities and journalists to PN ANMI Madidi, the launching of the Biodiversity

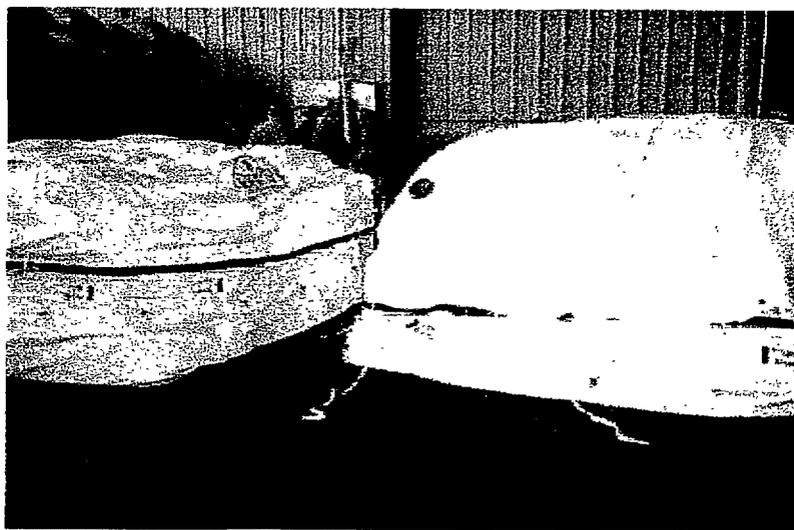
2) CI-Brazil

- A restructured system of receiving visitors was put in place for the Una Ecopark. By establishing and publishing a schedule for regular shuttle trips from the asphalt road to the park site, access was facilitated for local people arriving on commercial buses and in private cars. Previously, access was best for guests from local hotels. The graph at right shows how paying visitors in January of 2000 doubled, in comparison with the previous years' peak tourist season.

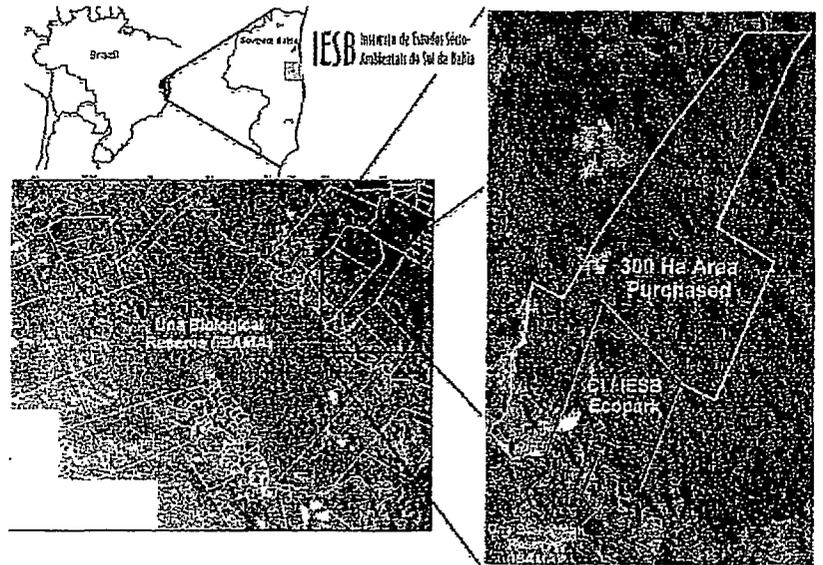
Una Ecopark Canopy Walkway Visitation



- In March, after an intense 6-month planning effort, IESB, in cooperation with OCP and CI's environmental enterprise department, shipped its first container of organically certified cacao at a price premium of 20% for farmers cooperating in forest conservation. IESB extensionists were trained in organic certification and learned to use an imported “cocoa” storage device for cacao that permits fumigation with carbon dioxide gas. The cocoon was purchased for IESB by OCP through their technical cooperation agreement. The cocoa will be used in products such as “Newman's Own” chocolates.



- CI and IESB purchased from a logger, a 741-acre forest adjacent to both the federally owned Una Biological Reserve and the IESB-owned Una Ecopark. The area will become a Private Protected Area owned by IESB accessible to researchers and tourists. It will increase the size of the Una Ecopark protected area from 200 acres to approximately 1000 acres. Besides being extremely well preserved, this area is a key corridor connecting habitat on the Una reserve neighboring privately owned forests. Funding for the purchase came from the Beneficia Foundation and the Margot Marsh Foundation.



3) CI-Indonesia

- The Key Stakeholder Consultation workshop hosted by CI in February 21-22, 2000 was a landmark first broad assemblage of government, NGO, academic, and key interested individuals to discuss environment and conservation issues in the light of decentralization. Significantly 2 important members of the provincial parliamentary body actively participated – the “DPRD” is expected to play an increasing role in the future on legislation affecting development and environmental planning and practise.

4) CI-Papua New Guinea

- Local people's permanent presence at the Ivimka Research Station during the reporting period has seen an increased participation by landowners and other community members in the project.
- A long-term Insect Collecting and Curation Project is under-way in the Lakekamu Basin with more than 25 trained local people working full-time in insect trapping, pinning, drying and packing.
- Small-scale RAP and Targeted Feasibility Study completed for Wide Bay communities

Progress by Activity Component

1) CI-Bolivia

Objective 1:

Increase scientific understanding of Madidi National Park's biodiversity in order to raise awareness of the Park's importance and counteract existing threats.

Activities:

A) In conjunction with the Institute of Ecology (Instituto de Ecología), CI-Washington, CI-Peru, General Directorate for Biodiversity (Dirección General de Biodiversidad), Madidi National Park, Bolivian scholarship students and local communities, CI-Bolivia will complete the GIS-database for Madidi National Park, including its Multiple Use Zone and Buffer Zone. This database will be used for planning purposes and for monitoring and evaluation - highlighting the threats to the Park. More specifically, this activity will include: FY00-01.

A1) Completion of a GIS database initiated in year one, and further compilation of geographic information, including historical data (including satellite imagery already in existence).

FY 2000: Obj1, A1	O	N	D	J	F	M	A	M	J	J	A	S
Hire GIS technician	X											
Input of information in text format into GIS database		X	X	X	X	X	X	X	X	X	X	X
Map the human settlements areas			X	X								
Map the slash and burnt areas			X	X							X	X
Input BALA impact assessment into GIS database			X									
Input La Paz Dept. land-use plans into GIS database			X	X								
Map the mining concessions and other mining areas			X	X					X	X		
Map the Madidi tourism trails		X	X	X	X	X	X	X	X	X	X	X
Input (Madidi) road impact assessment into GIS database		X	X	X								
Input vegetation map (large scale) into GIS			X	X					X	X		
Input human settlements located within Madidi into GIS database								X	X	X	X	
Buy digital satellite imagery	X	X										
Process satellite imagery	X	X	X									
Purchase satellite imagery processing software	X	X										

Progress to-date:

As part of the activities for the project, the final version of the bi-national biological corridor has been obtained, including the protected areas of Tambopata - Madidi (Attachments Bolivia-1a and Bolivia-1b).

The database for this product comes from the information supplied by the Bolivian Sustainable Forest Management Project (BOLFOR) and the Institute of Natural Resources of Peru (INRENA), which had been organized based on the function of common variables. The information contained

in the maps has been structured in layers with the following coverages: forestry concessions, mining concessions, oil concessions, main access roads, population, plant coverage, political units (cantons), rivers, indigeneous/native territory and protected areas.

Simultaneously to the studies of economic feasibility of the Bala Dam and the roads between Ixiamas - Puerto Heath and Apolo - Tumupasa (*Two Roads and a Lake*, John Reid, 1999), two simulation models of potential dams have been developed with heights from 160 mts to 180 mts above the river level (Attachments Bolivia-2a and Bolivia-2b).

Currently, a new simulation model is being designed presented by the Departmental Government which includes 2 levels and 2 dams (dikes). The first model begins 70 meters on the Bala stretch and the second, consists of a dam located at the Chapite mountain range at 180 mts. It is important to mention that the information contained in the GIS, enables the modification of scenarios for the Bala Dam with a great approximation starting from the digital basic cartography of 1:10000 and 1:5000 adopted for the "flooding zone".

For purposes of following-up the ecotourism activities that develop at Chalalan, a monitoring program has been coordinated with the ecotourism technicians of the existing tracks or paths (Attachments Bolivia-3a through 3d).

This process has demanded a revision and conversion of the secondary information of the paths, which necessarily had to be adequate in view of the variables on the questionnaires duly filled in by the Chalalan guides. The monitoring of the tourist paths has been carried out since July, 1999 and has been added to the database for the proper interaction with the GIS since December, 1999. CI has planned that the information obtained from each trip of the guides be introduced to the database quarterly.

For purposes of establishing a complete database for the PN ANMI Madidi and its zone of influence (between 5 and 10 km from the established limits), a diagnostic of the existing information between the different government entities and NGO's working in northern La Paz has been developed. The second step has been the accomplishment of an interinstitutional meeting held with the National Service for Protected Areas (SERNAP), National Institute of Agricultural Reform (INRA), Institute of Ecology (IE), Natural History Museum Noel Kempff Mercado (MHNNKM), Cultural Defense Center (CEDEC), Wildlife Conservation Society (WCS) and Land Use Plan for La Paz (PLUS): At this meeting, CI-Bolivia presented the objectives of the BiRD Project, the need of existing information and proposed the adequate mechanisms for the exchange and feedback of the information.

These two activities have enabled the government entities and NGOs working in northern La Paz have CI-Bolivia to provide the following information: land use proposal, mining concessions, oil concessions, forest concessions, vegetation areas, capacity of better use, land ownership (only for areas submitted to drainage) socio-economic indicators, productive indicators, specific biological studies, information system of SERNAP (SISNAP), aerial photographs (partial coverages) and satellite images (1993-94). The provision of the information will become effective during the next three months.

The following steps within this activity are related to the systematization of the information, the introduction of this information to the database, digitalization of such information, if necessary, and the compatibilization or conversion of the database formats in relation to the one used by BiRD. This work will establish the database for the PN ANMI and its area of influence. It is important to mention that when the identification of the "variables" and "indicators" to be used in the data base is finalized, another interinstitutional meeting will be held in order to validate CI-Bolivia's proposal and establish the access mechanisms to the database by the entities in the future.

Parallel to the above, the GIS representative from CI-Bolivia has digitalized 10 topographic pages at a scale of 1:100000 which contain the following coverages: rivers, roads (main and secondary), populated locations, level curves, heights, landing strips, lakes and lagoons. The digitalization of the basic cartography has enabled CI to verify the limits of PN ANMI Madidi according to the Supreme Decree of creation and to verify the international limits.

Using secondary information compiled from various sources, we have generated a thematic map about human settlements (Attachment Bolivia-4) which permits us to identify the location and name of communities. The database of this map currently contains 125 communities; however, it will soon include complementary information generated by the PN ANMI Madidi park guards which they have obtained during their patrols.

For purposes of processing the satellite images and obtaining the required information, the software ERDAS Image is in the process of being acquired. This software will be used for the processing of satellite images and can be provided by the Forest Action Plan for Bolivia (PAFBOL), BOLFOR, PLUS, MHNNKM, INRA and other entities. The existing satellite images in Bolivia are dated 1933-94. The inception date for this work is in May, 2000.

Also and parallel to the above, CI-Bolivia is dealing with Washington to obtain updated satellite images (1999-2000) which could be analyzed in June.

Problems, delays, shortfalls and proposed solutions:

- Nothing to report at this time.

FY00 Outputs/Benchmarks for Objective 1, Activity A-A1

1. GIS database for the Madidi National Park updated and ongoing.
2. geographic information compiled.

B) Complete targeted biological research and ecological impact assessments. This activity will be carried out by both Bolivian scientists and Bolivian scholarship students, with direction provided by the Institute of Ecology and CI-Bolivia. In addition to original scientific research in Madidi National Park. Results of the targeted research and assessments will be peer-reviewed and published in professional scientific journals. FY00-01.

B1) Targeted biological research will include:

- a) Fish inventory of the Tuichi River FY00.
- b) Small rodent and epiphytes inventory/study FY00.
- c) Ethnic-botanical study of Madidi using the vegetation map FY01.
- d) Coordinate with other NGOs and institutions working in the area, such as WCI who is running a program entitled "Ecosystem Species" focused on large mammals, to gather complimentary biological and ecological data and research. FY00-01.

B2) Ecological and/or environmental impact assessments and monitoring of the following:

- a) Monitoring of gold-mining along the Tuichi River and assessment of its contamination impacts. FY00.
- b) Monitoring of future prospective oil exploration and production using the environmental impact assessment done by TOTAL INC. during their exploration phase. FY01.

FY 2000: Obj1, B1, a	O	N	D	J	F	M	A	M	J	J	A	S
<i>Fish Research; Tuichi River Contamination Research</i>												
Put together Research Team	X											
Develop Research Plan		X										

Select Graduate Students				X									
Conduct Research					X	X	X	X	X	X	X	X	X
Graduate Student Theses Research completed; documents completed							X	X	X	X	X	X	X
Publish Results													X
FY 2000: Obj1, B1, b	O	N	D	J	F	M	A	M	J	J	A	S	
<i>Small Rodent Research</i>													
Put together Research Team	X												
Develop Research Plan		X											
Select Graduate Students				X									
Conduct Research					X	X	X	X	X	X	X	X	X
Graduate Student Theses Research completed; documents completed													X
Publish Results													X
FY 2000: Obj1, B1, b	O	N	D	J	F	M	A	M	J	J	A	S	
<i>Epiphytes Research</i>													
Put together Research Team	X												
Develop Research Plan		X											
Select Graduate Students				X									
Conduct Research					X	X	X	X	X	X	X	X	X
Graduate Student Theses Research completed; documents completed													X
Publish Results													X
FY 2000: Obj1, B2	O	N	D	J	F	M	A	M	J	J	A	S	
Fish Research; Tuichi River Contamination Research													
Put together Research Team	X												
Develop Research Plan		X											
Select Graduate Students				X									
Conduct Research					X	X	X	X	X	X	X	X	X
Graduate Student Theses Research completed; documents completed													X
Publish Results													X

Progress to-date:

Initially, it is important to mention that CI-Bolivia has signed an agreement with the Institute of Ecology (IE) and consequently, with the Bolivian Fauna Collection (CFB) and the National Herbarium of Bolivia (HNB) for purposes of fulfilling the Bolivian legal regulations relating scientific research, species collection of biological diversity and work in protected areas. This agreement enables students, graduates and professionals to participate in the scientific research.

After coordinating with WCS, IE and CI-Bolivia, the first scientific research work has been developed in the surroundings of El Tigre Mountain Range (limit of Madidi), specifically towards the northwest of the Undumo River (See Attachment Bolivia-5). Between March 24 and April 14, 2000 a biological group composed of two big mammal experts, an ornithologist, a botanist, one small mammal expert and a herpetologist, have conducted fieldwork and the respective collections. It is planned that these researchers will present their scientific reports and a proposal for scientific publishing by the middle of next September.

The second scientific research work was accomplished between April 17 and May 5 near the Eslabón Mountain Range and the tourist trails of Chalalán (Attachment Bolivia-5). With this purpose, two botanists have been sent to research hepiphytes. This same group of biologists will conduct similar research in August on the Tumupasa - San José de Uchupiamonas route. The scientific reports and the publishing proposals for both research works will be presented in September, 2000.

The research of rivers and lagoons will be conducted during the months of July and August at the Santa Rosa and Chalalán lakes and flows of the Tuichi River (See Attachment Bolivia-6). During the research work for fish farming, and in coordination with the IE, the river contamination studies may be accomplished. It is important to point out that the proposed months for river fishing and contamination studies were proposed by the biologists as this season is deemed to be more adequate for such research. The technical reports and scientific publications will be presented during the first weeks of September.

As a product of the research work, we will conduct species inventories classification of new species (if found), characteristics and localization of the collecting site and finally, the methodology used.

In coordination with WCS, other zones have been defined for scientific studies between July and September, 2000. The preliminary zones identified are: the Asariamas dry forests, the Heath, and the Alto Madidi "Candelaria" Pampas. It is important to mention that, for all the works carried out, the participation of local experts, guides and forest rangers has been planned to enable a process of permanent dual learning.

Research taking place at the corresponding government entities has determined that no concessions currently exist for the prospection, exploration or exploitation of hydrocarbon within the PN ANMI Madidi. However, secondary recovered information identifies public areas with hydrocarbon potential which, in the future, could be tendered.

Problems, delays, shortfalls and proposed solutions:

Nothing to report at this time.

- C) *In collaboration with local communities and other stakeholders, CI will design a long-term monitoring and evaluation program which will be fed information from different sources, that will be applied (e.g.) in the Madidi Management Plan and others.*

FY 2000: Obj1, C	O	N	D	J	F	M	A	M	J	J	A	S
Monitoring Workshops with the local communities					X							
Develop initial Monitoring program					X	X						
Input solicited from Botanist and Zoologist (meetings/workshop)						X						
Solicit further international and/or national financing						X	X	X	X	X	X	X

Progress to-date:

The design and coordination of the monitoring program with the communities and other local areas will begin when the initial scientific studies are completed and the collection and

systematization of the existing secondary information is concluded, as mentioned under 1A). This will be useful to establish the database for PN ANMI Madidi.

Also, it has been considered that, at the time of accomplishing the economic, social and political analysis of the human settlements, the approaching process will also be initiated to enable the real possibilities of monitoring with the assistance of the communities.

Along with the coordination of biological research, we are working with biologists to establish the methodology to be used.

Problems, delays, shortfalls and proposed solutions:

Nothing to report at this time.

FY00 Outputs/Benchmarks for Objective 1, Activity C

1. Monitoring and evaluation program designed with the community.
2. Data collection to be used in implementation phase from community.

Objective 2:

Influence economic and policy decisions in Bolivia to counter threats to Madidi National Park.

Activities:

A) *CI-Bolivia proposes to carry out economic and policy analyses, utilizing accumulated data, in order to understand the forces that influence regional and local land use decisions. Analyses will be used to demonstrate the economic benefits associated with protected areas and the impacts of proposed development projects which threaten the biodiversity of the Park. Topics for analysis will be defined by threats determined to be most critical. FY00-01.*

A1) *Complete thorough social, economical and political study. FY00-01.*

A2) *In conjunction with other partners working in the area, such as CARE and WCS, CI-Bolivia will carry out a baseline threats analysis of Madidi National Park. FY00-01.*

FY 2000: Obj2, A1	O	N	D	J	F	M	A	M	J	J	A	S
Develop monitoring and evaluation plan	X											
Develop baseline analysis of human settlements (social, economic and political context)		X	X	X	X	X						
Develop mitigation plan							X	X	X	X	X	X
Begin Incorporation into overall monitoring and evaluation program (see Obj. 1C)										X	X	X

FY 2000: Obj2, A2	O	N	D	J	F	M	A	M	J	J	A	S
Gather information	X	X	X	X	X	X	X	X	X			
Develop Threats Analysis documents	X	X							X			
Internal meetings within CI-Bolivia and others stakeholders to discuss results								X		X		
Begin dissemination of results		X			X		X				X	X

Progress to-date:

A preliminary economic, social and political analysis has been carried out for the new human settlements directed by the Bolivian State in the area of Ixiamas. A similar diagnostic yet to be published was carried out by a consultant contracted by CARE. CI will revise the final document of said consultant in order to complete the analysis of the new community settlements in this area.

Prior to the establishment of the monitoring program and with the purpose of obtaining the base line for the new settlements in general and the baseline for the threats at the PB ANMI Madidi, the revision of the adequate methodologies and techniques for the gathering of social, economic and political information regarding the different level of threats, took place during the month of April.

In addition to the revision and analysis of the most adequate methodologies, the initial proposal was elaborated considering the following:

- 1) Case Studies for the macro threats (mining, oil, river contamination, hydroelectricity, roads, etc.)
- 2) Evaluation of beneficiaries to collect qualitative data which allows a "KAP"(Knowledge, Attitude and Practices) analysis.
- 3) Questionnaire for the gathering of relevant quantitative data for the environmental impact analysis of human settlements. The primary information (qualitative and quantitative) gathering will take place in the area through a fieldwork during an approximate period of two weeks.
- 4) Secondary information such as documents, studies, research and statistical data related to the topic will be collected from those organizations cooperating in the threats analysis (WCS, CARE, Eco Bolivia, CEDEC, INRA, Pilon Lajas Project and others). Additionally, the Municipal Development Plans (PDM) of the towns near the PN ANMI Madidi (Ixiamas, San Buenaventura, Apolo and Pelechuco) will be analyzed. The revision and analysis of this information will take place prior to fieldwork in order to determine what type of information is still missing.

Considering that the fieldwork to collect primary information will be used to partially fulfill the objectives under A1 and A2, the initial proposal for the study design is being analyzed in full detail and CI plans to implement this during the month of May in those areas selected. The preliminary selection includes: Azariamas, Pata, Keara, Puina, Santa Cruz del Valle Ameno, San José de Uchupiamonas, Tumupasa as well as old and new colony communities as part of the sample.

During the month of May, fieldwork will take place on the San Buenaventura-North Ixiamas road (approximately 300 km). Fieldwork towards the south of PN ANMI Madidi (Apolo and Pelechuco), will take place between June and July.

The information provided by the National Institute of Agriculture Reforms (INRA) relating to the land ownership and the production rates of the new human settlements are being incorporated in the database and will be the basis to carry out the monitoring of the productive activities. However, it is important to point out that the new human settlements north of Ixiamas will not begin their productive activities before May, 2000.

Initially, and after holding interinstitutional meetings, WCS developed a preliminary document of threats to the PN ANMI Madidi, which currently is being revised and complemented by CI-Bolivia. This preliminary document identifies the human as the main threats to the Madidi.

Through inter-institutional coordination between CI and WCS, it has been agreed that, by the end of May, after jointly finalizing the document of threats to Madidi, consultations with all government entities and NGOs working in northern La Paz will take place. This consultation will allow for input and suggestions to the document prior to the dissemination of the results to the financial community and other local actors.

Problems, delays, shortfalls and proposed solutions:

Nothing to report at this time.

- A3) *Gather information of development plans held by municipalities and regional government in order to determine potential effects on land-use in the Madidi area.*

FY 2000: Obj2, A3	O	N	D	J	F	M	A	M	J	J	A	S
Gather information						X						
Incorporate results into upcoming workshops/GIS database and Threats Analysis Document.						X	X	X	X	X	X	X

Progress to-date:

In the frame of the identified activity, as previously mentioned as the gathering of secondary information, it has been determined that the information at a departmental and local government level, should be fulfilled, analyzed and systematized in order to identify those indicators to be monitored.

With this purpose, the paperwork has begun in order to obtain the Economic and Social Development Plan for the Department of La Paz (PDDES - LP) and the Economic and Social Development Plans for the localities of Ixiamas, San Buenaventura and Apolo (PDM). The locality of Pelechuco, which also forms part of the PN ANMI Madidi, currently does not count with a PDM

Although CI has obtained PDMs from San Buenaventura, Ixiamas and Rurrenabaque, Apolo and Pelechuco currently do not have official PDMs.

The introduction of the indicators to the database is being processed to enable the interaction with GIS.

Problems, delays, shortfalls and proposed solutions:

Nothing to report at this time.

- A4) *One-two day coordination meeting with WCS, CARE, Ecobolivia, the Institute of Ecology, FAN, WWF and other interested parties. FY00.*

FY 2000: Obj2, A4	O	N	D	J	F	M	A	M	J	J	A	S
Organize meeting		X										
Hold meeting		X										

Progress to-date:

With the intention to fulfill this purpose, CI-Bolivia has taken the role of the leader to form the "Inter-institutional Coordination of PN ANMI Madidi". Initially, the first meeting was called for October, 1999, where information was exchanged with regards to the projects in execution or to

be executed at the PN ANMI Madidi. The parties participating in this initiative were: CARE, American Museum of Natural History, CI-Bolivia, World Wildlife Fund (WWF) and SERNAP.

A second initiative was developed during the month of March, when the mentioned above parties, as well as Eco Bolivia and the Cultural Defense Center (CEDEC) shared their Operational Annual Plans (POAs). The purpose of this second meeting was to incorporate all the projects to the POA of PN ANMI Madidi and coordinate these activities with the current official responsables of the protected area.

The third initiative, also convened by CI-Bolivia, gathered the representatives of GIS of the government entities and NGOs. The directors of three departments of the National Agricultural Reform (INRA), SAN, SIM (Simple Sanitation), CAT SAN (cadastre) and SAN TCO (Sanitation of Communal Land of Origin), attended to this meeting as well as the Scientific Advisor of the Natural History Museum Noel Kempff Mercado (MHNNKM), as well as representatives of WCS, the Ecology Institute, and SERNAP.

This meeting enabled the establishment of the mechanisms to exchange new information, to centralize the initial design and to complete the database for the PN ANMI Madidi. The definition of the generated information for the CI BiRD Project was also defined and used for the formulation of the Management Plan. The results obtained with the project itself were tested by SERNAP and the Protected Area Direction.

Problems, delays, shortfalls and proposed solutions:

Nothing to report at this time.

B) *CI-Bolivia will facilitate and carry out a FODA (Fortalezas, Oportunidades, Debilidades y Amenazas) Workshop. FY00.*

FY 2000: Obj2, B	O	N	D	J	F	M	A	M	J	J	A	S
Organize workshop				X	X							
Hold workshop						X						
Produce Workshop Results Report							X	X				
Disseminate Report								X	X	X	X	X

Progress to-date:

Prior to carrying out the 4-P Workshop and as part of the necessary provisions for its development, on the basis of works carried out by the protected area personnel and with the support of CI-Bolivia, the analysis of "Strengths, Weaknesses, Opportunities and Threats" (SWOT) of the PN ANMI Madidi has been revised and completed.

It is important to point out that the threats analysis, which took place together with the persons in charge of PN ANMI Madidi and CI-Bolivia was the most important provision for the development of the 4-P Workshop and for the formulation of the Communication Strategy.

Considering that a SWOT analysis already exists for PN ANMI Madidi, it is found convenient that a "SWOT Workshop" should not take place. Instead, it has been coordinated with the Director of the Park that, at the meetings carried out by the Madidi Management Committee (which gathers all the social performers of the area), the accomplished analysis should be ratified, completed and approved.

It is assumed that the report of the SWOT analysis is valid and that the recommendations will be put to the knowledge of the government entities and NGOs until next August.

Problems, delays, shortfalls and proposed solutions:

Nothing to report at this time.

FY00 Outputs/Benchmarks for Objective 2, Activity B

1. Carry out FODA workshop.
2. Overview of strengths, opportunities, weaknesses and threats of the Madidi National Park in document form.
3. Document of recommendations and consensus completed.
4. Results disseminated.

Objective 3:

Improve regional, national and international awareness of the importance of Madidi National Park and surrounding region to biodiversity conservation in the tropical Andes.

Activities:

Very little national awareness exists on both the importance of Madidi National Park as a biodiversity reservoir, as well as the impacts which are threatening its ecological richness and health. In association with staff already working in the region, there is a need to involve the participation of others - both key people and institutions - in order to create a communications strategy and awareness raising tools for this protected area.

A) *CI-Bolivia will gather baseline information at the local level with social surveys. FY00.*

FY 2000: Obj3, A	O	N	D	J	F	M	A	M	J	J	A	S
Develop survey/questionnaires	X											
Hire surveyors	X											
Carry out surveys	X											
Analyze and process information		X										

Progress to-date:

The baseline study on the knowledge and public opinion will take place simultaneously to the threats analysis of PN ANMI Madidi, with the objective of carrying out the fieldwork together and avoiding duplication of effort.

As mentioned in Objectives 2 A1 and A2, the analysis of Knowledge, Attitudes and Practices (KAP) will provide the necessary information to establish the baselines of the human settlements and threats. However, it also includes a fundamental topic module within the social area, which is the communication and the proportional level of the knowledge and public opinion with regards to the PN ANMI Madidi between the communities inside the park and those in the area of influence.

Problems, delays, shortfalls and proposed solutions:

Nothing to report at this time.

B) *CI-Washington and CI-Bolivia will carry out a 4-P Strategic Communications Workshop on Madidi National Park. FY00.*

FY 2000: Obj3, B	O	N	D	J	F	M	A	M	J	J	A	S
Planning workshop			X	X								
4p workshop (tentative date)					X	X						
Strategy product							X					

Progress to-date:

The 4-P Workshop of Communication Strategies for the conservation of PN ANMI Madidi took place at the Rurrenabaque Safari Hotel, on April 4 and 5, 2000. Haroldo Castro, Director of International Communications (InterCom) from CI-Washington, was the workshop facilitator.

The organization and planning of the workshop was carried out in Rurrenabaque during the month of March in close relationship with the InterCom team of CI-Washington and the CI-Bolivia team with main office in La Paz, and the Chalalan Ecotourism Project team. Also, the work accomplished by the Directors of PN ANMI Madidi, C-Bolivia and WCS was very important. They developed the basic presentations and background information.

Forty-five members of different institutions attended the reunion, including individuals working in the area, government conservation agencies, city government authorities, representatives of ethnic groups and local communities.

Project directors, directors of the three protected areas of PN ANMI Madidi, ANMI Apolobamba, Pilon Lajas Indigenous Land- Biosphere Reserve (TCO RB), mayors of the towns of Rurrenabaque and Reyes, biologists, sociologists, communicators, parkguards, educators, tourism operators, ecologists, anthropologists and agronomists also attended.

The attached Workshop Report was elaborated by InterCom and distributed to all the participating institutions (See Attachment Bolivia-7).

It is important to note that CI will promote "Madidi Week", which will coincide with the creation date of the protected area (September 21). CI plans to present the following items, among others, in Rurrenabaque and/or La Paz: the baseline studies, threats analysis, logo and mascot of the protected area, radio spots, programmed visits for authorities and journalists to PN ANMI Madidi, the launching of the Biodiversity Report Award, gifts like T-shirts and caps, posters, and the presentation of a video on Chalalan in Spanish and English versions.

Problems, delays, shortfalls and proposed solutions:

Nothing to report at this time.

FY00 Outputs/Benchmarks for Objective 3, Activity B

1. 4-P Workshop completed.
2. Conservation awareness campaign developed.

2) CI-Brazil

Objective 1:

Reduce deforestation, soil degradation, and landscape degradation in forest fragments critical to biodiversity conservation.

Activities:

A) *Obtain conservation commitments from private landowners and communities in strategic forest fragments through agricultural extension activities offering income-generating alternatives. FY 99-00-01.*

A1) *Institutionalization of a municipal environmental council and a municipal "income and jobs" council for Una. IESB will do the paperwork for agricultural loan applications for the communities with projects approved by the councils, and orient them in sustainable agricultural practices, show them how to diminish hunting, control burning and how to implant nurseries of economic and natural trees for reforestation of river margins and buffers around forest fragments.*

FY 1999: Obj1,A,A1	O	N	D	J	F	M	A	M	J	J	A	S	US\$
Rui Rocha – Inter-Institutional Workshop				x	x	x	x	x	x				1,000
Marcelo Araujo - Farm Plans				x	x	x	x	x	x	x	x		1,000
Joaquim Blanes -Reforestation Demo.				x	x	X	x	x	x	x	x	X	500
Joaquim Blanes and Gabriel Santos - Bandeira		x	x	x	x	X	x	x	x	x	x	x	0
Total Obj1,A,A1													2,500

Progress to-date:

- Monthly meetings of the Una Municipal Council on Development and the Environment (CONDEMA) were coordinated by IESB to discuss issues such as the situation in the Bandeira region, and farmer performance on the loans to small producer communities arranged in cooperation with the Banco do Nordeste.
- Between October and March, IESB participated in the Banco do Nordeste's "Farol de Desenvolvimento" (Program for Credit to Small Producers) helping in the monitoring of the loans and their application in Una.
- 515 native tree seedlings, grown in IESB's greenhouse were planted along riversides in partnership with the municipality of Jussari and with UESC.
- 80 native tree seedlings were planted in an experimental agroforestry system together with coffee.
- 230 native tree seedlings were used to enrich a forest in regeneration on the farm of the small producer Luciano Portela.

Problems, delays, shortfalls and proposed solutions:

Nothing to report at this time.

A2) *Also at the Una municipal level, IESB has collaborated with the Secretary of Education in the development of teacher education workshops and the recuperation of rural schools. IESB will work with municipal educational authorities on improved curricula, teacher training, and proposals to obtain governmental funding for improved educational services.*

FY 1999: Obj1,A,A2	O	N	D	J	F	M	A	M	J	J	A	S	US\$
Gabriel Santos – Teacher training	x	x	x	x	x	x	x	x	x	x	x	x	350
Joaquim Blanes – Infrastructure	x	x	x	x	x	x	x	x	x	x	x	x	350
Total Obj1,A,A2													700

Progress to-date:

- In the Barro Vermelho community, IESB organized a participatory installation and maintenance process for the water wheel and 2000 meters of pipe used to supply the school and 10 other rural households.
- IESB participated in monthly meetings in the Barro Vermelho and Bandeira communities to discuss strategies for improving rural educational services.
- On the 30th of March, a partnership with the Una municipal school Liberalino Barbosa Souto was established to develop environmental education activities at the Una Ecopark involving students and teachers.

Problems, delays, shortfalls and proposed solutions:

Nothing to report at this time.

A3) IESB plans to continue to support the cooperative we helped Una farmers to establish for agroforestry product commercialization. (The elaboration of a municipal coastal tourism development plan including Una is under Objective 2, Activity A2)

FY 1999: Obj1,A,A3	O	N	D	J	F	M	A	M	J	J	A	S	US\$
Evandro Santana – Cooperative legalization and infrastructure	x	x	x	x									500
Evandro Santana – Exports with CAPINA			x	x	x	x	x	x	x	x	X		1,000
Joaquim Blanes – Organic cacau export logistics	x	x	x	x	x	x	x	x	x	x	x	X	1,000
CI Conservation Enterprise Support					x	x	x						1,000
Total Obj1,A,A3													3,500

Progress to-date:

- Between October and November four communities of small cocoa producers were visited to talk about organic certification and sales. The Colônia de Una, Ribeirão das Navalhas, Barro Vermelho, and Bandeira communities were visited.
- In October, and again in December, IESB extensionists Joaquim Blanes and Marc Nusheler participated in courses on organic production and certification at the Instituto Biodinâmico in São Paulo.
- In March, after an intense 6-month planning effort, IESB, in cooperation with OCP and CI's environmental enterprise department, shipped its first container (20 tons) of organically certified cacao at a price premium of 20% for farmers cooperating in forest conservation. In December, an inspector from the Instituto Biodinâmico was contracted to visit four community

associations and three individual producers in Una resulting in the immediate certification of one producer. The others must pass further inspections.

- In October, Evandro Santana participated in a course on Commercial Management of Family Agriculture sponsored by the NGO CAPINA in Rio de Janeiro. Evandro also conducted research in Rio of possible purchasers of piassava products.
- In November 1000 folders, entitled “Commercialization of Agricultural Products: How to plan for production and sales of your products to increase income” was published and distributed to small producers in Una.
- Also in November, the community associations held their final meeting to decide on the statutes for the Cooperative of Una Rural Producers. This “Central de Comercialização” is now baptized as “Cooperuna”.
- From December 99 to March 2000, 2 metric tons of guaraná produced by small farmers in Una were sold through CAPINA, with IESB’s help, for a seller’s price twice the regional average.
- Meetings with each of the producer communities constituting COOPERUNA were held in the past six months to talk about how environmental conservation of forests can avoid higher production costs. A handout has been produced on this theme for the talks.
- In March, COOPERUNA received legal recognition, it’s CGC and its municipal operating license (Alvará).

Problems, delays, shortfalls and proposed solutions:

Nothing to report at this time.

A4) Continuing the partnerships developed with landowners of key forest fragments committed to conservation, IESB extension officers have helped them plant acai seedlings to multi-crop rubber and cocoa plantations, establish greenhouses for commercial and natural tree species for reforestation, and learn organic mulching techniques to increase production at low cost. These initiatives increasingly involve partnerships with the Brazilian Institute of the Environment and Renewable Natural Resources (IBAMA) and CEPLAC to disseminate these alternatives. These agroforestry extension activities will continue under the cooperative agreement.

Item	O	N	D	J	F	M	A	M	J	J	A	S	US\$
Joaquim Blanes – Solar Thermal shock				x	x	x	x	x	x	x	x	x	2,500
Joaquim Blanes - Greenhouses	x	x	x	x	x	x	x	x	x	x	x	x	1,000
Joaquim Blanes - Replanting				x	x	x	x	x	x	x	x	x	1,500
Marcelo Araujo - Native plant collections	x	x	x	x	x	x	x	x	x	x	x	x	300
Total Obj1,A,A4													5,300

Progress to-date:

- 25,000 açai seedlings have been distributed in the past six months for farmers to plant between the rows of rubber and cocoa, as a shade-tolerant tree crop that can enhance their income and permit forest conservation.

- The first Agroecology Seminar for the Rio Santana community was held in January, with small producers from the Maria Jape and Rio Engenho area, and the participation of 25 producers and 5 technicians.
- 161 açai and native tree seedlings were planted in an experimental area on the Almirante Cacao (Mars) station.
- Between October and March, four field trips were conducted with students from UESC in IESB vehicles to collect plantules in natural forest that are subsequently raised in the greenhouses of IESB and UESC.
- Plans have been drawn up for greenhouses on the new Ecopark property.

Problems, delays, shortfalls and proposed solutions:

Nothing to report at this time.

A5) In partnership with M&M Mars' local research farm, IESB extensionists will cooperate in the field testing and distribution of a biocontrol agent for the witches broom disease of cacao, on the farms of cooperators who are implementing forest-conserving management in the buffer zones of protected areas.

	O	N	D	J	F	M	A	M	J	J	A	S	US\$
Joaquim Blanes e Smilya and Technician TBD: Establish test plots and work with farmers				x	x	x	x	x	x	x	x	x	4,000
Joaquim Blanes and Technician TBD: Distribute and accompany application of trichoderma.	x	x	x	x	x	x	x	x	x	x	x	x	14,000
Subtotal Obj1A,A5													18,000

Progress to-date:

- In November, four areas with experimental and control plots for testing the effectiveness of biological control of witches' broom were measured, and farmers were taught the experimental procedures.
- Monthly applications of the anti-fungal agent *Trichoderma stromaticum* are organized by the IESB extension team, with the assistance of technicians from Almirante cacao (Mars).
- In February, 2000, a meeting in Ilhéus to fine-tune the witches broom biocontrol experiment administered by IESB on the farms of smallholders in Una was convened and funded by M&M Mars and attended by CI, IESB, USAID, M&M Mars, CEPLAC and USDA scientists. To obtain quicker turnaround on the effectiveness of the treatment, spore counters were recommended. Sprayers that could better douse the trees and propagate *Trichoderma* were demonstrated. The urgency of a solution for impoverished farmers around key forest fragments was reinforced in field trips. Plans for institutional cooperation in an expanded effort were discussed. (See Attachment Brazil-1)
- On February 25th, Keith Alger and John Buchanan, of CI, developed a funding proposal to extend the Biocontrol work undertaken with M&M Mars, CI, IESB and USAID through the InterAmerican Development Bank's Multilateral Investment Fund.

Problems, delays, shortfalls and proposed solutions:

Nothing to report at this time.

Obj 1, A Benchmarks	Measure	By
Agricultural alternatives developed, tested and implemented	3000 piaçava seedlings planted	Jan 2000
	5000 açaí seedlings planted	Jan 2000
	5 hectares replanted	Jan 2000
Product sold though improved marketing	40 tons organic cacau sold	Jan 2000
	10 tons guaraná sold	Jan 2000
	20 tons piaçava sold	Jan 2000
Results of Tricoderma testing published		Jan 2001
Forest effectively protected as a result of raised incomes	Farmer commitment to conserve areas on farm plan registered with CONDEMA - 200 ha.	Jan 2000

B) *Phase-out commercial logging that supplies non-local demand with implementation of command and control procedures and policies mitigating social impact of industry decline. FY 99-00-01.*

FY 1999: Obj1,B	O	N	D	J	F	M	A	M	J	J	A	S	US\$
Flavio Leopoldino, Carlos Alberto Mesquita - Accompany Logging Policy	x	x	x	x	x	x	x	x	x	x	x	x	500
Total Obj1,B													500

Progress to-date:

- On Globo's Sunday television newsmagazine "Fantastico," on the 13th of October, the Bahian reporter, José Raimundo, showed how the federal highway police continue permitting the transport of logs and lumber illegally obtained in Southern Bahia.
- On the 14th of November, the Salvador newspaper, *A Tarde*, criticized the IBAMA regional superintendent for conceding 14 new authorizations for logging management plans, contrary to the recommendations of the national policy-making body, CONAMA. The article cites IESB researchers Carlos Alberto Mesquita and Flávio Leopoldino as questioning the studies by the Bahian government and the loggers association that were decisive to the approval of the logging licenses.
- On the 18th of November, Flavio Leopoldino participated in a meeting called by the Regional Council of Engineering and Architecture to discuss the studies by the Bahian government which justified logging in terms of the state's stocks of timber, and the condition of the remaining forest fragments.
- In December, the president of IBAMA, Marília Marreco, suspended the Bahian authorizations for the execution of logging licenses.
- On the 12th of March, the newspaper *A Tarde* reported the declaration by UNESCO of the "Discovery Coast," which includes the Una Biological Reserve, as a World Heritage Site.

Problems, delays, shortfalls and proposed solutions:

Nothing to report at this time.

Obj 1 B Benchmarks	Measure	By
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Logging paralysis follow-up study	White paper distributed	Jan 2000
Enforcement plan adopted by multi-agency task force	Implementation of controlled logging on cacao lands pursuant to regulation	Jan 2001
Decline in natural forest logging and increase in use of plantation trees and other alternatives to wood products.	50% fewer cubic meters exported from region compared to 1997	Jan 2001

- C) *Eliminate incentives encouraging the location of agrarian reform settlements on forested lands with fragile soils. Work with government to achieve the implementation of policies integrating forest conservation with land reform on sites appropriate to small-farmer agriculture. FY 99-00-01.*

FY 1999: Obj1,C	O	N	D	J	F	M	A	M	J	J	A	S	US\$
Keith Alger, Rui Rocha, Salvador Trevizan - Survey and Maps			x	x	x	x	x	x	x				0
Rui Rocha – Organize seminar with Incra, MST		x	x	x	x	x	x	x	X				
Rui Rocha - Conduct Seminar										x	x		557
Total Obj 1, C													557
Total Obj 1 Supplies, Equip													13,058

Progress to-date:

- IESB researchers Salvador Trevizan and Keith Alger prepared a paper for the Brazilian Society of Rural Sociology and Economics on the Ecological Sustainability of Land Reform communities. This research was based on structured interviews with leaders and others on 6 land reform settlements.
- IESB researchers helped orient a group of São Paulo economists under contract with INCRA to help determine which lands, at what prices, are appropriate for land reform. IESB-produced maps showing land reform sites in relation to forest fragments in Bahia demonstrated the risks of badly planned land reform. (See Attachment Brazil-2)
- On November 19th, Rui Rocha made a presentation to the USAID annual environment meeting on "Public Policy, Tourism and Agrarian Reform in Bahia."
- Rui Rocha gave a course on "Regional Development and the Environment," at the local university, UESC, for 20 students, many currently occupying important positions in local institutions such as CEPLAC, IBAMA, CRA and other NGOs. Land reform issues were a key component of the course.

Problems, delays, shortfalls and proposed solutions:

Nothing to report at this time.

Obj 1, C Benchmarks	Measure	By
Study on incentives conducted and disseminated	White paper distributed	Jan 2000
Meetings, and or seminar held with landless movement	Seminar or Workshop held	Aug 2000
Land reform policy officially revised to eliminate incentives for degradation of forested sites	Sites ineligible for disappropriation enunciated as policy	Jan 2000

Objective 2:

Public policy alternatives reversing existing incentives favoring forest degradation implemented, with subsequent adoption of environmentally and socio-economically sustainable land-use practices beyond demonstration sites.

Activities:

A) *Implementation of new fiscal incentives for private reserves (federal private nature reserve legislation - RPPN - reinforced, creation of state-level private reserve law), for municipalities with conservation areas (ICMS ecologico), and for tourism practices that contribute to conservation and community development. FY 99-00-01.*

A1) *CI and IESB have produced model legislation for a Bahian ICMS ecologico, and additionally will work to provide legislators with background on how this serves local interests.*

FY 1999: Obj2,A,A1	O	N	D	J	F	M	A	M	J	J	A	S	US\$
Rui Rocha and Pablo Villanueva – Prepare seminar				x	x	x							1,000
Rui Rocha and Pablo Villanueva – Conduct seminar							x	x					2,000
Gustavo Fonseca, Keith Alger – Probio Research and Publications	x	x	x	x	x	x	x	x	x	X	x	x	600
Total													3,600

Progress to-date:

- In a concerted effort by CI and IESB, discussions with the Bahian state government to expedite the acquisition of the land for Conduru Park led to the first land indemnizations for the park at the end of 1999.
- In February 2000, IESB began assisting a family from Southern Brazil, which moved to Bahia upon retirement and has independently acquired 750 ha. for conservation in Camacã. Efforts are underway to assist in obtaining resources to purchase more land and to create a sustainable private reserve.
- Keith Alger and Gustavo Fonseca produced a draft publication on the Bahian corridor strategy (See Attachment Brazil-3).

Problems, delays, shortfalls and proposed solutions:

Nothing to report at this time.

A2) *Support sustainable tourism development. Last year CI-IESB engaged in a variety of planning exercises with municipalities and the state government, including additional financing from Bahiatursa to examine and promote sustainable tourism in the area called the “Costa do Cacau” (Cocoa Coast). The “Costa do Cacua” includes the counties of Itacare, Ilheus, Una and Canavieras. The Una Ecopark continues to serve as CI/IESB’s landmark demonstration of sustainable ecotourism. Last year a second independent representative, working on commission, was contracted to market the attraction, 5 additional university interns were trained as guides, and various improvements were added. In FY00, the park will consolidate communications and continue to seek funding for a bona fide visitor center.*

FY 1999: Obj2,A,A2	O	N	D	J	F	M	A	M	J	J	A	S	US\$
Carlos Alberto Mesquita, Flavio	x	x	x	x	x	x	x	x	x	X	x	x	

Leopoldino Cacau Coast													
Oliver Hillel, Carlos Alberto Mesquita, Rui Rocha and Flavio Leopoldino: Regional Tourism Planning products.				x	x	x			x	X	x		800
Dissemination: Video, (Haroldo Castro), mass media, print (Heloisa)							x	x	x	X			10,000
Keith Alger, Oliver Hillel, Flavio Leopoldino, and Ecopark operator, Opening		x	x	x	x	x							0
Keith Alger, Carlos Alberto Mesquita Oliver Hillel, Flavio Leopoldino, Ecopark Communication, Water				x	x	x	x						3,500
Keith Alger, Oliver Hillel, Flavio Leopoldino, Ecopark artesanal, guide, foodservice training							x	x	x	X	x	x	2,700
Total													17,000

Progress to-date:

- On February 7th, Rui Rocha met with CRA (Bahian Environmental Protection Agency) to discuss the formation of a management council for the APA (Environmentally zoned area) Itacaré-Serra Grande, which is part of the Cacao Coast program.
- In March, Oliver Hillel met with Bahiatura in Salvador to discuss the creation of an ecotourism incubator program.
- Throughout this reporting period, IESB's work on tourism policy was reported in the IESB-produced monthly newsletter of the APA. Circulation increased from 3,000 to 10,000 in January, to take advantage of the tourist presence in these months.
- IESB produces in January, an Ecotourism Guide for the Itacaré-Serra Grande APA, with 3,000 issues. This guide encourages visitation in natural areas surrounding the Conduru Park, and in private attractions, such as Vila de São José <http://www.ier.com.br> and Fazenda Alto da Esperança.
- In November, work on the dirt road connecting the asphalt road with the Ecopark was done in preparation for the peak season. Rain gutters along the side of the road were built to prevent against road washout during rainstorms.
- On February 25th, IESB's workplan for Environmental Education and Ecotourism in the Itacaré – Serra Grande Environmental Planning Zone was presented at a public forum in Serra Grande, with approximately 50 people in attendance.
- On the 20th of December IESB put into operation a telephone line and operator to receive calls from tourists and direct them to the Ecopark. A contract was signed with Emcamtur, which will operate the transport of tourists from Ilhéus hotels to the Ecopark.
- Also in December the Ecopark installed a wireless PABX connected to a cellular phone receiver and antenna. This will permit incoming calls from the telephone operator at IESB in Ilhéus to schedule arriving tourists. It will also permit associates at the Ecopark to call IESB in Ilhéus to request supplies and schedule vehicle maintenance. Finally, it is an important safety

feature much requested by tour operators, which will permit Ecopark employees to contact a hospital to prepare for the arrival in the event of accidents.

- In February, 3 meetings were held with Fausto Pinheiro, owner of one of the largest private forest fragments in Una, to help him evaluate the potential for the installation of an Eco-lodge at this site.
- In February, Flavio and Carlos Alberto collaborated in the design of trails on the RPPN of Henrique and Lucélia Berbert. A proposal written to fund trails and a research overnight station was supported by the Boticario foundation.

Problems, delays, shortfalls and proposed solutions:

- The cell phone tower in Una does not permit regular calls to the equipment we installed at the Ecopark. Requests for technical work on the cell tower in Una were made to improve service in the region.
- Vrisea, the original operator of tours from the Transamerica Hotel to the Ecopark closed its operation. By working with one of Vrisea's guides, IESB was able to ensure that Transamerica clients would continue to have access to the Ecopark by creating a new tour agency to operate the hotel, called Nobre Turismo.

Obj 2, A Benchmarks	Measure	By
Fiscal incentives for municipalities and landowners analyzed, promoted	Probio white papers, ICMS proposal supported by Bahian prefeitos	Jan 2001
Tourism Participatory Planning Workshop	Zoning maps produced and disseminated	Jan 2000
Infrastructure and product improvement at Una Ecopark	2000/tourist/yr rate goes to 10,000/tourist/yr with 2 new micro-enterprises in artisan craft and food services	Jan 2000

B) Define strategies to eliminate incentives that promote monocrop plantations in detriment of biodiversity friendly agriculture. FY 99-00-01

FY 1999: Obj2, B	O	N	D	J	F	M	A	M	J	J	A	S	US\$
Anita Akella: White paper on debt, coffee.	x	x	x	x	x	x	x	x	x	x	x	X	Salary Buy-in
Jared Hardner: White paper on cacau prospects	x	x	x	x	x	x							World Bank
Jim Cannon: White paper on enforcement mechanisms				x	x	x	x						Salary Buy-in
Heloisa Orlando: Focus Group results								x	x	x	x		500
Pablo Villanueva: legal strategy						x	x	x	x	x	x	x	0
Total Obj2,B													500
Total Obj2, Supplies, Equip.													16,128

Progress to-date:

- On October 12th, Jared Hardner completed his 27 page white paper "Land Use Trends and Conservation Opportunities in the Atlantic Forest of Southern Bahia, Brazil," in which he asks and answers two questions: (Attachment Brazil-4)

- 1) In the short, medium, and long term, what are the existing incentives and constraints affecting landholder decisions related to land cover change?
 - 2) What are the 'leverage points' for influencing landholder decisions in favor of ecologically-preferred land cover? What policy instruments might be acceptable to landholders and effective in influencing their behavior?
- On January 8th, Anita Akella and Jim Cannon completed a 21 page white paper entitled "Debt Relief And Conservation In Southern Bahia: Opportunities And Impediments" recommending that debt relief not become the centerpiece of a conservation strategy, but that specific initiatives with specific landowners might use debt relief as a compensation mechanism to obtain conservation set-asides, easements, or buy-outs (Attachment Brazil-5).
 - Reports on 7 focus groups from various sectors of society and government that were convened between September and December of 1999 were completed. The focus groups were intended to probe these groups' receptiveness towards policy mechanisms to compensate private reserves and implement a conservation "corridor" in Southern Bahia. This research was conducted by Rui Rocha and Heloisa Orlando, an IESB researcher, funded by the World Bank research department under the joint CI-IESB-State of Bahia Probio corridor research project.
 - In December 99, a movement by rural landowners in Brazilian Congress to eliminate the forest reserve requirement on private lands was stymied by coalition of environmental groups including CI and IESB. Pablo Villanueva coordinated IESB action by keeping all informed of developments communicated through the internet.

Problems, delays, shortfalls and proposed solutions:

Nothing to report at this time.

Obj 2, B Benchmarks	Measure	By
Growth in public awareness of economic risks from monoculture transformation currently promoted by government agricultural agencies.	White papers disseminated.	Jul 2000
Mainstream agricultural loan programs revised to encourage mixed agroforestry systems.	Policy change	Jan 2001

Objective 3:

Increase knowledge about the significance of region's biodiversity while assisting in the design and implementation of management plans for biodiversity conservation units, zones, and corridors.

Activities:

- A) *Prepare conservation planning maps for use in planning, monitoring, biodiversity research, and park management. FY 99-00-01.*

FY 1999: Obj3, A	O	N	D	J	F	M	A	M	J	J	A	S	US\$
Marcelo Araujo, Alessandro Marques, Keith Alger - Catalog of Maps from Air Photos, Private Reserve Maps, Maps for Park Managers	x	x	x	x	x	x	x	x	x				Software, Supplies 3,330
Marcelo and Keith upgrade equipment	x	x	x	x	x	x							Computer, printer, other 8,700

																		equipment, service.	
Marcelo and Keith collaborate with govt. agencies to obtain photos								x	x	x	x	x	x	x				Images	5,000
John Musinsky, Marcelo Araujo, Allesandro Marques								x	x	x	x	x	x	x				Training	4,687
Total Obj3A																			21,720

Progress to-date:

- Air photo mosaics completed, permitting analysis of threats and opportunities for conservation in the Una Reserve region. Specifically, for example, these photos assisted in the demarcation of the land purchased by IESB with funds from the Margot Marsh Foundation, and the New York Botanical Garden to expand the Una Ecopark by 300 ha.
- In December, Marcelo Araujo presented an analysis of RADARSAT images of the Una region at a Radarsat-CI and Canadian Embassy conference in Brasília.
- In February, IESB GIS specialists Marcelo Araujo and Allesandro Marques administered a course in the use of Arcview to IESB researchers, and local university students.
- Marcelo, Allesandro, John Musinsky and Heloisa last name? collaborated with Charlotte Landau, who is preparing her Ph.D. thesis under Gustavo Fonseca doing a vegetation analysis of the area between the Recôncovo and Espirito Santo. Soil and Geomorphology maps at 1:250,000 scale are obtained from the IBGE in Salvador for digitalization. Entire coverage of the corridor area in Landsat scenes were obtained, and classification begun. Topography maps at 1:100,00 scale were obtained and digitalization of hydrology at this scale was contracted.
- In March, the U.S. government allowed unimpeded data reception from its GPS system, allowing routine measurements with less than 10-meter error, as opposed to the previous 100-meter error.

<u>Maps Produced</u>	<u>For Who</u>	<u>Date</u>
Photo mosaic	UESC for recuperation project in Serra do Conduru State Park	Nov. 99
Map and Data base of RPPNs in Bahia	CRA	Oct. 99
Map of Una Biological Reserve, Buffer zone and location of Montalvani property	IESB, IBAMA, Beneficia Foundation, Margot Marsh Foundation, to justify purchase for RPPN	Nov. 99
Map showing location of the Capitão farm (adjacent to Conduru Park).	To support owner's proposal to create RPPN	Dec. 99
Topographical analysis of vegetation in Una Biological Reserve at UESC	Bachelor's thesis presentation of Allesandro Marques and Gabriel Santos.	Dec. 99
Air photo mosaic of the Itacaré-Serra Grande Zoning area (APA)	For reproduction in 3,000 folders, as part of IESB-Bahiatursa environmental education project	Jan. 00
Air photo mosaic of Ilhéus-Itacaré road for studies of tourism impact.	IESB-Ford Foundation project	Jan. 00
CD-ROMs containing complete digital library of photo mosaics of	Produced and given to CRA administrators of the APA	Feb. 00

Conduru Park and Itacaré APA		
Air photo mosaic of Itacaré urban area	For Bahian urban planning agencies CONDER and SUDETUR to plan urban expansion	Feb. 00
Air photo mosaic of the Jeribucassu watershed in Itacaré	Thesis proposal of Paulo Fernando Meliani, UF-Santa Catarina, to study water conservation issues	Feb. 00
Air photo mosaic of mangroves in Una	For UESC project studying mangroves	Feb. 00
Map of the Barro Vermelho community, showing route for installation of electricity lines.	For community to present to the governor of Bahia	Feb. 00

Problems, delays, shortfalls and proposed solutions:

Nothing to report at this time.

Obj 3, A Benchmarks	Measure	By
Maps produced.	Catalog complete, available for use.	Jan 2000
Geographic database constructed	Database available for use on internet.	Jan 2001
Park management improved.	Explicit policies and procedures implemented on pasture, fire, hunting threats.	Jan 2001

B) Obtain baseline data on biodiversity associated with land uses to prioritize conservation policy. FY 99-00-01.

FY 1999: Obj3, B	O	N	D	J	F	M	A	M	J	J	A	S	US\$
Cristina Alves, Raquel Teixeira - Publish mammal results, popular information for Ecopark			x	x	x	x	x	x	x	x	x	x	3,000
Cristina Alves, Raquel Teixeira Research on mammals regionwide				x	x	x	x	x	x	x	x	x	1,105
Field support for Probio biology consultants Paulo Cordeiro (Birds), (Reptiles), Adriano Paglia (Modeling), Paulo Ignácio (Database)										x	x	x	2,000
Total Obj3, B													6,105
Total Obj3 Supplies, Equip.													24,492

Progress to-date:

- In November, biodiversity research undertaken by IESB was presented to a review of the Probio project in Brasília, and IESB's project was one of 2 among 12 that were cited as exemplary in employing a strategy to have results incorporated in conservation planning at many levels of government, key to the success of the "corridor" strategy.
- A survey of endemic birds in Southern Bahia by Paulo Cordeiro for IESB produced a mid-term report in December.
- Small mammal surveys using a methodology at the "corridor" scale were initiated by Cristina Alves and Raquel Oliveira in this period.

Problems, delays, shortfalls and proposed solutions:

Nothing to report at this time.

Obj 3 B Benchmarks	Measure	By
Mammal Publications produced	1 scientific, 1 popular	Jan 2001
Data on corridor feasibility	2 systems besides cacau researched.	Jan 2001
Bird information produced	1 scientific report, 1 popular publication	Jan 2001

Other Activities and Accomplishments

A. Presentations

- On November 18th in Recife, Keith Alger made a presentation to the USAID annual Environment Meeting on “Economically Viable Strategies for Biodiversity in the Corridor of Discovery.” The presentation discussed the application of tradable development rights to Brazil’s forest reserve requirement.
- On December 4th, Rui Rocha participated in a Seminar organized by the Ford Foundation in Rio de Janeiro on the priorities to be established for a FUNBIO initiative of the Ford Foundation involving new grants for biodiversity conservation and social development. IESB participated with other groups such as WWF, USP, AS/PTA and IMAFLORA.
- On December 20th, IESB representatives, together with the NGO “Instituto Pro-Mar” of Marau met to discuss strategies related to the potential installation of a large titanium mining operation (Mineradora Millenium) in the Camamu Bay. In partnership with Pro-Mar, procedures for accompanying the Environmental Impact Statement process were established, and municipal legislation addressing the issue was drafted.
- On the 7th of December, Rui Rocha met with the Bahian Secretary for Planning, Luiz Carreira, and with Fausto Azevedo, the director of Bahian Center for Natural Resources (CRA) to discuss the delays in the implementation of the Serra do Conduru State park, and how to overcome these delays.
- On November 23rd, Keith Alger made a presentation at the Ministry of the Environment in Brasilia entitled “Ecological Planning and Economic Instruments for the Discovery Corridor”, for the mid-term evaluation of the Probio B component projects funded by the GEF.

B. Visitors

- On Oct. 19th, Nick Van Pragg, of the World Bank, visited the Una Ecopark as an example of the kind of project that might be funded under the Critical Ecosystem Protection Fund of the Bank.
- Roberto Cavalcanti, Keith Alger, and Glenn Pricket visited the Ford Motor Company’s new plant site in Salvador, Bahia in October with Susan Skerker, Senior Director for Worldwide Public Policy, and Doug Mason, General Manager of Ford Land in Brazil (responsible for building the plant). The plant is 40 km north of Salvador in the municipality of Camacari, adjacent to Brazil’s largest petrochemicals complex. CEO Jac Nasser instructed Susan to work with CI and with William McDonough + Partners (green architects) to make the plant a model “green” development. McDonough will handle the plant itself; CI will work with Ford on an off-site conservation program, as well as advise on habitat restoration around the plant. Russell Perry, Managing Partner of McDonough + Partners, was along for the site visit. Roberto, Keith and I agreed that our goal is to get Ford-Brazil involved as a sponsor of the “Corridor of Discovery,” which will run along the coast of southern Bahia and encompass

Una, Conduru, and other new protected areas. Susan wants to support conservation of a site close to the plant, so that Ford will have something tangible to put its name on. Several forest fragments to the south of Salvador will come under new pressure when a coastal road connection is completed between Salvador and Ilhéus. These may be candidates for new reserves with funding from Ford. Ford's contribution could be used to undertake environmental education and community watershed restoration projects in the new reserves. Gerardo Bressan, senior adviser to the head of Bahia's environmental agency, is supportive of this vision.

- On the 6th of October the Ecopark was visited by Mitsuru Watanabe of JICA, who cooperates with Brazil's program for private reserves. Photos of the Ecopark will illustrate this concept in JICA publications.
- On the 25th of March, Wayt Thomas, along the botanists working on the CEPLAC/New York Botanical Garden research project, visited the Ecopark and inspected the land recently purchased for the park.

C. Training

- On October 22nd, Rui Rocha finished the course on "Economic Solutions for Conservation of Ecosystems" offered by the Conservation Strategy Fund (CSF) and the Smithsonian Institution in Washington D.C.
- On December 12th, Carlos Alberto Mesquita defended his masters thesis at CATIE in Costa Rica, on the functionality of private reserves in Latin America. Carlos Alberto returned to IESB to assume management of the Ecopark, and participate in IESB's research on sustainable tourism and forest use.
- In December, Alessandro Marques and Gabriel Santos receive their baccalaureate degree in geography from UESC.
- On the 21st and 22nd of October, Flavio Leopoldino participated in the 1st Seminar on the Conservation and Sustainability of Private Reserves (RPPNs) held in Brasília. He also participated in the 2nd Seminar for training of those responsible for managing RPPNs.

3) CI-Indonesia

Objective 1:

Strengthen CI-Indonesia's (CI-IP) institutional capacity to be an effective participant, and partner to government and other local institutions, in natural resources management in Indonesia.

CI will continue to carry out a range of socialization activities, aimed at relevant government agencies, NGOs, bilateral and multilateral agencies and the private sector, in order to communicate its program, its activities and resulting lessons learned and best practices developed. This will be particularly important during the current dynamic political context in Indonesia, and with the new administration in place. With anticipated policy changes from the new Administration, and continued implementation of decentralization in government, CI-Indonesia will spend considerable effort to keep updated, assess implications of changes for conservation, and develop relationships with new staff and new agencies.

A. *Develop CI-Indonesia's institutional capacity to develop and manage conservation programs utilizing USAID's Institutional Development Framework (IDF) for an in-depth institutional self-assessment to refine institutional development activities, and to monitor and report on progress*

A1) *The development of and investment in the new Deputy Director (DD) will continue in order to improve overall management and administration of CI-Indonesia.*

	Q1	Q2	Q3	Q4	YTD								
DD orientation/Training/Visit to Jayapura office	X				X								
Project Cycle Management Training, Costa Rica				X									
DD to CI Annual Planning Meeting in Washington, DC								X					
Socialization presentations in Jakarta & Jayapura	X												

Progress to-date:

Ms. Purbasari Surjadi, the Deputy Director began her full-time position in November 1, 1999. The Togeian Program management responsibilities that were hers previously are being handled by the Community Development Officer, as well as by the increased Palu field office capacity. During her almost 1 year assignment as DD she has significantly strengthened internal management structures and practice, successfully facilitated more effective communication between field staff, Jakarta-based staff and DC-based staff, and been an articulate voice for CI-Indonesia.

Further orientation by the DD to increase familiarity with all programs and operations continued with a visit to the Jayapura office in October 1999 (postponed slightly from original September plan). During this time she met with the staff for discussions on objectives, strategies and activities as well as operational and management issues. In addition she also met with government agencies and NGOs in Jayapura to build understanding of the local political and institutional arena, and discuss CI's strategy and activities to date. The DD is scheduled to join CI institutional Annual Strategic Planning meeting scheduled for May 1-12, 2000.

CI-Indonesia has transferred Yance de Fretes, previously Irian Program Coordinator, from Jayapura to Jakarta. His new role as Senior Conservation Biologist (SCB) focuses on raising the level of conservation science components within all the field programs (including monitoring and

capacity building), but with a special focus on Papua, and on senior level activities in conjunction with the CD and DD. This position will both boost the level of Jakarta-based support for the Irian/Papua Program, and have programmatic responsibilities with regard to external representation and outreach (including donor relations), communications and activities such as follow up to the Financial Sustainability Strategy Workshop.

Another important role is to assist the Country Director in tracking relevant policy changes and assessing implications for conservation, a significant and very important task during this dynamic political era. While the new position was effective January 1, there has been an important period of transition in the past six months. (Attachment 1: TOR of SCB). Suer Suryadi, former Conservation Biology Manager based in Jakarta has taken on the Papua Program Manager (PPM) position in Jayapura. (Attachment 2: TOR of PPM).

Partially covered by match funding, the DD and Suer Suryadi attended CI's Project Cycle Management Training course in January 2000 in Costa Rica. This course raised CI staff capacity in the fundamentals of project management, including design, the understanding of and responsibilities for information sharing and management, and monitoring and evaluation. The training seminar also established the foundation for a network at CI to exchange information and share lessons learned.

Socialization of CI Indonesia's mission, objectives and activities, and of biodiversity conservation more generally continues to take place with individual government agencies, within NGO discussions and to private sector actors.

Problems, delays, shortfalls and proposed solutions:

None to report at this time

A2) IDF assessment and implementation

	J	F	M	A	M	J	J	A	S	O	N	D	A	S
Continued implementation of recommendations from IDF assessment	X	X	X	X	X	X	X	X	X					
CI Indonesia Annual Planning									X					

Progress to-date:

One of the recommendations from the IDF exercise over 1 year ago was to develop a strong, more clearly articulated strategy for conservation of biodiversity in Indonesia that involved increased active participation from CI- Indonesia partners. The DD has led an effort to plan and design the first CI Indonesia Annual Planning to be held April 2000. Participants will include all CI Indonesia staff and partner NGO staff from the field site projects. The goal of this meeting will be to further develop the CI Indonesia country strategy to better integrate and coordinate each site-level strategy and national level strategy as well as begin to develop hotspot level strategies. This discussion and articulation will also be important for preparation for presentation, discussion and further refinement at CI's Washington office during the CI institution-wide Annual Planning Meeting, May 2000.

Consultant David Richards will be brought on again to work with CD, DD, SEPM, Wendy Tan, and each site project team, including partners, to facilitate the CI-Indonesia-partners meeting and to help brainstorm and to develop first draft of strategy.

Problems, delays, shortfalls and proposed solutions:

Nothing to report at this time.

A3) Financial sustainability strategy

	J	F	M	A	M	J	J	A	S			
Financial Sustainability Strategy follow up implemented (prospects list, concept papers, and budgets)	x	x	x	x	x	x	x	X	x			

Progress to-date:

During last year's fundraising strategy workshop, the group concluded that developing good strategic plans and well-articulated concept papers are the most important tools for raising funds effectively. As the first major exercise, CI Indonesia hosted a Key Stakeholder Consultation and an Internal Strategic Planning Workshop in February, 2000, to update and develop a more focused strategy for Papua, particularly taking into account Papua's special situation under decentralization. (See Objective 2.)

As mentioned above, CI Indonesia is organizing an Annual Planning exercise to facilitate the development of strong written draft strategic plans for all CI Indonesia programs, and for national and hotspot level initiatives. These strategic plans will form the basis and information for good concept papers. In addition, the strategic plans are expected to lead to improved implementation plans, clarify partnership roles and help define more focussed prospect listings.

Problems, delays, shortfalls and proposed solutions:

Nothing to report at this time.

FY00 Outputs/Benchmarks for Objective 1, Activities A1-A3

1. DD orientation and training completed. **(completed)**
2. DD Project Cycle Management training completed **(completed)**
3. DD visit to CI Washington for CI Annual Planning completed **(in progress)**
4. IDF assessment recommendations implemented **(in progress)**
5. Annual CI-IP strategy plan meeting conducted **(in progress)**
6. Prospect lists, concept papers and budgets drafted **(in progress)**

B. Enhance CI-Indonesia's in-country technical capacity to implement natural resource conservation in partnership with national and local government, academia and NGOs.

B1) Increase CI-Indonesia capacity in community approaches through continued Community Development Officer (CDO) activities.

Orientation (New CDO)	X	X										
HCI workshop in Mexico				x								
CDO activities in with field sites in community outreach approaches		X	X					X	X			
Informal in-house seminar on community approaches					X		X					

Progress to-date:

Sundjaya, CDO, concluded his first site visit to the Togeans in early January. During his 2-month stay, he shared many lessons and experiences with the Togeans field officers and other groups in the Togeans. He also at the same time worked closely with each personnel to evaluate capacity-building needs and to develop activities to boost both technical capacity as well as increase personal confidence of each of the Togeans field officers. Field staff have participated in training and study visits on coastal resource management, destructive fishing investigation, coral reef monitoring and conferences on coastal resource management and coastal and marine policy. The staff have also has facilitated community members participation in training in community organizing, coral reef monitoring and improving cacao farming. This capacity building is critical as communities have increasing legal and recognized natural resource management responsibility.

Following the trip, CDO joined DD and SEPM in attending the CI Healthy Communities Initiative (HCI) Annual Workshop in Mexico, January 16-22, 2000. HCI is an initiative within CI to promote community-based conservation initiatives through an approach that seeks to find the common working ground between a community's development aspirations and CI's biodiversity conservation goals. A major focus of this initiative is building CI and partners' field staff capacity for such an approach. During this Workshop, attended by field program staffers from 14 projects worldwide, he shared his experiences and community development approach from the Togeans and was able to exchange challenges, issues, and activities information with other community-based conservation initiatives within CI (Attachment 3: Sundjaya trip report to HCI). His participation in Mexico was covered by match funds.

In March, he did a presentation to the CI Indonesia team on the community approaches for Togeans and Gunung Gede. A very interesting discussion ensued, including the raising of challenges on how to ensure community benefit from the conservation initiatives, how to scale-up activities to reach a strategic critical objective, and how to connect day-to-day activities with a scaled-up approach. These discussions have been very important learning exchange for the Papua program staff, as CI Indonesia seeks to develop field-based activities in the Province.

CI Indonesia's Togeans work is a working example of Community Based Coastal Resource Management (CBCRM). Togeans work is relevant to other projects in Indonesia, especially Papua because, due to its isolation and relative unimportance to the national government, it has been de facto "decentralized". The project's approach and methodology is based on a "ground-up top-down" concept that recognizes the important roles and impacts of both communities and government, and the importance of the relationships between stakeholders of an area. The project has focussed on the roles, influence and activities of community and district representatives, and seeks to facilitate connections and coordination between stakeholders for improved resource decision-making, and build local capacity for such decision making, including the generation and compilation of good information and analyses.

Under decentralization, Papua provincial and district-level governments will have increasing autonomy and responsibility, including for regional spatial planning and prioritizing of development options. Numerous NGOs and community groups will emerge as local communities seek a greater role in these decisions. CI's Togeans project is an excellent example of how a project can effectively facilitate and significantly contribute to a more effective partnership between local civil society organizations, local government, and international NGOs. CDO will seek to effectively utilize hard-won CIIP experience, expertise and lessons learned in community-based, district-focused resources management from the Togeans Islands to help inform strategic planning and implementation of programs and projects in Papua Province in the future.

Problems, delays, shortfalls and proposed solutions:

Nothing to report at this time.

B2) Strengthen the professional and technical capacity of the professional staff members of CI Indonesia

GIS & database conference & course attended by JGM and DM							X					X	
Project Cycle Management training				X									
Field research internship in PNG: 2 Ecologists		X	X										
In-house English writing course for CI staff in Jakarta and in Jayapura													
Tax law & regulation course for FM				X									
Administration & Management course for Program Managers							X						
FM training on new financial system in the Philippines						X							
FM visit to DC													X

Progress to-date:

- Project Cycle Management: CI sponsored an international workshop for senior field project coordinators in Project Cycle Management in Costa Rica, January 2000. DD and PPM attended this workshop, largely covered by match funding. The training provided both participants with a better understanding of a systems approach to project management and also offered reporting and monitoring tools useful for internal and outside stakeholders.
- Field research internship at PNG: 2 ecologists, Hendritee Ohea (JE1) and Mohamed Farid (JE2), attended field research internship in PNG from November to December 1999. Activities encompassed research design and field work. The training also provided both participants better understanding necessary to prepare the coming RAP training in August. Unfortunately JE2 became sick and had to return to Papua early. (Attachments 4 and 5: Trip reports)
- Finance Manager (FM) training on tax & brevet: FM finished his first session of training on tax and brevet last year and will take the second session in June 2000. Under matching funds, FM also attended training on finance management for all CI Asia Pacific Field-based Financial Officers in Puerto Princesa, Philippines on 27 March – 2 April. The purpose was to introduce the new Oracle financial system and to improve the system between field and DC Finance and Accounting team because of considerable institutional growth both in Indonesia and globally, facilitating new relationships, clarifying responsibilities and expectations and agreeing on financial accounting and reporting processes and protocols. (Attachment 6: Trip report) FM still plans to visit to DC for further training in September 2000.

Other staff training activities include:

- JE1 attended Environmental Impact Assessment Training at BAPEDALDA between 18-29 January 2000. Her participation raised her understanding of EIA processes and procedures as practised by the agency.

Problems, delays, shortfalls and proposed solutions:

Due to workload and unavailability of English teachers, the English course for CI Jayapura office staff and scheduled to take place before June 2000, has been postponed until further notice.

FY00 Outputs/Benchmarks for Objective 1, Activities B1-B2

1. New Community Development Officer oriented. **(Completed)**
2. CDO site visits (GGNP, Togeans) completed **(Completed)**
3. CDO informal in-house seminar conducted. **(Completed)**
4. National level GIS technical conference attendance by senior staff; databases courses. **(Completed)**
5. Field research training internship in PNG: JE1, JE2. **(Completed)**
6. FM training visit CI Washington office. **(Not yet completed)**
7. Courses to improve skills attended by appropriate staff **(Partially completed)**
8. CDO attends Healthy Communities Initiative Workshop. **(Completed)**
9. Other site visits, conference attendance, and training activities to build technical expertise identified, developed and completed. Trip reports written. **(In-progress)**

Objective 2:

Build institutional capacity within provincial level government agencies, the academic sector and local NGOs on management of natural resources both within and outside the protected areas system in Irian Jaya.

- A. *Develop an effective strategy to respond to the changing context of natural resources management in Irian Jaya through revisiting and revision of current strategy.*

A1) *Update information base on Irian Jaya, both at the provincial level and for one or two case study sites.*

Design information collection strategy	X	X	X	X									
Collection, assessment, analysis and dissemination of information				X	X								
Design institutional mapping		X	X	X									
Implement institutional mapping			X	X	X								

Progress to-date:

Yance de Fretes changed his position from Papua Program Manager to Senior Conservation Biologist (SCB) based in Jakarta starting January 2000. However, since a number of important events in Jayapura (i.e. Key Partner Consultation and CI's Papua internal strategic planning workshop), as well as a series of follow up discussions were planned, he remained based in Jayapura until April 2000.

Suer Suryadi, Papua Program Manager (PPM), has been based in Jayapura starting in late February 2000. He and Yance designed their overlap for the important activities and a full month in March to ensure good orientation, including that contacts and networks are well-established and minimal local institutional and programmatic memory loss occurred, and sufficient follow up capacity.

- Institutional mapping result: Biodiversity Conservation Indonesia (BCI) was hired as a consultant in early January to help CI Indonesia to understand the key stakeholders in Papua, what roles they are currently playing, what challenges foreseen, opportunities they are seeking out, and what conservation program they are envisioning happening in Papua. The results of BCI work informed our design for our Key Stakeholder Consultation held in Papua on February 21-22, 2000. On the 18 February, BCI team made a presentation to CI to brief about their findings. Additional meetings were held in late February to finalize their report. (This study was match funded by other funds.)
- Case study site: CI has also been exploring working in the area of the Mamberamo Basin which is noted as an "Area inadequately surveyed; indications of high biological significance" in the Irian Jaya Priority Setting Workshop map. This area is important for the Basin is of global significance with respect to biodiversity conservation, and its importance had been recognized by Indonesia as well. Part of the Mamberamo - Foja region (1,018,000 hectares) was declared a wildlife sanctuary (suaka margasatwa) in 1982, although this status has not afforded protection. CI has been gathering data available on the area, including on the mega-dam project and related infrastructure and industrial development. During the discussion in the Papua strategic planning, CI also identified the need to demonstrate a holistic approach to maintain biodiversity intact in the Mamberamo basin that balanced economic development and sustainable use of natural resources that value communities. This was reconfirmed by subsequent discussions with local NGOs and international scientists that work in the Mamberamo region. CI is currently engaged in both external and internal discussions regarding priority next steps in Mamberamo. CI has submitted a proposal to the US State Department East Asia Partnership Environmental Initiative (EAPEI) for follow up activities.

CI plans to undertake an initial biodiversity (and logistical) scoping survey as part of the RAP training exercise in September 2000. The survey team will consist of international and national scientists and the top local scientists/student participants in the training.

Problems, delays, shortfalls and proposed solutions:

Nothing to report at this time.

A2) Key Stakeholder Partner Workshop to discuss the future of biodiversity conservation in Irian Jaya.

	1	2	3	4	5	6	7	8	9	10	11	12
Identify key partners	X	X										
Outreach to key partners	X	X	X									
Workshop preparation			X	X	X							
Conducting workshop					X							
Reporting						X	X					

Progress to-date:

The Key Stakeholder Consultation (KSC) was held in Hotel Sentani on February 21-22, 2000, and was well attended by 46 participants including 12 from CI. CI participants included representatives from Jakarta, Jayapura and from DC, the Global Marine Program, Resource Economics Program and the Monitoring and Evaluation Department. The Consultation was designed by consultant David Richards, and facilitated by DD and SCBM. Most of the 34 non-CI participants stayed and participated throughout the two days. These participants came from provincial government agencies, NGOs, UNCEN. Community leaders, and DPRD.

The format of the Consultation was to participatory identify key issues and questions regarding biodiversity conservation and natural resource management in the context of decentralization, and to break up into working groups to brainstorm on implications and potential solutions of these issues. At the end of the 2-day exercise, the group agreed on a general vision for Papua's environmental future, interpreted as follows (excerpted from final report):

By the year 2025, Papua will be recognized as a successful experiment in balancing economic and social development needs with science-informed environmental management. The central government, Papua's leaders, its people, and the international and domestic private sectors will have incorporated biodiversity conservation into resource use strategies by following rigorous and agreed upon environmental management standards. Former inefficient production methods will be replaced by diversified and non-destructive techniques.

There will be broad public support for effective environmental stewardship. The government will have demonstrated its commitment to biodiversity stewardship, and act transparently and efficiently in an open political system where conservation laws are fairly applied. A body of competent conservation managers will have the skills necessary to successfully manage Papua's environmental assets, and to introduce innovative conservation methods and adaptive management techniques.

There will be sufficient, credible information to make well-informed natural resources management decisions. Policies will be reformed and incentives created to support sustainable development objectives where the precautionary principle is applied in regards to environmental use and management. The private sector, recognizing Papua's strengthened natural resources management capacity, will effectively cooperate with communities to ensure clarity of resource use tenure, reduce environmental pressures, and achieve the objectives of sustainable development and resources management. Ethnic communities will have had their ancestral domains, resource tenure rights, and responsibilities recognized, and will be using their resources sustainable within the context of system-wide biodiversity conservation objectives. Traditional management regimes will have "modern" elements so that it can effectively protect its biodiversity assets.

As a result, a fully protected ecosystem network of PAs, multiple-purpose PAs, and conservation corridors where biodiversity protection is assured will characterize the environment. No species or unique ecosystem will have been allowed to disappear. Because of its international reputation for cultural, species and landscape diversity and beauty, a significant portion of Papua's income will be derived through non-extractive activities such as ecotourism, research, and other enterprises favoring the environment. Extractive industries will meet international standards for "soft footprint" operations. The international community will have made a long-term commitment to supporting species conservation through grants, loans, and rents for carbon sequestration, research fees, technical assistance, appropriate tourism development, political support, and good offices.

SCB and PPM and other Jayapura-based staff are currently engaged in a number of follow up meetings with NGOs and other participants of the KSC. Key results from the discussions include the invitation to CI to take lead on the development of Papuan Biodiversity Management Plan document; request to support environmental journalism training, and invitation to participate in further active dialogue amongst stakeholders. The local parliament (DPRD) hosted one such discussion on Earth Day, April 2000. Another strong recommendation of the KSC was for CI to continue to actively pursue development of a Papua Conservation Fund. SCB also participated in decentralization discussions, attending several meetings in Jayapura and reviewing new regulations on NRM and forestry issues. Some of these meetings were held in CI's office in Jayapura.

Shortly upon their return from Jayapura, the CD, DD and SEPM met with Wouter Sahanaya at the USAID Mission to report on the Consultation and subsequent Internal Strategic Planning

Workshop. A first draft report on the KSC was given to Pak Wouter in preparation for his trip to Jayapura in March. The final report is attached (Attachment 7: Report KSC). CI Jayapura staff also helped facilitate several NGO meetings for Pak Wouter's visit. His visit to Jayapura provided insightful information from NGO partners on how they perceive natural resource management initiatives in Papua. From his trip, it was clear that NGO partners expressed their priorities as capacity building for NGO partners, including financial – there is much interest and support of CI and partners' Conservation Trust Fund development initiative. He also helped CI, as a leading agency, to develop plan for producing Papuan Biodiversity Management Plan document during his visit.

CI, with other organizations was asked by BAPEDALDA to co-organize and sponsor a workshop on developing a strategy for Irian Jaya biodiversity management. The workshop was held in Jayapura, 21-23 March, 2000. The participants came from government, DPRD, NGOs, university, and community leaders from Jayapura. SCB chaired the workshop discussions and was asked to present his paper on "Karakteristik Keanekaragaman Hayati Irian Jaya dan Pelestariannya" (Characteristics of Papuan biodiversity and its conservation).

Problems, delays, shortfalls and proposed solutions:

Although a number of follow up discussions and proposed activities were postponed due to the political situation, stakeholder outreach and informal discussions have been continued.

A3) Strategic Planning Workshop

	1	2	3	4	5	6	7	8	9	10	11	12
Workshop preparation (workshop material, determine participants, logistics)			X	X	X							
Conducting workshop					X							
Presentation of draft revised strategy to USAID						X						
Presentation of draft revised strategy to CI at Annual Planning								X				
Socialization of revised strategy once finalized									X			
Outreach activities with key government agencies, NGOs, and other stakeholders	X	X	X	X	X	X	X	X				

Progress to-date:

Taking the results from Key Stakeholder Consultation, the CI team undertook a full 3-day strategic planning discussion on Papua. Consultant David Richards facilitated this discussion. The CI Papua Strategic Planning team included CIIP senior staff, CI/DC Asia Pacific staff, and CI/DC cross-cutters from the marine, resource economics, and M&E divisions. The purpose was to first conceptualize the key features of a conservation strategy for Papua to answer the question "What needs to be done overall" to achieve the most comprehensive biodiversity conservation objectives possible. The team assessed threats and key forces driving them, and the types of interventions needed to ameliorate or neutralize them. Second, the team refined a vision for Papua's long-term environmental future, specifically focused on biodiversity. Third, it identified CI's potential roles, strategy, major project portfolio, and overall feasibility. Finally, the team began initial considerations of the financial and human resources (including partners) needed to implement the strategy that could save Papua's biodiversity.

The draft of Papua Strategy is not yet be available for distribution as it needs to undergo a process of refinement and discussion within the institution. However one of the most critical points to emerge was that CIIP has to significantly scale up its the level of effort on the policy level to keep abreast of the rapidly changing political and decision-making arena and be able to analyze implications of changes for conservation of biodiversity in both Papua and Indonesia as a whole. This analysis is key because Papua will likely at least have some special provincial status, it will therefore have some different policies, regulations and implementation. CI has submitted a proposal to the US State Department East Asia Partnership Environmental Initiative (EAPEI) for follow up activities.

On 3 March, CD, DD and SEPM visited USAID mission in Jakarta to apprise and update the Mission and discuss activities. On March 27, SEPM and others met with Cynthia Gill of USAID Global Bureau in DC to update her on progress also.

Problems, delays, shortfalls and proposed solutions:

Nothing to report at this time.

A4) Develop at least one case study area(s) assessment to test the feasibility of both the demonstration of specific land-use planning exercise in partnership with government and other stakeholders, and also the development of a site-based research program.

Identify case study sites	X												
Case study information collection and assessment	X	X	X	X	X	X	X	X					
Case study area site visits							X						
Presentation of case study results (to date) at ISPW					X								
Initial activities with relevant government agencies				X	X	X							
Develop case study site research program								X	X				
Training/capacity building activities								X	X				
Develop paper on case study												X	X

Progress to-date:

CIIP has been gathering further information on a number of areas in Papua. CIIP has also met with a number of NGOs to explore potential for partnership at the field site level. During the Internal Strategic Planning Workshop, Mamberamo Basin was discussed as compelling case study area due to its identified (in Priority Setting Workshop, 1997) high biodiversity value and priority status for conservation. During the discussion, CI also identified the need to demonstrate a holistic approach to maintaining biodiversity in the Mamberamo basin that balanced economic development needs, promoted sustainable use of natural resources that are valued by communities, and ensured long-term conservation of biodiversity.

The overall goal of this 10-year project would be to demonstrate the economic viability of conservation, and more sustainable local use of natural resources as the economic alternative to large-scale infrastructure and other development and widespread commercial resource extraction of natural resources in the province of Papua, Indonesia.

One preliminary step of this project is to further collect and assess and analyze information on Mamberamo including reviewing both national level planning (and decision-making authority) as

well as international private investment interests in the mega-development plans for the region. Further information collection on Mamberamo is being pursued to include all types of social, biological physical and land use-planning information on Mamberamo. Unfortunately most of the biological data on Mamberamo is several decades old. However JE2 has been invited to join a biological expedition in Danau (Lake) Bira (Central Mamberamo) for two weeks in early May. His main responsibility in this area will be to survey the biodiversity of fruit bats and birds.

In addition, the RAP training planned for August 2000 will be followed up by a RAP scoping survey in Central Mamberamo. Most of the RAP trainers and 6 top trainees, representing each taxa, in collaboration with Uncen and YALI (one of leading NGOs in Papua, and most prominent in Mamberamo) will assess biodiversity for two weeks in September 2000.

Problems, delays, shortfalls and proposed solutions:

Because of the expense involved in the Key Stakeholder Consultation, and preparation time needed, CIIP decided to postpone the Spatial Planning Case Study exercise until further notice. CIIP had already discussed this project with a consulting firm, and received a costing estimate which was much higher than originally anticipated. In addition, because of the uncertainty regarding decentralization authority and the status of Papua Province itself, it has become less clear that such an exercise, while still important, should be the priority. Continuation of this activity will depend on priorities emerging from follow up discussions to the KSC and ISPW, and on budgetary and personnel considerations.

FY00 Outputs/Benchmarks for Objective 2, Activities A1-4

1. Institutional Mapping Exercise designed and implemented. **(Completed)**
2. Information collected and analyzed updated and circulated internally **(Completed)**
3. Key Strategic Partner Workshop held **(Completed)**
4. CI Internal Strategic Planning Session held **(Completed)**
5. Revised Irian Jaya strategy articulated **(Partially completed)**
6. Socialization activities for revised strategy **(Partially completed)**
7. Case study site(s) identified and assessed **(Partially completed)**

Objective 3:

Increase scientific understanding of Irian Jaya's biodiversity and raise awareness of its importance in order to help facilitate effective management of natural resources.

A) *Conduct training in "information generation" methodologies.*

RAP training assessment, development and preparation			X	X	X	X	X					
RAP training activities										X		
Wrap –up/Reporting												X

Progress to-date:

CI Irian Jaya Program held a 20-day training on basic ecology in Yongshu, Cyclop nature reserve, September-October 1999, about two hours by boat from Jayapura. The training was attended by almost 30 participants from local stakeholders, NGOs and academia and led by senior scientists from LIPI and UPNG (University of PNG) and James Cook University, Australia. (Attachment 8: Training Workshop Participants and schedule). The goal of the training was to introduce basic principles of field data collection and analysis of field data. This activity was largely covered by other funding. Under supervision of SCB, one of the participants, a highly motivated student from UNCEN, finished her thesis using plant data collected during the training.

need good quality and credible information for these ends. The development of BIC is being supported largely by other funds.

Since the KSC, CI has been very active working with local groups, and government agencies to promote biodiversity issues in Papua. On March 3, 2000, SCB gave a lecture to about 30 university lecturers and students at UNCEN on "Natural Resources Utilization in Irian Jaya: from a conservation perspective". CI will be sponsoring a seminar in April 2000 on environmental journalism for Irian-based journalists and NGOs. The Government of Papua also invited CI together with WWF, Bapedalda, NRM2 and Yayasan Wasur Lestari to participate in the Environmental Day Poster Exhibition at Jakarta Convention Center during 8-11 June 2000 opened by Vice President Megawati S.

Problems, delays, shortfalls and proposed solutions:

Nothing to report at this time.

FY00 Outputs/Benchmarks for Objective 3, Activity B

1. Series of lectures, presentations and workshops designed and held.

4) CI-Papua New Guinea

Objective 1:

Increase the link between community-based resource management and biodiversity conservation on Kamea-owned lands in the Lakekamu Basin through expanded use of the Ivimka Research Station (IRS).

Activities:

A) *Work in partnership with the Kamea landowners to maintain and promote the IRS in the Lakekamu Basin as a world-class, lowland rainforest research facility.*

A1) *CI-PNG will help facilitate increased consultation with the IRS Kamea landowners and nearby Kamea community of Tekadu to enhance the information flow between IRS field staff and the Research Station's local stakeholders. FY99-01.*

Regular meetings and Community Consultation	x	x	x		x		x		x		x

Progress to-date:

The locals have organized themselves and are working at the research station. Support should be given to them at all times to ensure that they take full responsibility for maintaining and managing the research station. The training of more than 25 Basin people to work on the long-term Insect Collecting Project (*Binatang Brigade*) by the Silvaard Institute is a dream come true for the Lakekamu Basin Project. The *Binatang Brigade* has assisted in setting up the radio communication network between Tekadu, Kakoro and the research station. Since the FPCD Office in Port Moresby is also linked by radio, the CI-PNG office needs to have a radio set-up in the Port Moresby Office to complete the radio-communication network with the Basin. We will be assessing the feasibility of this over the next few months.

In November 1999, the IRS Management Committee held a meeting, and even though some members were not available, those in attendance discussed the division of IRS revenue and the need to open bank accounts for the landowners and the Research Station. The general agreement was that there would only be one account and that a ledger would be kept to differentiate the landowner and research station portions of the revenue. At a follow-up meeting attended by the Ivimka landowners and other village members in March 2000, the Committee agreed to have a third portion of the research station earnings directed to the community. The percentage amount of each portion was left for the community to discuss and report at a later date in May.

A January meeting held in Tekadu between FPCD, CI and the landowners was attended by Yati Bun and Tom Pringel, a newly recruited officer of FPCD. CI-PNG's Lakekamu Basin Science Officer was not able to attend the meeting, but the IRS fee schedule established during the November community consultation was presented and revised into the version shown in table 1.0.

Table 1.0: The Revised Ivimka Research Station Fee Schedule--January, 2000

TYPE OF FEE	CATEGORY	RATE	COMMENTS
1. LODGING	A. (i) short term- up to 21 days visitors (tourists, researchers, students etc.)	K18.00 per night	<ul style="list-style-type: none"> this category of visitors are those other than the basin people (local

	(ii) long term- more than 21 days B. Project Staff (CI and FPCD) C. local visitors (from within the Basin)	K15.00 per night K5.00 per night K2.00 per night	visitors) - same as above • CI and FPCD Project staff • the basin people (eg. from Tekadu & Kakoro people. This category also includes project field staffers.
2. USER OR LANDOWNER FEE	A. Scientist (senior) B. Student (overseas) C. Student (PNG) D. Tourist	K3.00 per day K2.00 per day K1.00 per day K3.00 per day	• includes PhD and Masters research Students - includes bird watchers, back packers, photographers, etc.
3. PORTERING	A. Tekadu to Ivimka B. Ivimka to Kakoro	K0.50 per Kg K1.00 per Kg	
4. RESEARCH ASSISTANT	A. trained B. not trained	K7.00 per day K5.00 per day	
5. TOURIST /VISITORS GUIDE		K4.00 per day	
6. IVIMKA FIELD LABOUR		K5.00 per day	

At a December 1999 meeting, CI-PNG and FPCD project staff agreed to hold community meetings on a quarterly basis with both CI-PNG and FPCD staff present. However, other meetings may be convened as needed in the course of field activities by both organizations. The calendar above provides a schedule of community meetings and consultations for the remainder of this fiscal year (FY2000).

Problems, delays, shortfalls and proposed solutions:

Nothing to report at this time.

A2) CI-PNG, in consultation with Kamea landowners, also proposes to update the current monitoring and evaluation program. FY99-00.

	1	2	3	4	5	6	7	8	9	10	11	12
Consultation with Experts	x	x	x	x	x	x	x	x	x	x	x	x
Reevaluation of M & E plan	x											
Consultation with Community about measurable results	x	x	x		x		x		x		x	
Revised draft prepared							x					
Trial (Dry) runs of draft M&E Plan								x	x	x	x	x
Final draft of M & E plan prepared												x

Progress to-date:

The CI-PNG Milne Bay Program Manager and the Lakekamu Basin Science Officer attended a Training Workshop conducted by CI's Monitoring and Evaluation Department from the 25th January to the 04th February 2000. The information gathered during this workshop shaped the discussions at a recent one week CI-PNG planning workshop and assisted the CI-PNG staff in refining general program strategies and in compiling strategic working documents. A separate report on the workshop is included (see Attachment PNG-1).

Problems, delays, shortfalls and proposed solutions:

The Training Workshop did not directly address monitoring and evaluation techniques but focused on the formulation of project strategies that facilitate monitoring and evaluation programs. A follow-up training in September 2000 will cover monitoring and evaluation programs in full.

A3) CI-PNG, in consultation with Kamea landowners, will oversee expansion and maintenance of the current trail network, construct observation blinds and make improvements as needed to the IRS. FY99-01.

	1	2	3	4	5	6	7	8	9	10	11	12	13
Maintenance of current trail network	x	x	x	x	x	x	x	x	x	x	x	x	x
As needed improvements to IRS infrastructure	x	x	x	x	x	x	x	x	x	x	x	x	x
Trail network map- draft	x	x	x	x									
New trail network planned with communities	x	x									x		
Sites for observation blinds selected								x					
Implementation of trail network planned- construction		x	x	x	x	x	x	x	x	x	x	x	x

Progress to-date:

The Tekadu-based Koroma Lutheran Youth Group has agreed to maintain the Tekadu-IRS trail on a quarterly basis beginning in May 2000.

In October of 1999, the IRS landowners of Paiapi in Tekadu agreed with the trail network expansion plan, and six locals were recruited to begin work on the expanded network in November. Since the field station was occupied by three visiting research entomologists and over 12 local field assistants for most of November, the project was postponed until January 2000. Clement Peter, an IRS volunteer, and five of the local workers began work in mid-January on the extension of the ridge trail into the hills. A new lookout was created at the end of the ridge, and the trail was extended down into the lowlands, so that it forms an outer trail-loop linking the slope hills and the lowlands. The workers also performed maintenance work on the existing trails and built new footbridges. In addition, signs displaying trail names and distances will be erected along the trails and at trail intersections.

Observation sites will be spotted along the trail network. Two sites have already been chosen for observation of the Raggiana Bird of Paradise. The lookout that was cleared along the ridge trail provides a much wider and better view of the basin. Another two or three spots will also be cleared as lookouts along this trail. Sites for observation blinds will be chosen after the new trails have been completed. To accomplish this, the project officers will be doing regular walks along the trails to identify observation spots.

By March 2000, the field workers had already cleared a site close to the research station for the construction of a new building to accommodate local research assistants and field workers. They

have started cutting and gathering timber/wood for constructing the building, and there is sufficient roofing iron, nails, and posts to begin the project.

Problems, delays, shortfalls and proposed solutions:

Nothing to report at this time.

A4) CI will also promote the 1998 RAP Working Paper Number 9 on the 1996 Lakekamu Basin RAP as a promotional tool to expand use of the IRS by visiting researchers and will explore potential partnerships with research institutions in PNG, Australia and elsewhere in the Pacific. FY99-01.

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Continued distribution of RAP Working Paper No. 9	x	x	x	x	x	x	x	x	x	x	x	x
Partnerships search	x	x	x	x	x	x	x	x	x	x	x	x
Update PNG Program pages and link CI website to PNG Embassy's website			x									

Progress to-date:

The distribution and promotion of the RAP Working Paper is on-going and has already attracted visiting researchers to the IRS. Most notably, Dr. Terry Sears and two colleagues from the Silvaard Institute in the United States made an initial visit to the IRS in October 1999 to conduct entomological research. Dr. Sears returned in February 2000 for a three month stay and has a clear interest in developing a long-term Insect Collection and Curation project in partnership with the IRS and the Tekadu people. He has already trained 25 people from the Basin (mostly from Tekadu) to work with him on the project. CI-PNG's Basin Science Officer will organize a meeting between Dr. Sears and the CI-PNG Director to discuss a partnership when Dr. Sears returns to PNG in July.

CI-PNG is also looking at a possible partnership with Wageningen University in the Netherlands. Two research students from the University spent seven months in PNG, much of it doing field research for their Masters degree in Kakoro village in the Lakekamu Basin. They visited Tekadu briefly in January 2000 and wrapped up their fieldwork in April. A final report of their fieldwork will be finished in September and should include an independent assessment of the project's progress/impact.

Problems, delays, shortfalls and proposed solutions:

After productive meetings with the PNG embassy regarding a link between the CI and embassy websites, CI's webmaster departed in January, and the vacancy was not filled until April 2000. The web project will be completed but has been delayed by this personnel change.

A5) CI-PNG will empower the local community to participate fully and meaningfully in the Science and Research Tourism Enterprise. In doing so, CI-PNG will facilitate community training and the establishment of an IRS Management Committee comprising members of the local Tekadu Community.

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Research Assistant Training	x	x	x	x	x	x	x	x	x	x	x	x
Tour/Field Guides Training						x						
IRS Management (Book-Keeping) Training								x				

Establish IRS Management Committee						x					
Participatory Rural Appraisal (PRA) & Community Mapping Training Workshop								x			
Butterfly Farming Training										x	

Progress to-date:

Dr. Terry Sears of the Silvaard Institute is looking at establishing a long-term Insect Collection and Curation project in partnership with the IRS and the Tekadu people and has already trained a number of locals to be research assistants. During an initial visit in October-November 1999, Terry and his colleagues trained twelve local assistants at IRS to trap and prepare insect specimens for shipment. After two weeks of training two separate groups, six people were selected to receive further instruction in setting light traps, identifying and sorting quality specimens, pinning moths and beetles on foam boards, and packing them for shipment. Other methods of insect trapping, such as sweep netting, Malaise net trapping and butterfly net trapping, were also used. An advanced method used by the Smithsonian Institution in parts of South America--the "Fogging gun" method--was also demonstrated. The research assistants dubbed themselves the "Binatang Brigade."

The CI-PNG Science Officer spent one week during Dr. Sears' visit translating for the locals who couldn't understand the English language. Before he left the basin, Terry spoke to the Tekadu people in a meeting. The Binatang Brigade continued to trap and prepare specimens during Dr. Sears' absence. He returned to the Basin in February 2000 for three months, at which time he trained and employed a further thirteen local people to work on the project, bringing the total of trained local people working with the insect project to twenty-five.

Two local volunteers have been recruited to assist the IRS and with continued USAID budgetary support may be kept on full time. They are Clement Peter and Alex Moses, both of whom have worked in the past as assistants at the research station. They are responsible for the recording of meteorological data and the supervision of fieldwork by locals, as well as the general administration of the research station (i.e., reporting activities, keeping financial records, accommodating visitors/researchers, etc.).

In addition, the IRS Management Committee has been selected and includes members from both Tekadu and Nukeva. They were selected during village meetings in September 1999 and are listed in Table 2.0

Table 2.0: The IRS Management Committee Members

Name	Village/Hamlet	Status in Community	Additional Comments
Lazarus Tami	Paiapi	Son of landowner	Also leads Catholic church activities.
Kondias Kongo	Nukeva	Former village councillor	Influential and community minded
Kola Timothy	Koroma	Guesthouse manager	Very understanding and Community minded
Clement Peter	Paiapi	Trained IRS Assistant	son of landowner
Alex Moses	Koroma	Trained IRS Assistant	Son of Lutheran Congregation Elder- one of the few well educated people in Tekadu

Land-use and resource mapping started in September of 1999 with the Tekadu and Nukeva villages. Following the completion of that project, the Biaru people of Kakoro also produced their land-use maps. Note here that CI-PNG is not working directly with the Biaru people and the other two language/ethnic groups (Kovio and Kurija) but since land-use and resource rights are important for the Basin communities, the CI-PNG project officer deemed it productive to conduct

the mapping exercise. During a visit in March 2000, revisions were made to the maps from Nukeva and Tekadu.

CI-PNG plans to have Tekadu and Nukeva villagers meet to reach a consensus on their maps, which will be followed by a consensus-building meeting with the Biarus of Kakoro village. During this meeting, maps drawn by each village will be presented to the other villages for comments and discussion. This process will identify "conflict areas" and "no-conflict areas". With an understanding of the areas of conflict regarding land-uses by different groups and/or villages, CI-PNG will be able to implement project activities more efficiently and in accordance with the local peoples' wishes. Rather than waiting for conflicts to be resolved before moving on with project activities, CI-PNG and its partners will be able to start or continue work with landowners in the areas where there are no conflicts, while at the same time working to resolve existing land conflicts. Boundaries for the proposed Wildlife Management Area(s) [WMA] will also be discussed.

Problems, delays, shortfalls and proposed solutions:

We are currently re-strategizing for Lakekamu in light of the increased interest of various landowners in creating WMAs. We will present this revised strategy with the FY01 workplan.

FY2000 Outputs/Benchmarks for Objective 1, Activities A1-A5

1. Hold continued informational meetings with the Kamea landowners of the IRS.
2. Reevaluation and Revision draft of M & E plan.
3. Expansion and maintenance of current trail network; As-needed infrastructure improvements; New trail network planned; Sites for observation blinds selected.
4. Continued distribution of 1998 RAP Working Paper Number 9 on the 1996 Lakekamu Basin RAP to promote IRS; Partnership search.
5. Training completed for Local Research Assistants and Tour Guides. IRS Management Committee Established and some Committee members trained in Basic Book-keeping, PRA skills and locals are able to participate in project planning, land/resource-use mapping and begin solving some land-boundary conflicts, Butterfly Farming.

B) CI-PNG will continue its efforts to inform the Kamea on the importance the Lakekamu Basin's biodiversity, the importance of sustainable resource use and the various conservation options open to them. This would be accomplished through:

a series of community meetings and workshops. CI-PNG Lakekamu Basin staff will conduct this activity. FY99-01.

delivery of the results of the 1996 Lakekamu Basin RAP to Basin communities in a comic-book format that is widely used for education purposes in PNG, and that will be most useful and accessible to them. FY00 -01.

Meetings on biodiversity	x	x	x		x		x		x		x	
Comic book consultations	x	x	x	x	x	x	x	x	x	x	x	x
Draft of comic book											x	

Progress to-date:

CI-PNG staff have distributed RAP Working Paper Number 9 in the Lakekamu Basin and have begun the community consultation process with Kamea landowners. The CI-PNG Science Officer plans to conduct a follow-up meeting on food-webs and food-chains to consolidate the importance of biodiversity to the community.

Work on the comic book has begun with Mr. Ted Henry Watuna creating the artwork. The project will be evaluated at the end of the three months, and, if need be, an extension will be given to the artist. Meanwhile, Dr. Andrew Mack will be contacted from time to time for his input. When a draft is ready, Mr Watuna will meet with Dr. Mack to receive his comments on the work. At this time, work on the comic book is on track.

Problems, delays, shortfalls and proposed solutions:

Nothing to report at this time.

FY00 Outputs/Benchmarks for Objective 1, Activity B

1. Series of meetings on biodiversity with the Kamea.
2. Complete consultations on comic book content.
3. Complete draft of comic book.

Objective 2:

Foster biodiversity conservation in targeted communities in Wide Bay, East New Britain Province through exploration of conservation-based enterprise development and support of community-based resource management.

Activities:

CI and our local NGO partner, the East New Britain Sosel Eksen Komiti (ENBSEK), work with local communities in Wide Bay to increase their knowledge and understanding of conservation-related issues.

A) CI-PNG, in partnership with ENBSEK and local communities, and with technical support provided by CI-Washington, will conduct a targeted RAP survey and continue participatory rural appraisals in order to formulate community-based resource management plans.

A1) At the request of the communities of Taintop and Klampun, CI will conduct a small-scale RAP survey on their lands. Information obtained from the survey will be used in developing community-based resource management plans. Results of the RAP survey will be published and disseminated within Wide Bay communities. FY00-01.

Small-scale RAP					X	X							
Write-up of RAP results													X
Community Based Resource Management – ongoing	X	X	X	X	X	X	X	X	X	X	X	X	X
CBRM – addition of RAP results													X

Progress to-date:

A small-scale RAP was carried out near Tientop village, Wide Bay, East New Britain, from the 13th of March through the 13th of April 2000. The project was led by Dr. Andrew Mack, and scientific expertise was provided by the Wildlife Conservation Society (WCS), the University of Papua New Guinea (UPNG) and visiting scientists from James Cook University (Australia) and Dartmouth University (USA). The project involved scientific specialists who collected information on mammals, birds, hepertofauna, stream ecology and water quality.

The findings of the survey include a high diversity of frogs, with 12 species collected, representing 75% of those found in all of New Britain island, which suggests a healthy forest environment. There were 53 species of forest birds recorded during the survey, and half of the species recorded are endemic to New Britain or the Bismarck Archipelago. Six (6) species of birds are

considered near threatened, and 1 species is endangered according to BirdLife International & IUCN. The endemic species of Bismarck islands, *Melaneris melanops* and *Dobsonia praedatrix*, are listed as near threatened.

The biota of New Britain is biogeographically distinct from that of the New Guinea mainland and thus comprises a conservation priority as distinct as if it were a separate country. The environment around the survey camp (Wanui) is in pristine condition; there was little evidence of human presence or anthropocentric modifications.

The biota of this area is not well known and highly endemic. In just two weeks of fieldwork, several new species were discovered and new records were added to the known fauna of New Britain. Certainly there are many more discoveries awaiting science in this region. The area also exhibits high levels of diversity; many of the taxa expected to occur in lowland New Britain were recorded or are reasonably expected to occur should more survey effort occur. The area also is under considerable threat from external commercial logging. From casual observation in a nearby forest that has been logged, it is certain that such logging poses a critical threat to many of the organisms that comprise the New Britain lowland rainforest. From aerial inspection in East New Britain, it is apparent that much of the once extensive lowland forests of East New Britain have already been logged and their biota undoubtedly impoverished. Thus the area of the survey carries all four criteria for conservation priority: endemism, diversity, threat, and limited area. Few areas, if any, in Papua New Guinea have all four criteria to such extent and thus few areas should be considered a higher conservation priority. A preliminary report on the findings of this survey are included (see Attachment PNG-2).

Regarding the CBRM plan, a strategy has to be formulated through consultations with the communities of Tiemtop and Klampun villages. The CBRM strategy cannot be pursued as an activity isolated from all of the other activities, such as the RAP, Targeted Feasibility Study and PRAs. The CBRM strategy has not been formulated because all these other activities have not been fully completed. Summary of all information gathered from these activities will be presented to the Klampun, Sampun and Klampun communities, and the CBRM plan will be developed through consultations with these communities. To ensure sustainability, the CBRM plan requires input from the communities, and we will facilitate the process by providing them with information from all of the aforementioned activities. We would like the communities to let us know how they would like to manage their resources. The CBRM plan will thus be the result of consultations with the communities.

Problems, delays, shortfalls and proposed solutions:

An ethnobotanical survey, planned as a portion of the RAP, was delayed because botanists were not available due to other commitments during this trip. Therefore, in July of this year, there will be two botanists from UPNG travelling into Tiemtop (the same site) to complete the study on plants, and their results will be incorporated into the final report of the RAP.

The primary objective of the RAP was to do a comparative study of biota at both logged and unlogged sites, since the island of New Britain, including parts of Wide Bay, has suffered serious environmental impacts from logging activities. During pre-RAP community consultation visits, the negotiations had been positive with the community in the logged site, and the RAP was planned for the 13th March to 14th April 2000. However, during the visit by the survey team to the logged area, the logging company had much more influence with this community than anticipated. This resulted in the survey being conducted in the unlogged area only.

There were additional difficulties due to a land dispute in the area where the RAP was conducted, which resulted in the RAP survey lasting for two weeks rather than the planned four weeks. Despite the confrontations and early departure of scientists from the field, the results over the two

weeks were quite successful. A preliminary report has been completed, and compilation of the final report is scheduled for September.

A2) CI-PNG with local partner, ENBSEK, will carry out additional participatory rural appraisals (PRAs) in targeted communities in Wide Bay. FY00-01.

PRAs in targeted communities (continue through YR2 & YR3)	x	x	x	x	x	x	x	x	x	x	x	x
PRA information added to CBRM plans												x

Progress to-date:

The PRA activities on clan land boundaries are complete for the communities of Tientop and Klampun. The idea was for the community to develop a consensus over the land boundaries through the PRA exercises. The maps were drawn and given back to the community for confirmation before submitting them to East New Britain Sotel Eksen Komiti (ENBSEK). While the community had the maps with them, they proceeded to survey all land boundaries, while communicating with the community members who were likely to dispute land boundaries. With assistance from the established Conservation Extension Volunteers, land boundary surveys were completed for this part of the community.

We are in the process of purchasing Global Positioning System (GPS) that will help us to finalize the land boundary mapping and description for submission to the Office of Environment and Conservation (OEC) for gazettal as a Protected Area.

Problems, delays, shortfalls and proposed solutions:

Nothing to report at this time.

FY00 Outputs/Benchmarks for Objective 2, Activities A1-A2

1. Conduct targeted small-scale RAP survey and begin initial write-up of results.
2. Continue community-based resource management discussions.
3. Add RAP results to community-based resource management plan working document.
4. Continue participatory rural appraisals in targeted communities.
5. Add PRA information to community-based resource management plan working document.

B) CI-PNG proposes to continue its work with ENBSEK to help the communities of Wide Bay explore conservation-based enterprise development options that will promote the sustainable use of their forest and coastal ecosystems. This will be accomplished through:

initial community consultations followed by targeted feasibility studies by CI's Asia Pacific Enterprise Manager, Darwin Flores, who is a specialist in small-scale enterprise development at the community level; and

presentation of studies' findings and evaluation of various feasible conservation-based development alternatives by communities, who choose which ones, if any, they would like to pursue further. (FY00-01)

Targeted feasibility studies – months	x											
Findings in report form					x	x	x	x				

Progress to-date:

The initial consultations were conducted by Maureen Ewai in Rabaul, the capital of East New Britain, and in the communities of Klampun and Tiemtop in Wide Bay. The objectives of the Consultation visits were two-fold:

1. To consult with the communities of Wide Bay regarding the economic activities existing in the area and to raise awareness of the feasibility study on Enterprise development to be conducted in Tiemtop and Klampun villages.
2. To consult with the Provincial Government, Tourism Bureau, NGOs and other agencies regarding development and resource management activities in East New Britain Province, particularly in Pomio District.

There were several meetings conducted with agency representatives, including the Executive Officer of the Tourism Bureau, the Gazelle Restoration (GRA) Environment Officer, the Provincial Wildlife Officer of the Division of Agriculture and Livestock (DAL), and the Eco-Enterprise Officer of the Pacific Heritage Foundation (PHF).

The consultation meetings with both the aforementioned agencies and local communities allowed CI-PNG to gather valuable information on economic and development activities in Wide Bay, including the plans of the East New Britain Tourism Bureau, current resource management activities involving local communities and current economic activities in Klampun and Tiemtop villages. A summary of this information follows.

Tourism

Currently, tourism activities are concentrated in the Gazelle Peninsula and center around Rabaul town and Simpson Harbor, which are located in the heart of a crater surrounded by six volcanoes. However, there are plans to improve tourist attractions to Kavakuna Cave, located within the Jacquinot Bay (west of Wide Bay) in Pomio District. After repeated visits to the site by international speleologists, Kavakuna Cave was determined to be the second deepest cave in the Southern Hemisphere, and in 1995 the Pomio Development Association evaluated the tourism potential of the area. Their report is available through CI-PNG.

The Kavakuna Cave area was found to contain significant biological diversity through a 1991 Conservation Needs Assessment survey performed by the Department of Environment and Conservation (DEC) in response to impending logging activities in the area. In 1997, the Kavakuna Cave area was gazetted as a Wildlife Management Area (WMA) under the Fauna Protection and Control Act.

Resource Management activities with the communities

There are about 8 butterfly farms in the Province, which offer benefits in terms of income and employment for the unemployed. The insects are sold to tourists and to the Wau Insect Ecology Institute, and the dry specimens have a buyer in Japan. The market prospects are good according to the Environment Officer, Mr. Luke Waipo, who reported that a rare species of the Birdwing may be sold for K100.00. The farms operate on a small scale and present an opportunity for expansion.

The Pacific Heritage Foundation (PHF) has implemented an eco-forestry program to allow local communities to manage their forests in a profitable and sustainable way. This project involves small-scale timber harvesting and subsequent processing using mobile sawmills, which may be purchased with PHF assistance. The PHF provides technical and business training, then monitors community activity to ensure that a Management Plan for wise use of resources is followed. Not only are timber products used within the communities to build schools, aid posts and housing, but they are also sold for cash to local buyers and through regional markets.

Economic activities in Klampun and Tiemtop villages

The two major economic activities of these communities are the production of cocoa and copra. Copra takes about 3-4 months for preparation and may be sold at the Rabul market for K900.00 per ton. Selling garden vegetables and other goods through markets and trade stores is another way to earn income, although such activity occurs irregularly and informally. In addition, logging activity, though unsustainable, contributes to the local economy. The earnings from these activities range from K10.00-K105.00 per month and may be spent on clothes, household goods, school fees, health fees, or, in the case of a few families, deposited in a bank account.

The Targeted Feasibility Study was conducted by CI's Asia Pacific Regional Enterprise Development Manager, Darwin Flores, in October 1999. The following gives a summary of his findings (see Attachment PNG-3 for complete report).

Logging continues to be the major immediate critical threat to biodiversity conservation in the area. Quick cash from logging concession royalties together with infrastructure projects like road, trade store, school, and church construction provide a stark development contrast to those communities that have not embraced logging and continue to rely on their gardens for irregular and relatively miniscule cash income. With a couple of motor vehicles thrown in to sweeten deals with landowner clans, logging companies clearly have the upper hand in the battle for the hearts and minds of villagers caught between the question of sticking to the status quo or pursuing "development".

The village economy is not helped by the fact that village agricultural produce is severely limited from reaching the market by the very few and highly irregular visits of cargo ships. Provision of cargo transport is a key to stimulating the local economy and a crucial step for enabling villages to translate their everyday labor into cash income. Projects that are meant to diversify or enhance local agricultural production will go to naught if the cargo transport problem is not addressed decisively. Surplus garden produce will continue to be abandoned and allowed to rot.

Admirably, the village committee of Klampun, together with their Local Level Government representative, has taken a firm position against logging in order to demonstrate that "development" can be pursued in harmony with conservation. A village committee program of action that started with the building of a community guesthouse has already gained widespread local attention.

The Klampun village development initiative is now weighed against "development" that is being brought in by the logging companies. Other landowning clans who are confronted with a decision on whether to allow logging in their area or not are closely following the developments at Klampun. The pressure is indeed great for Klampun to demonstrate concrete benefits from its initiatives, be they immediate or deferred.

At this stage, enterprise development as a tool for conservation can only be effectively wielded in conjunction with an on-the-ground community development program stressing awareness, value formation and community participation in decision making. The CI-ENBSEK partnership is therefore a strong strategic and complementary union that continues to be valid under the situation.

The enterprise strategy for the Wide Bay villages should have the outcome of stimulating the participation of a substantial number of villages. In order to achieve this result, the following actions were recommended.

1. Farm to market access. Strategically resolve the cargo-shipping problem towards a more regular collection and delivery of garden produce to Rabaul and other possible markets. Follow-up a possible market in Lae. Take further the idea of joint marketing with other

communities under the umbrella of ENBSEK and other east New Britain province NGOs.

2. Self-sufficiency in grains and protein. Initiate substitution of imported food staples (like rice and tinned fish) with local produce through a follow-up project on post harvest requirements. This can be done through the acquisition of a portable rice milling machine and/or the re-introduction of traditional mortar and pestle technology. Local fish processing should be further looked into. Processed fish products can take the form of smoked, salted or dried fish.
3. Promoting high value commodity for the export market. Push for the consolidation of vanilla growing efforts with other communities in East New Britain who have already organized their own marketing association to export the commodity.
4. Strengthen and encourage the Klampun village committee. A key to the successful implementation of the general enterprise strategy is the strengthening of the core village community committee at Klampun. It is important that benefits are actually gained immediately and that the village committee members achieve a succession of achievements and accomplishments towards their objectives.

On the enterprise component side, one way of doing this is to actively support their guesthouse project by promoting it among prospective users. Specific target "markets" that were identified during the village workshop are the local church organizations in the province, NGOs in the province, and local government staff and officers of the province. Even if small, an inflow of visitors can stimulate both the local economy and local communities.

After the presentation of the Targeted Feasibility Study, CI-PNG began negotiating with groups to assist the field staff in training the communities for identified enterprise projects. These groups include OISCA, a private organization, the Department of Agriculture and Livestock (DAL) and VunaBosco, an agency specializing in agricultural products.

Problems, delays, shortfalls and proposed solutions:

Nothing to report at this time.

FY00 Outputs/Benchmarks for Objective 2, Activity B

1. Complete targeted feasibility studies.
2. Begin presenting findings in report form

Objective 3:

Increase the number of viable legal options for biodiversity conservation in Papua New Guinea through policy analyses of Conservation Area legislation and identification of suitable locations for its application.

Activities:

- A) *CI will conduct policy and economic analyses leading to the formulation of conditions precedent for likely successful sites for CA implementation. FY99-00.*

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Policy and Economic Analyses completed – Month TBA												X
Combined Trip Report				X								

- B) *Research potential sites using existing biological and sociological data, as well as submitted landowner conservation requests to the Office of Environment and Conservation.*

- (4) Regarding other conservation mechanisms: how do alternative conservation mechanisms perform in terms of ease of implementation, cost-effectiveness, susceptibility to abuses of decision-making power, cultural acceptability, level of legal protection, and degree of replicability?

A complete report with full analyses of these issues will be attached to the next semi-annual report.

Problems, delays, shortfalls and proposed solutions:

Nothing to report at this time.

FY00 Outputs/Benchmarks for Objective 3, Activity A

1. Complete policy and economic analyses.
2. Present findings in combined trip report format.

FY00 Outputs/Benchmarks for Objective 3, Activity B

1. Complete analysis of potential sites.

Objective 4:

Increase CI-PNG's ability to influence conservation policy-making and community-based development planning through building CI-PNG's institutional capacity.

Activities:

The goal of CI-PNG's long-term institutional capacity building is to empower the office to be more strategic, effective, efficient, and responsive in implementing its mission to conserve PNG's biodiversity by promoting community-based resource management. CI-PNG's strategy to address its capacity-building needs, with USAID support, is to augment existing staff expertise and capacity, as well as to recruit additional staff.

- A) *Priority new positions include the following: a Program Manager, Finance Manager, and two additional field staff for the Lakekamu Basin. FY99.*

	1	2	3	4	5	6	7	8	9	10	11	12
Recruitment and hire of remaining positions				X	X	X	X	X				
Orientation/Training/site visits for CI-PNG Program Manager									X	X	X	X
Project and office management training						X	X	X				

Progress to-date:

During the reporting period, CI-PNG has steadily added staff capacity for both its field operations and in the Port Moresby office. Frank Agar, a twenty-year veteran of the National Planning Office, where he specialized in bilateral donor relations, has joined CI-PNG as Deputy Program Director. Frank's primary objective is to free Gai Kula, Program Director, from the day-to-day management of staff and projects, so that he can focus more on strategy development, fund raising and program implementation.

Two new site managers also have been added to the CI staff in an effort to maintain a stronger field presence at our Lakekamu Basin and Wide Bay, East New Britain Province, project sites. Mr. Eka Vitaharo, whose last employment was with the Targeted Community Development Program, where he evaluated proposals, monitored projects and liaised with communities and government agencies, is the new site manager for the Lakekamu Basin project. He is currently on

his first field visit with Banak Gamui. The new Wide Bay site manager, Mr. Peter Bossip, holds a degree in Geography and Environmental Sciences from UPNG and has four years of experience working with communities to establish Wildlife Management Areas (WMAs) on their lands. The addition of these two field managers allows CI to rotate field staff on a more regular basis so that we have a more consistent presence in the communities where we are working.

In a continuing effort to build the capacity of current staff to implement and maintain CI's portfolio of conservation projects, Gai Kula has encouraged and supported further training for all staff members when opportunities arise. In February, Banak Gamui underwent project cycle management training at a two-week course held at Earth College in Costa Rica. This training will have implications for Banak's ability to plan and implement workable monitoring and evaluation plans for CI's field projects. Later in March, CI-PNG's Finance Officer, Michelle Laufa, traveled to the Philippines for a regional training workshop on CI accounting and financial reporting systems. Further training for Michelle is planned for July 2000 with a site visit by two Washington-based accounting staff.

Problems, delays, shortfalls and proposed solutions:

Nothing to report at this time.

FY00 Outputs/Benchmarks for Objective 4, Activity A

1. Recruitment and hire of Country Program Manager. Complete orientation, training, and site visits.

B) CI-PNG will augment existing staff expertise and capacity with technical support from CI-Washington's Conservation Policy, Biology and Enterprise Development departments. FY99-01.

Progress to-date:

Nothing to report at this time.

Problems, delays, shortfalls and proposed solutions:

Nothing to report at this time.

FY00 Outputs/Benchmarks for Objective 4, Activity B

1. Activities under Objectives 1 through 4 will use technical assistance provided by CI-Washington in order to increase CI-PNG staff expertise and capacity.

C) CI-PNG's field site activities in Wide Bay, will be strongly supported by its local NGO partner ENBSEK. FY99-01.

Progress to-date:

Nothing to report at this time.

Problems, delays, shortfalls and proposed solutions:

Nothing to report at this time.

FY99 Outputs/Benchmarks for Objective 4, Activity C

1. Activities in Wide Bay will be carried out in partnership with ENBSEK, CI-PNG's local NGO partner.



ESTRATEGIA DE COMUNICACIONES PARQUE NACIONAL MADIDI

REPORTE DEL TALLER CREATIVO 4-P
4 - 6 DE ABRIL, 2000
RURRENABAQUE, BOLIVIA



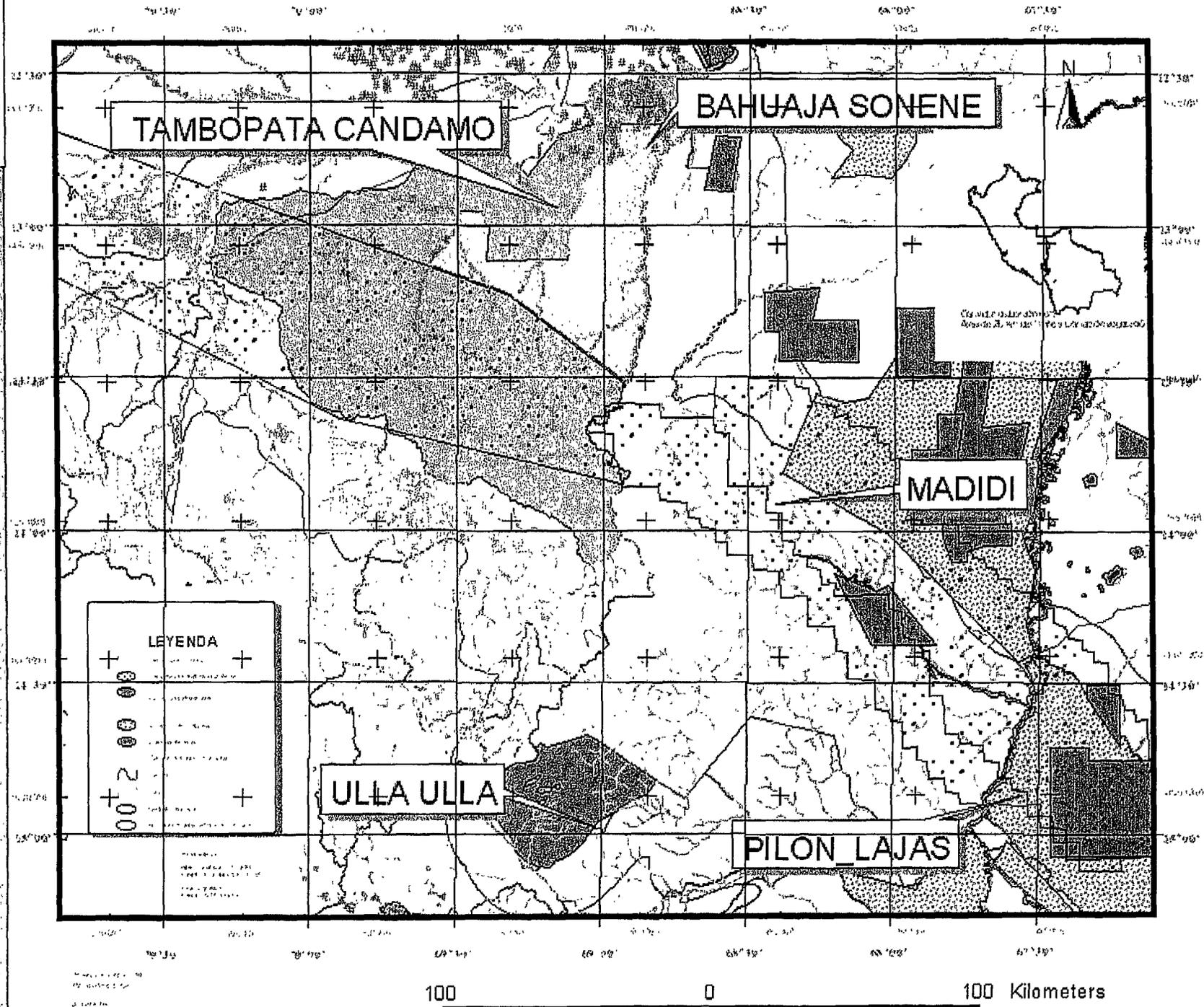
CONSERVATION
INTERNATIONAL

COMUNICACIONES INTERNACIONALES / CI-BOLIVIA

MAPA DEL CORREDOR VILCABAMBA - AMBORO

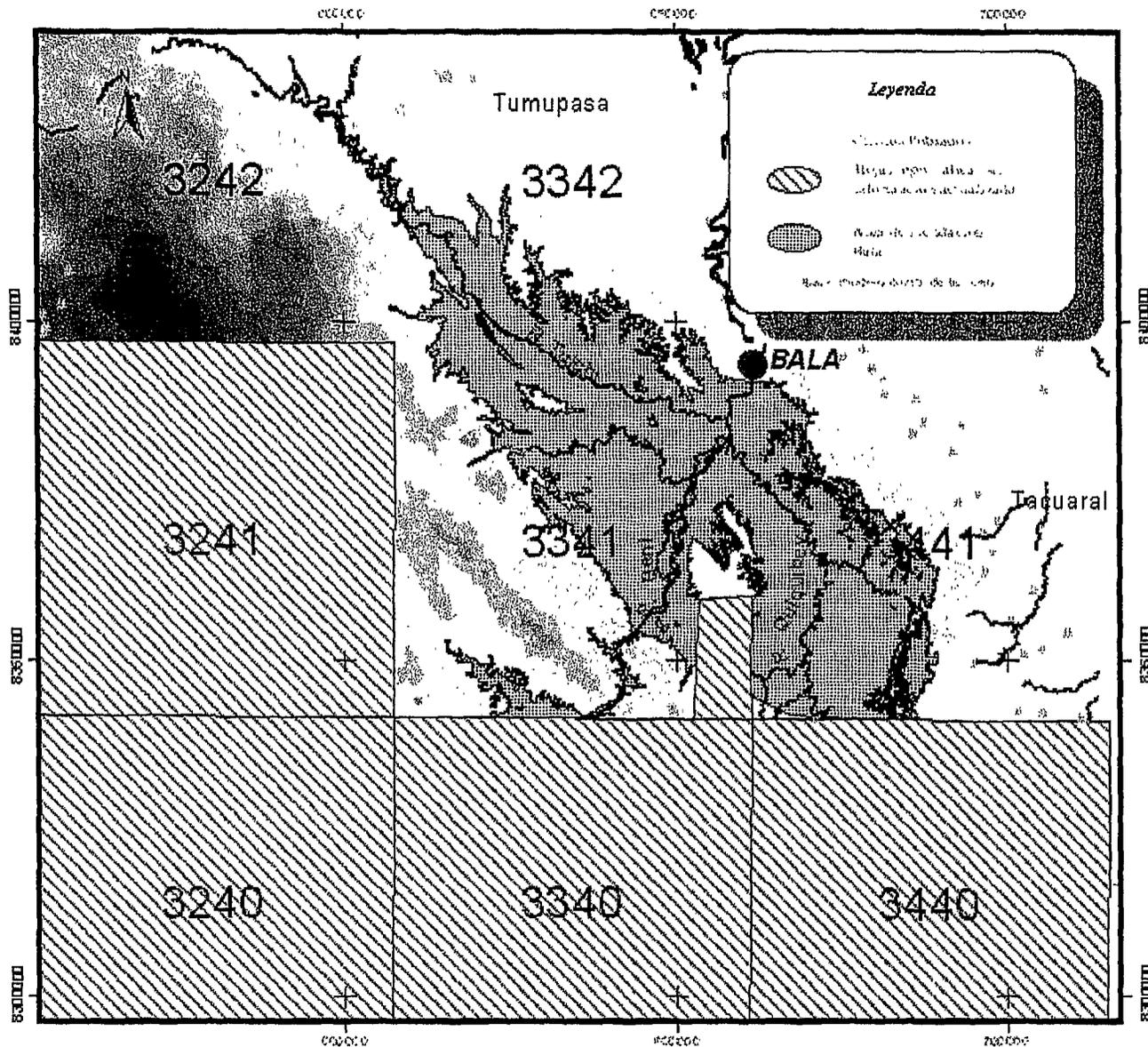
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Conservación Internacional



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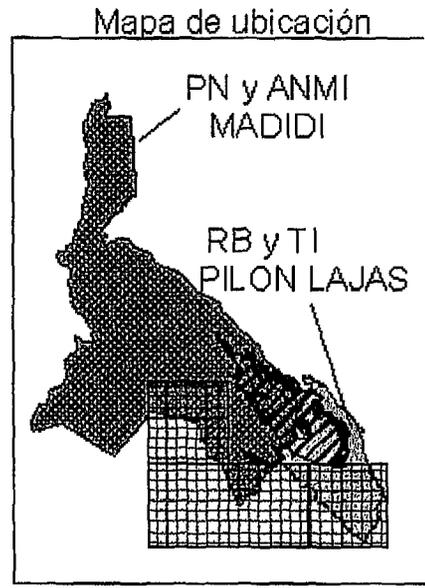
Conservación Internacional - BOLIVIA
Área de inundación del proyecto hidroeléctrico BALA



Leyenda

- Situación Preexistente
- Región inundable según el estudio de inundación
- Área de inundación Máxima

Base: Instituto Geográfico de Bolivia



Basada en

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 Paquetaje 3342, Zona V del Carmen 34

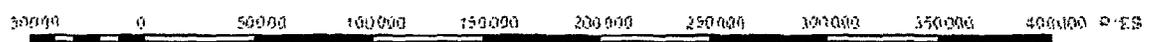
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 Zona UTM: 13

Cuadrícula UTM cada 50000 m
 Norte de la cuadrícula

Modelo elaborado a partir de curvas de nivel cada 40 m
 Software de procesamiento ARC VIEW 3.1



ESCALA 1:1 000 000



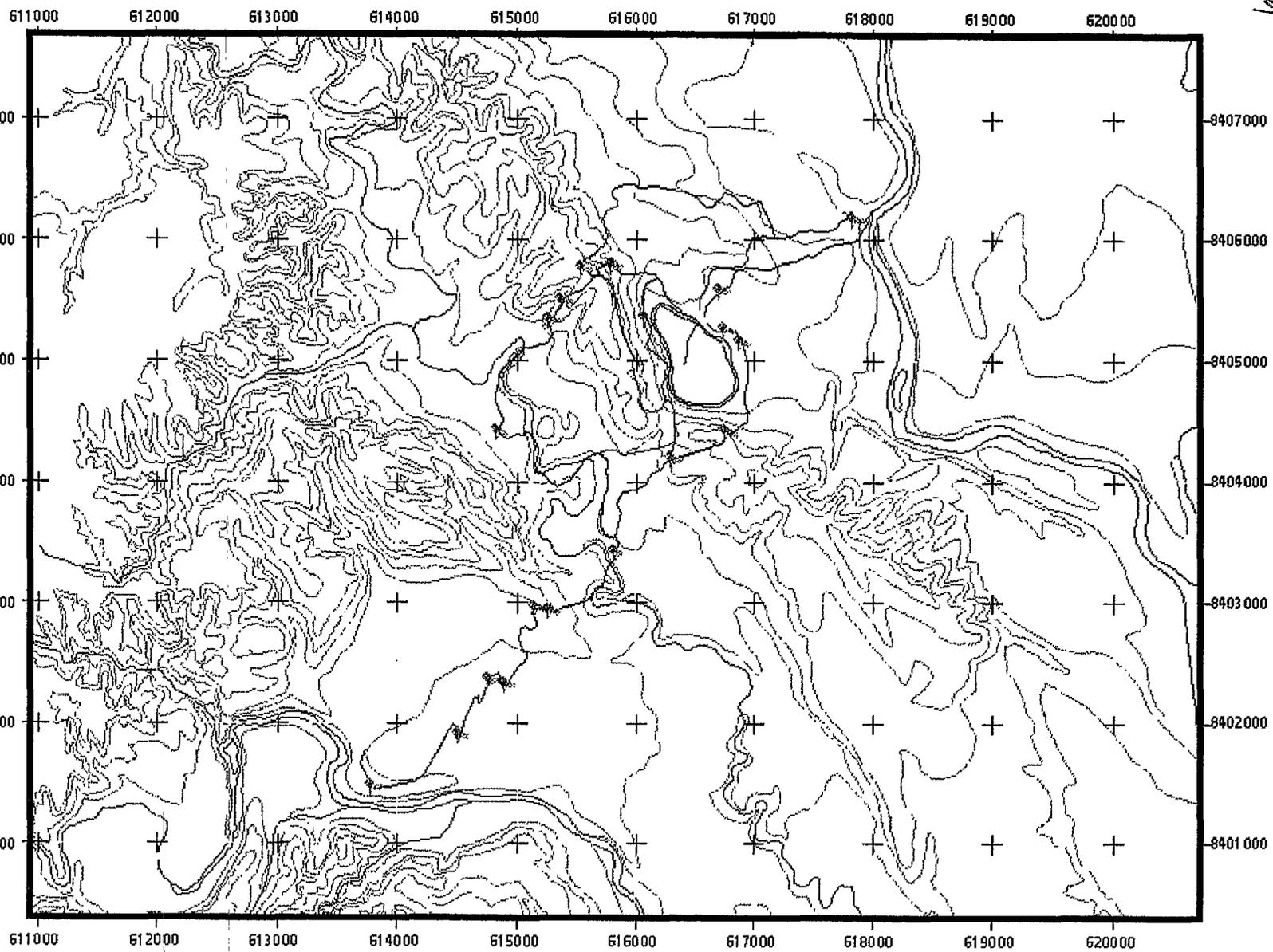
Elaboración:

CONSERVACION INTERNACIONAL BOLIVIA

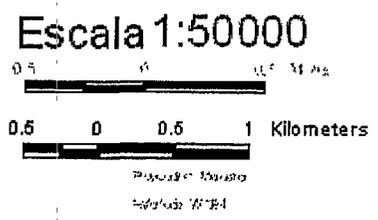
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**MAPA DE OBSERVACIONES EN LOS SENDEROS
DEL ALBERQUE ECOLOGICO CHALALAN
Periodo (Julio - Diciembre 1999)
Conservacion Intencional - Bolivia**

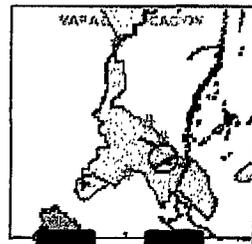


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 Modificado por
 el M. 1999
 Fuente: M. 1974
 Modificado por
 el M. 1999
 Fuente: M. 1974
 Modificado por
 el M. 1999



Leyenda

	Senderos		Laguna
	Rio		Puntos de Observacion
	Contorno		Zona de Reserva

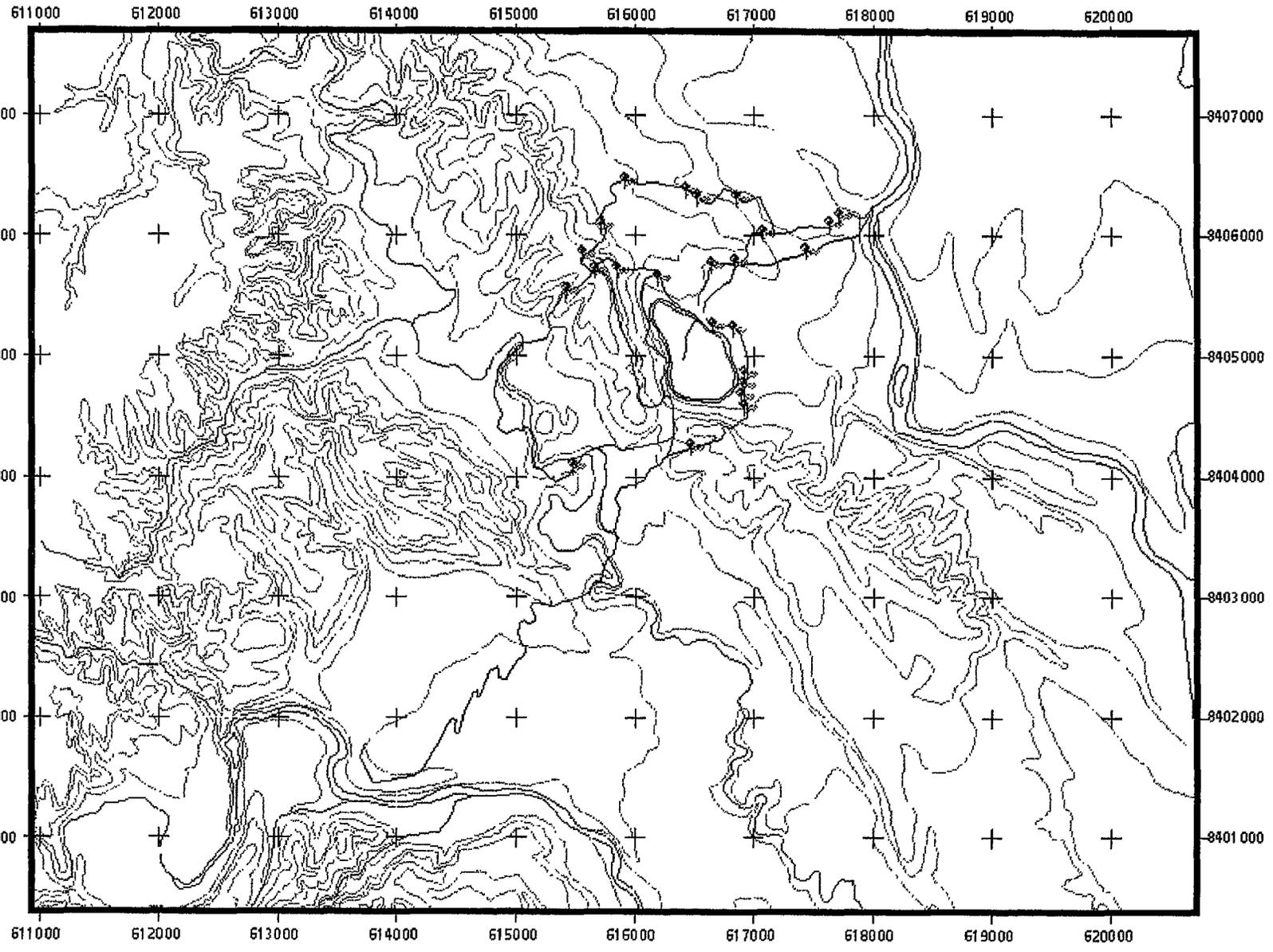


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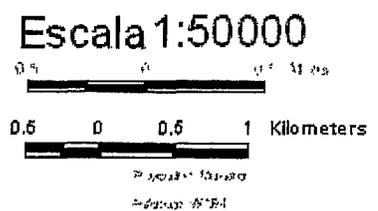
MAPA DE OBSERVACIONES EN LOS SENDEROS DEL ALBERQUE ECOLOGICO CHALALAN

Periodo (Enero - Marzo 2000)

Conservación Internacional - Bolivia

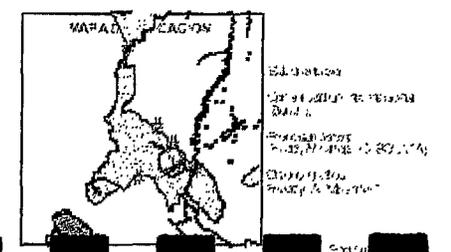


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Leyenda

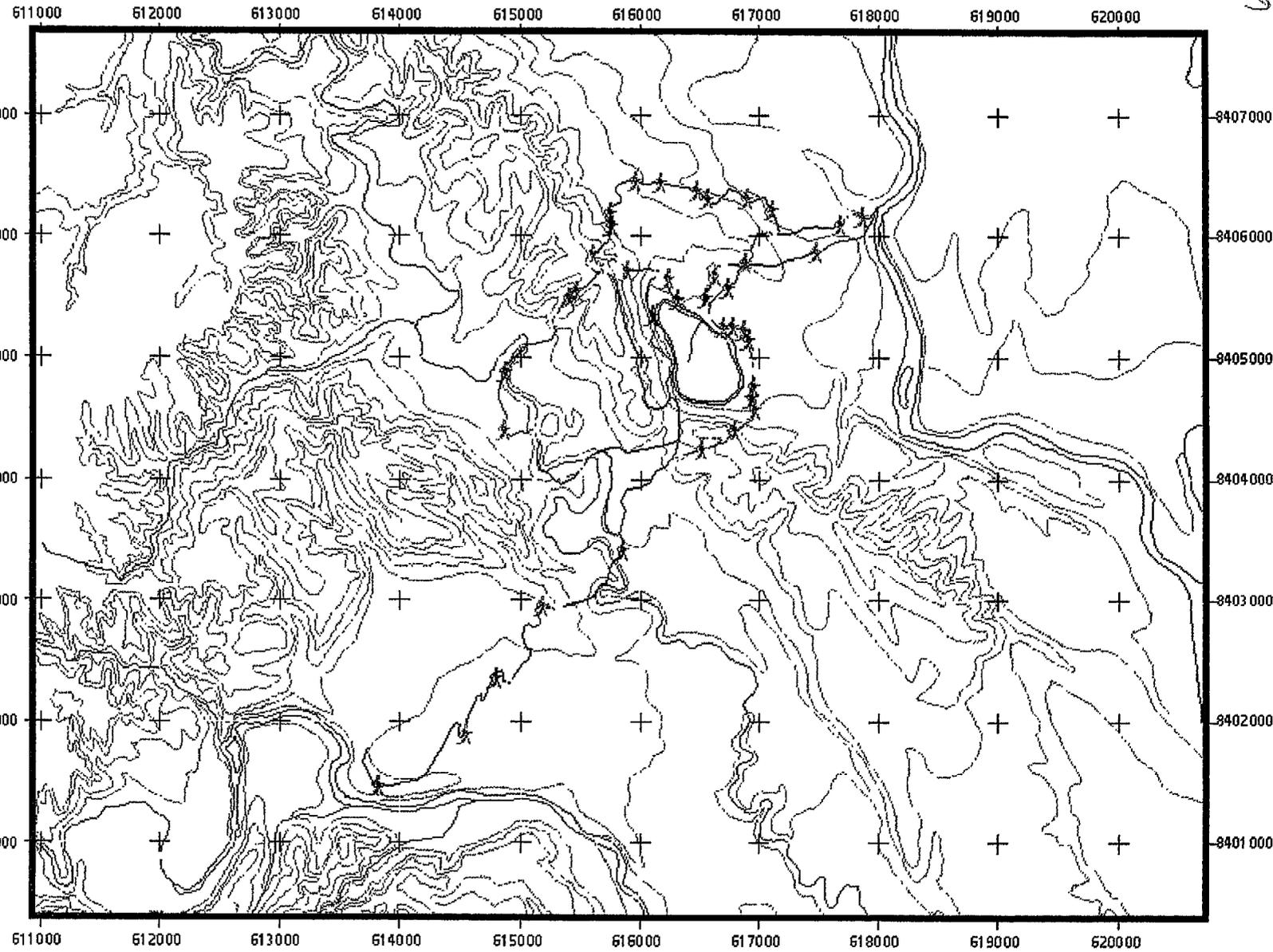
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	Rio		Puntos de Observación
	Contorno		



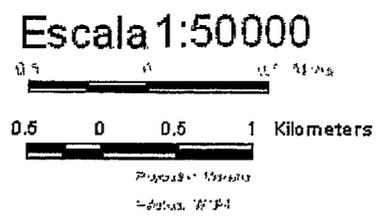
**MAPA DE OBSERVACIONES EN LOS SENDEROS
DEL ALBERQUE ECOLOGICO CHALALAN**

Observación por Guías

Conservación Internacional - Bolivia

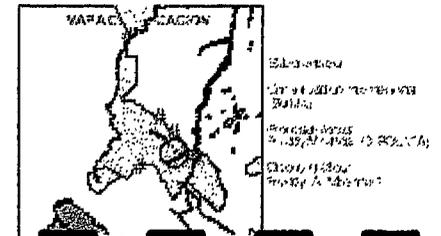


Proyecto de Conservación
de la Biodiversidad
en el Área de
Reserva Ecológica
Chalalan
Mesa de Trabajo
Nº 1



Leyenda

2022	+	Punto de Observación
	+	Sendero Principal
	+	Sendero Secundario
	+	Sendero Terciario
	+	Sendero Cuaternario

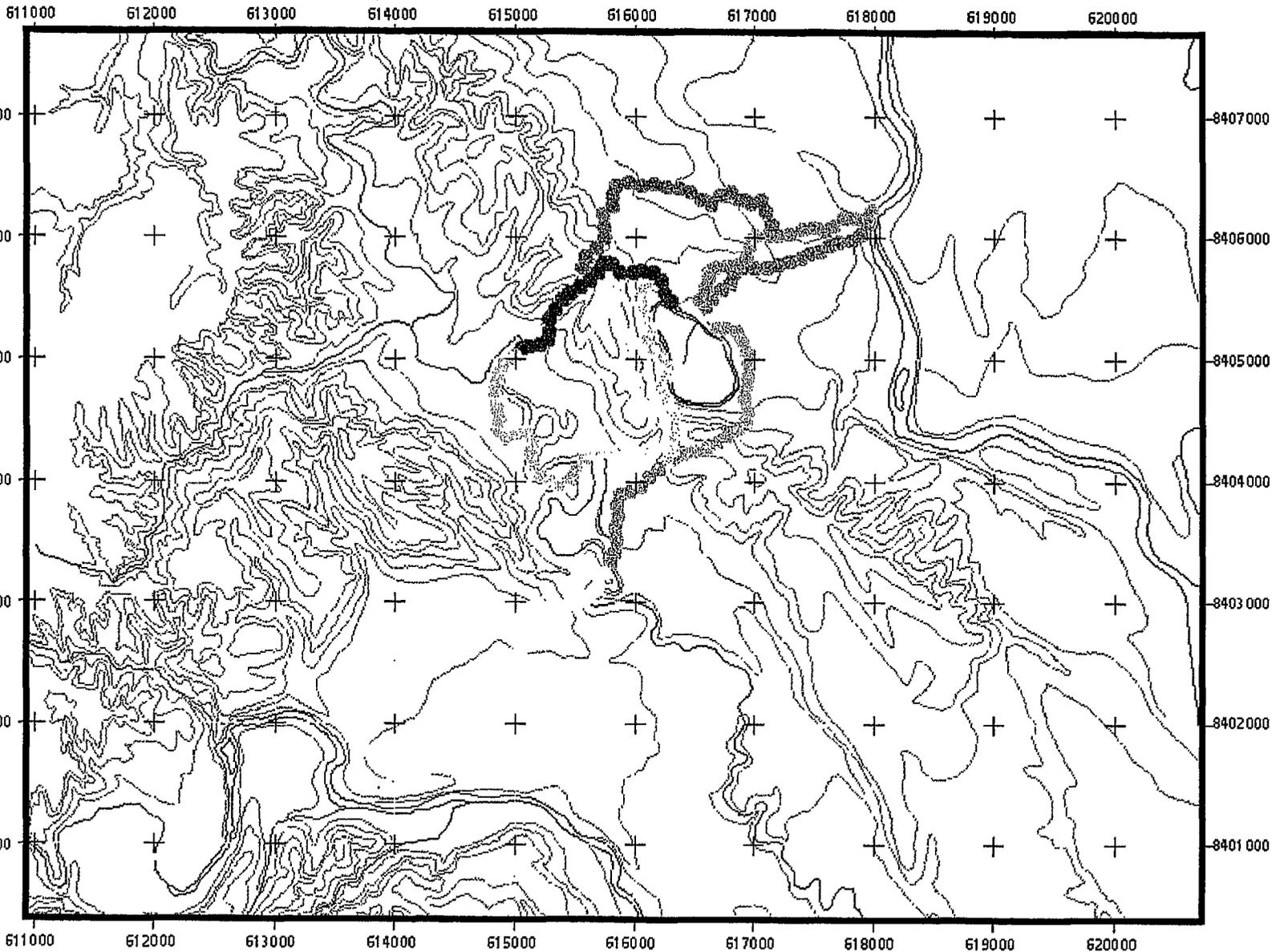


MAPA DE OBSERVACIONES EN LOS SENDEROS

DEL ALBERGUE ECOLOGICO CHALALAN

Periodo (Julio - Diciembre 1999)

Conservación Internacional - Bolivia



Elaborado por:
 Conservación Internacional
 Bolivia
 Proyecto de Conservación
 de la Biodiversidad
 en el Área de
 Manejo del Parque
 Nacional de Yungas
 y del Área de
 Manejo del Parque
 Nacional de Mucuna

Escala 1:50000

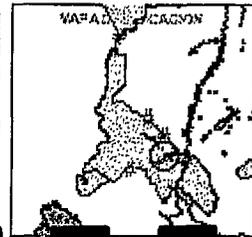
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Proyecto de Manejo
 del Parque Nacional
 de Yungas y del Área
 de Manejo del Parque
 Nacional de Mucuna

Leyenda

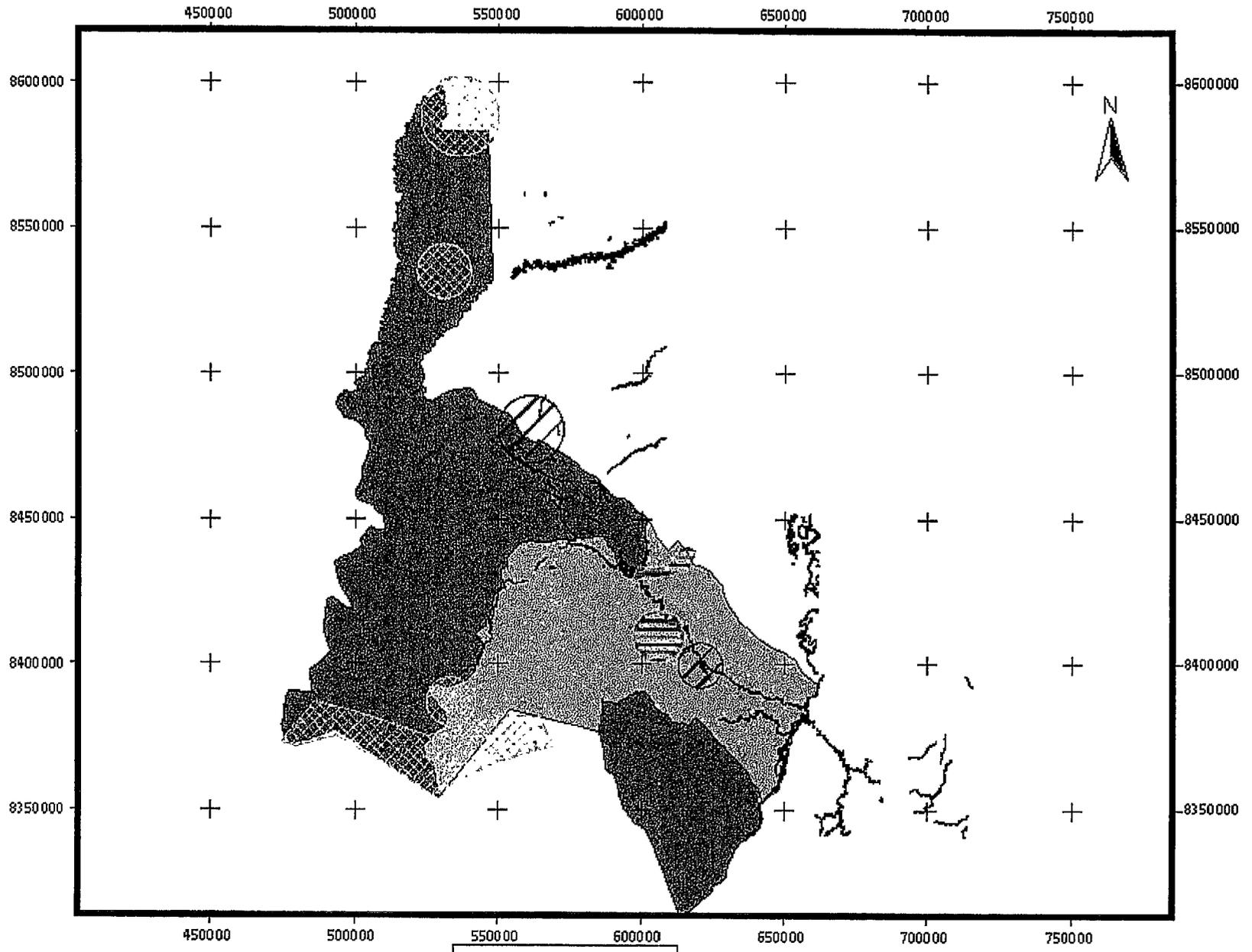
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▬	Sendero decenario
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◇	Sendero treinta y nueve
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◍	Sendero cuarenta y cuatro
◎	Sendero cuarenta y cinco
●	Sendero cuarenta y seis
◐	Sendero cuarenta y siete
◑	Sendero cuarenta y ocho
◒	Sendero cuarenta y nueve
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◯	Sendero setenta y ocho
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◡	Sendero noventa y seis
◢	Sendero noventa y siete
◣	Sendero noventa y ocho
◤	Sendero noventa y nueve
◥	Sendero cien



Elaborado por:
 Conservación Internacional
 Bolivia
 Proyecto de Conservación
 de la Biodiversidad
 en el Área de
 Manejo del Parque
 Nacional de Yungas
 y del Área de
 Manejo del Parque
 Nacional de Mucuna

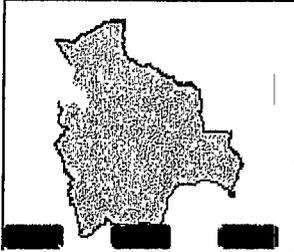
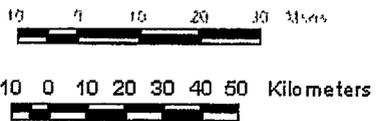
105

**MAPA DE SITIOS DE INVESTIGACIÓN PARQUE NACIONAL
Y AREA NATURAL DE MANEJO INTEGRADO MADIDI
PROYECTO EPIFID/USAID
CONSERVACION INTERNACIONAL BOLIVIA**



Proyecto EPIFID
USAID / FID
CONSERVACION INTERNACIONAL BOLIVIA
MADIDI
EPIFID/USAID
CONSERVACION INTERNACIONAL BOLIVIA

Escala 1:2000000



Legenda

Elaborado por:
CONSERVACION INTERNACIONAL BOLIVIA
EPIFID/USAID
CONSERVACION INTERNACIONAL BOLIVIA

CONSERVACIÓN INTERNACIONAL
TALLER CREATIVO DE COMUNICACIONES 4-P
PARQUE NACIONAL MADIDI

ORGANIZADO POR CI – BOLIVIA
Y EL DEPARTAMENTO DE COMUNICACIONES INTERNACIONALES DE CI

Objetivo: Crear una Estrategia de Comunicaciones para la Promoción de la Conservación del Parque Nacional Madidi.

Local: Hotel Safari, Rurrenabaque, Bolivia

Fecha: 4 y 5 de abril de 2000

Participantes: 48 (máximo), 43 (promedio)

I. INTRODUCCIÓN

El Taller fue abierto por Juan Pablo Arce, director de CI Bolivia, quien dio las bienvenidas a todos los participantes, recalcando la importancia de poder crear una estrategia de comunicación para la conservación del Parque Nacional y Area Natural de Manejo Integrado Madidi. Al finalizar, presentó a Haroldo Castro, director de Comunicaciones Internacionales (InterCom) de CI en Washington, como el facilitador del taller.

Haroldo Castro explicó como nació la idea, hace tres años, en Cartagena, Colombia, de crear una metodología para diseñar estrategias de comunicación. La metodología creada por InterCom es como una botella vacía, que será llenada con el contenido de la participación activa de todos los presentes. La metodología es llamada "4 - P" pues se desarrolla por cuatro etapas que empiezan con la letra P.

Primer P - *Problemas*: Identificar claramente los Problemas o desafíos de conservación que tratamos de resolver. Esta información es crucial para la definición de los objetivos del taller;

Segundo P - *Público*: Identificar y priorizar los Públicos o audiencias que la estrategia pretende atinir;

Tercer P - *Productos*: Identificar los Productos ó herramientas de comunicación necesarias y apropiadas para llegar a las audiencias escogidas;

Cuarto P - *Plan*: Crear un Plan coherente, integrando toda la información adquirida anteriormente.

Haroldo Castro explicó que éste es el décimo tercer taller 4-P realizado en colaboración con diferentes programas de CI, todos con una realidad y culturas distintas. Pasó entonces a explicar como CI trabaja y cuales son sus cuatro "piedras angulares": ciencia, economía, política, y concientización ambiental. A seguir, Haroldo Castro invitó a todos a participar de una dinámica de introducción de los participantes. Divididos por parejas, cada quien entrevistó a su compañero (a) a quien después presentó en plenaria.

II. ANALISIS DE LOS "PROBLEMAS"

1) RESUMEN DE LAS PRESENTACIONES

A) JUAN RENÉ ALCOBA - REPRESENTANTE SERNAP

PERSPECTIVA GUBERNAMENTAL SOBRE EL PARQUE NACIONAL Y
AREA NATURAL DE MANEJO INTEGRADO MADIDI

Lineamientos Básicos para la Gestión del PNANMI Madidi en el Marco del Sistema Nacional de Areas Protegidas de Bolivia

GENERALIDADES

Las Areas Protegidas como unidades de manejo territorial de límites definidos, con objetivos dirigidos principalmente a la conservación de los recursos de la biodiversidad y de la cultura, se constituyen potencialmente en modelos demostrativos de desarrollo sostenible local y regional.

En este sentido, y dada la coincidencia con las zonas más deprimidas del país, representan una interesante alternativa para lograr elevar la calidad de vida de la población tanto interna como externa al área, dentro de un modelo que persigue un desarrollo económico y social, compatible con el medio ambiente y fundamentalmente que a la vez de beneficiar a las presentes generaciones garantice el beneficio de las venideras.

El Parque Nacional y Area Natural de Manejo Integrado Madidi, como unidad de conservación destinada por una parte a la protección estricta de ecosistemas particulares en su categoría de Parque Nacional y de compatibilización de acciones de conservación de biodiversidad y desarrollo sostenible local en su categoría de Area Natural de Manejo Integrado, se constituye a nivel del Sistema en algo muy particular e integral.

A continuación se presentan los objetivos fundamentales del PNANMI en el marco del Sistema Nacional de Areas Protegidas, administrado por el SERNAP.

PNANMI Madidi como instrumento de conservación de la Biodiversidad:

- Proteger permanentemente muestras de ecosistemas prístinos y de extraordinaria biodiversidad representativos de la Amazonía y los Yungas, así como de recursos genéticos y especies de importancia para la conservación,
- Proteger las formaciones geomorfológicas y paisajes singulares de la Cordillera Real, serranías subandinas, pie de monte y llanura aluvial.
- Proteger las cuencas hidrográficas, en especial de la cabecera, considerando la elevada pluviosidad que recibe la mayor parte del área, topografía caracterizada por abruptas pendientes y suelos extremadamente frágiles.

PNANMI Madidi como instrumento de conservación de aspectos culturales y rescate de conocimiento tradicional:

- Conservar y resguardar la riqueza cultural de antiguas poblaciones coloniales y de los valores de interés arqueológico del área.
- Rescatar las técnicas y sistemas tradicionales de uso de recursos de los habitantes originarios.

PNANMI Madidi como instrumento de promoción del manejo sostenible de recursos naturales:

- Promover el uso sostenible de los recursos naturales por parte de las poblaciones que tradicionalmente lo habitan con miras a obtener una mejora de su calidad de vida y acceso a los beneficios derivados de la conservación y manejo del área.
- Promover actividades productivas en el Area Natural de Manejo Integrado que se enmarquen en los objetivos de la conservación y el desarrollo sostenible, y que demuestren constituir experiencias demostrativas no atentatorias o dañinas a los ecosistemas y sus procesos.

PNANMI Madidi como instrumento de promoción del uso público:

- Brindar amplias oportunidades para la educación ambiental, el turismo y la interpretación ambiental.
- Promover la investigación científica y el monitoreo como herramientas para la articulación de los objetivos de creación del área protegida.

PNANMI Madidi como instrumento para la fiscalización ambiental:

- Velar por que cualquier actividad productiva, de infraestructura, hidrocarburífera, minera, y proyecto en general que pueda atentar contra el Area Protegida y su zona de influencia, se enmarquen en la normativa vigente tanto nacional como de acuerdos internacionales relacionados con la Calidad Ambiental y las medidas de Prevención y Mitigación medio-ambiental.

PNANMI Madidi como instrumento para la articulación de la participación de actores locales en la gestión del Area Protegida y en la gestión ambiental local y regional:

- Promover la participación de actores locales en la gestión del Area Protegida a través del Comité de Gestión, y articular la participación inter-institucional e inter-sectorial en la implementación de programas y proyectos para el logro de los objetivos de creación del Area Protegida y de su zona de influencia.

PNANMI Madidi como elemento fundamental para el establecimiento de corredores ecológicos de interés nacional e internacional:

- Constituir al PNANMI Madidi como unidad de conservación nexo del corredor ecológico inicial Tambopata Candamo – Amboró, permitiendo el lograr los objetivos fundamentales que persigue el Sistema Nacional de Areas Protegidas en el marco de la Conservación de la Biodiversidad y de un modelo de desarrollo sostenible local, regional, nacional e internacional.

B) LILIAN PAINTER - REPRESENTANTE WILDLIFE CONSERVATION SOCIETY
CON LA COLABORACIÓN DE ROBERTO URIOSTE - CONSULTOR CI

BIODIVERSIDAD DEL PARQUE NACIONAL Y AREA NATURAL DE MANEJO
INTEGRADO MADIDI

MADIDI DE ARRIBA ABAJO - UNA TRAVESIA ALTITUDINAL

Bolivia se encuentra entre los países más diversos del mundo, gran parte de esta diversidad puede explicarse por la heterogeneidad de hábitats producida por variaciones altitudinales, variaciones climáticas de norte a sur, diferenciación de suelos, y por su posición entre varias regiones biogeográficas. El PNANMI Madidi refleja esta diversidad por los mismos motivos: asciende hasta alrededor de 6000m con montañas majestuosas, picos nevados y glaciares donde fácilmente se pueden observar cóndores, vizcachas, tarukas, venados de cola blanca y pumas. Bajando por el páramo, y algunos pequeños parchecillos de bosques de Queñua, se llega a los bosques nublados. Continuando se llega al pie de monte y eventualmente se llega a la llanura aluvial del Beni, donde se encuentra la típica fauna amazónica. La orientación de los andes de Este a Oeste en esta zona hace que exista además una banda de bosques secos entre los bosques húmedos montanos en Perú y los Yungas Bolivianos debido al efecto de la 'sombra de lluvia'. Al nordeste se encuentran grandes sabanas con corredores de bosque de galería. Esto hace de Madidi uno de los paisajes más diversos del mundo.

Los bosques entre 300-1000m de altitud son particularmente diversos debido a su alta pluviosidad y aislamiento. La diversidad arbórea es remplazada por aquella de plantas epífitas a medida que aumenta la altitud. De igual importancia, el aislamiento de estos los bosques mntanos, debido a las fuertes pendientes, da lugar a un alto grado de endemismo, tanto en plantas como en roedores y aves. Finalmente, el aislamiento de estos hábitats montañosos promueve el proceso de especiación. En adición a la gran diversidad de ecosistemas y zonas aisladas la gran diversidad de esta zona se puede explicar por su papel como refugio durante los cambios climáticos del cuaternario. El

gran número de especies presentes dentro del PNANMI Madidi y gran cantidad de endémicos significa que por cada hectárea conservada se preserva un gran número de especies únicas y además un gran número de especies en total.

Esta zona además es de enorme importancia ecológica por varios motivos: representa parte de una importante ruta para aves migratorias a través de los Andes, los bosques en general, pero especialmente aquellos en pendientes protegen cuencas, generan precipitación, capturan precipitación de las nubes, regulan el microclima y protegen los suelos. La mayoría de las lluvias que recibe la zona de Rurrenabaque o cualquier zona vecina a bosques tropicales proviene de los mismos. Es probable que de no existir estos bosques la temperatura aumentaría, la precipitación disminuiría y se prolongaría la época seca.

Finalmente, el PNANMI Madidi permite el desarrollo de numerosas investigaciones científicas, no sólo de investigadores extranjeros. Entre otros el Herbario Nacional de Bolivia y la Colección Boliviana de Fauna, ambos brazos del Instituto de Ecología de la UMSA continúan apoyando a incrementar el conocimiento de esta zona a través de estudios diversos sobre recursos vegetales útiles, diversidad y endemismo de grupos coleccionados (entre otros anfibios, reptiles, peces, aves y diversos grupos de plantas), caracterización de hábitats restringidos, estudios de los sistemas acuáticos y estudios ecológicos más específicos sobre especies importantes como el jukumari o las parabas. Estas instituciones de investigación nacionales aportaron técnicamente a la propuesta de creación del parque en 1992. Es indicativo de lo mucho que todavía falta investigar en el Madidi que la WCS, en colaboración con el SERNAP y pobladores locales, en septiembre del año pasado registró un mono de 8 kg., antes desconocido para Bolivia.

Madidi representa el núcleo para una estrategia de conservación, que incluye el uso sostenible de la biodiversidad en el ámbito regional. La conservación de la biodiversidad es fundamental en el mantenimiento de ecosistemas saludables, para el cuidado y manejo de recursos naturales, para el desarrollo sostenible, y para la obtención de una sociedad humana sostenible. Un paisaje sostenible es aquel dentro del cual existe un mosaico de diferentes usos de la tierra que incluyen áreas protegidas y las áreas alrededor que se benefician de los servicios ecológicos que estas brindan para la realización de actividades económicas. Además, la integración de las áreas aledañas dentro de un manejo de 'paisaje sostenible' es la única forma de permitir la subsistencia de animales con grandes requerimientos espaciales a largo plazo. Debido a esto la WCS realiza investigaciones en el área sobre especies como el jukumari, el jaguar y los chanchos de tropa.

Tabla Comparativa de Diferentes Características de algunas Áreas Protegidas

	PNANAMI Madidi	RNA Manuripi Heath	PN Bahuaja Sonene (PERÚ)	ZR. Tambopata Candamo (PERÚ)
Áreas del área protegida	1.897.500 ha	1.218.000 ha	578.053 ha.	1.073.998 ha
Rango altitudinal	6.000 a 200 m.s.n.m.	200 a 150 m.s.n.m.	400 a 200 m.s.n.m.	a 250 m.s.n.m.
Pisos Ecológicos	9	1	2	4
Formación de vegetación	50	6	11	21
Nº de especies de plantas vasculares	9.000 a 10.000	1800 a 2.500	2.000 a 2.800	2.500 a 3.000
Población estimada dentro del área	2.895	3.517	S-r	3.171
Población estimada área inmediata	15.593	7.592	3.000	60.000

C) CIRO OLIVER - DIRECTOR PNANMI MADIDI

**BREVE RESEÑA DEL PARQUE NACIONAL Y AREA NATURAL DE
MANEJO INTEGRADO MADIDI**

- **CREACION:** El parque fue creado el 21 de septiembre de 1995.
- **SUPERFICIE:** 1,895.750 hectáreas
- **LÍMITES:** El límite al norte es con la reserva con la Reserva Manuripi, al sur con la Reserva de Fauna Andina Ullaulla, al este con la Reserva de la Biosfera y territorio indígena Pilón Lajas, al oeste con la Reserva Candamo y el Parque Nacional Bahuaja Sonene del Perú.
- **ACTORES LOCALES:** Comité de gestión, municipios de Apolo, Ixiamas y San Buenaventura; Federación de Campesinos; Franz Tamayo e Iturralde; pueblos Indígenas Tacanas CIPTA; sub-prefectura de Apolo.
- **GESTION DEL AREA PROTEGIDA**
 - Inicio de actividades
 - Infraestructura
 - Equipamiento
 - Personal

- LOGROS OBTENIDOS:
 - Se eliminó actividades de tala y cuarterero dentro del área protegida.
 - Disminución de la caza furtiva y comercial
 - Se anuló actividades de pesca con explosivos tóxicos y fines comerciales
 - Reducción considerable de las quemas en el área de Apolo
 - Capacitación y promoción, sobre temas del medio ambiente y áreas protegidas para aproximadamente 5000 personas, dentro y fuera del área protegida
 - Mejor control del sector fronterizo con el Perú, en coordinación con las fuerzas armadas y Area Protegida Bahujaja Sonene
 - Incremento del turismo en el Area Protegida
 - Participación efectiva de la población a través de los representantes de las fuerzas vivas en el comité de gestión
 - Convenio con autoridades e instituciones locales
- POTENCIALIDADES:
 - Alta biodiversidad
 - Atractivos turísticos
 - Ruinas arqueológicas
 - Plantas medicinales

D) CIRO OLIVER, DIRECTOR DEL PNANMI MADIDI
CON LA COLABORACIÓN DE BORIS FERNÁNDEZ, COORDINADOR CI

AMENAZAS Y DEBILIDADES DEL PNANMI MADIDI

AMENAZAS

- Potencial peligro de tala de árboles
- Asentamientos humanos (colonización en áreas de influencia como Ixiamas, Guanay, Alto Madidi)
- Migración interna en el sector de Apolo
- Apertura de caminos: (Tumupasa - San José - Azariamas - Apolo)
- Represa hidroeléctrica Bala
- Concesiones mineras en Puina, Keara, Pata, Tuichi
- Titulación de propiedades por el INRA en curso
- Incremento de turismo desordenado
- Caza, pesca comercial: Tuichi, Madidi, Río Hondo, potencial peligro de quemas en el bosque seco de Azariamas
- Extracción de recursos no maderables como el Incienso y Copal dentro del Parque
- Invasión extranjera en el límite de San Fermín, Puerto Heath
- Falta de alternativas económicas para la población local
- Posibles actividades petroleras, incremento de frontera agrícola

DEBILIDADES

- Cuerpo de protección reducido para cubrir las necesidades del área
- No existe apoyo legal local

- Recursos financieros limitados
- Deficiente infraestructura (campamentos, oficina central, refugios)
- Insuficiente equipamiento (radios, moviidades, embarcaciones, motores fuera de borda, equipo de campo, fotocopiadora, filmadora, proyectora audiovisual)
- Insuficiente capacitación al personal
- No existe Plan de Manejo
- Insuficiente promoción y difusión del PN ANMI Madidi interna (gubernamental) externa (turismo - financiadores)

2) ANALISIS Y DISCUSIÓN DE LOS PROBLEMAS

En resumen, las principales amenazas y problemas identificados por el grupo fueron las siguientes:

PROBLEMAS

1. Tala de arboles
2. Asentamientos humanos (colonizadores en áreas de influencias como Ixiamas, Guanay, Alto Madidi.
3. Migración interna en el sector de Apolo
4. Apertura de camino: Tumupasa- San José – Azariamas – Apolo
5. Represa hidroeléctrica Bala
6. Concesiones mineras en Puina, Keara, Pata, Tuichi
7. Titulación de propiedades por el INRA en curso
8. Incremento del turismo desordenado
9. Caza, y pesca comercial: Tuichi, Madidi, Rio Hondo
10. Potencial peligro de quema de bosque seco de Azariamas
11. Extracción de recursos no maderables (como el incienso y el copal dentro del parque)
12. Invasión extranjera (Peru) en él limite de San Fermín y Puerto Heath
13. Falta de alternativas económicas para la población local
14. Posibles actividades petroleras, incremento de frontera agrícola

Considerando las presentaciones anteriores, y después de una breve discusión de la problemática ambiental en Madidi, los participantes nombraron, por medio de tarjetas individuales, los siguientes Problemas Prioritarios con número de votos entre paréntesis:

PROBLEMAS

1. Falta de concientización y promoción sobre la importancia del PNM (29)
2. Falta de recursos humanos y financieros para manejo del PNM (19)
3. Asentamiento humanos (quema y frontera agrícola) (17)
4. Falta de apoyo y voluntad política (14)
5. Falta de alternativas económicas para poblaciones (zona de influencias, internas) (13)
6. Proyecto hidroeléctrica Bala (11)
7. Tala de arboles ilegal y no regulada (9)
8. Minería y contaminación de ríos (7)
9. Turismo desordenado (7)
10. Falta de coordinación inter-institucional (6)
11. Apertura de caminos (5)
12. Caza y pesca ilegal y no regulada (4)

3) OBJETIVOS PRINCIPALES

En seguida, después de una amplia discusión sobre el tema y con una comprensión de los problemas, los participantes formalizaron los objetivos principales de la estrategia de comunicación y llegaron al siguiente texto:

PARA MANTENER LA INTEGRIDAD DEL PARQUE MADIDI, UNA ESTRATEGIA DE COMUNICACIONES DEBE:

1. Sensibilizar al público y promover la importancia del Parque.
2. Apoyar una estrategia de capacitación de fondos y de recursos humanos.
3. Promover y difundir las alternativas económicas (eco-turismo y actividades productivas sostenibles), ya existentes y por generarse.
4. Difundir las consecuencias negativas, practicas alternativas y normas sobre las quemas y el uso de suelos.
5. Informar y promover un espacio de discusión pública sobre iniciativas de desarrollo económico (hidroeléctrica Bala, apertura de caminos, minería, petróleo y asentamientos dirigidos).
6. Difundir la normatividad y las practicas apropiadas sobre el uso sostenible de los recursos naturales (flora y fauna silvestre).
7. Apoyar las iniciativas de planificación y operación adecuada del turismo en la región.
8. Fortalecer la coordinación inter-institucional.

III. ANALISIS DE LOS PUBLICOS

1) IDENTIFICACION DE LOS PUBLICOS

Para determinar los Públicos más importantes en cada grupo, el Sr. Castro distribuyó tarjetas para que cada participante escoja 5 Públicos. La lista de todos los públicos prioritarios, con el número de votos entre paréntesis, quedó de la siguiente manera:

PUBLICOS

1. Gobierno Municipal (34)
2. Comunidades Campesinas (26)
3. Comunidades Indígenas (25)
4. Gobierno Nacional (23)
5. Estudiantes y Profesores (20)
6. Autoridades Locales (incluyendo asociaciones indígenas) (20)
7. Periodistas (20)
8. Población Urbana Nacional (publico general) (18)
9. Donantes (17)
10. Gobierno Departamental (16)
11. Operadores de Turismo y Guías (16)
12. Población Urbana en Áreas de Influencia (10)
13. Asociaciones de Base (10)
14. ONGs (10)
15. Empresarios Privados (9)
16. Turistas Extranjeros (8)
17. Madres de Familias (6)
18. Turismo Nacional (5)
19. Científicos (5)
20. Unidades Militares, Policías, FF.AA. (4)
21. Guarda Parques (3)
22. Agencias Internacionales de Desarrollo (3)
23. Gobierno de Perú (frontera – bi-nacional) (2)
24. Autoridades Religiosas (2)

2) PUBLICOS PRIORITARIOS

El Sr. Castro abrió una discusión para que la plenaria pudiera escoger y analizar los públicos. Ocho audiencias fueron seleccionadas para una análisis detallada. Los participantes se dividieron en ocho grupos de un promedio de 6 personas.

Los 8 grupos escogidos fueron los siguientes:

1. Autoridades Locales
2. Comunidades Campesinas
3. Comunidades Indígenas
4. Gobierno Nacional
5. Profesores y Estudiantes Rurales
6. Periodistas
7. Donantes y Agencias de Desarrollo
8. Turismo

Lista de los participantes quien discutieron los siguientes públicos prioritarios:

- AUTORIDADES LOCALES:**
1. Rosa Ruiz
 2. Salir
 3. Simeón
 4. Jorge
 5. Eduardo
 6. Víctor Hugo

- COMUNIDADES CAMPESINAS:**
1. Valerio Beltran
 2. Reynaldo
 3. Marta
 4. Ebelio
 5. Alex
 6. Adiva
 7. Ilse

- COMUNIDADES INDIGENAS:**
1. Vidal Tacua
 2. Guido
 3. Dario
 4. María José
 5. Norka
 6. María Eugenia

- GOBIERNO NACIONAL:**
1. Juan Pablo
 2. Oscar
 3. Ciro Oliver
 4. Cándido
 5. Boris Fernández

- PROFESORES Y ESTUDIANTES RURALES:**
1. Carmiña
 2. Ana María
 3. Amy Higgs
 4. José Avala
 5. Beatriz

- PERIODISTAS:**
1. Guimer zambrana
 2. Gabriel
 3. José
 4. Jesús
 5. Luz Mary
 6. Robin
 7. John Arce

DONANTES Y AGENCIAS DE DESARROLLO:

1. Teresa
2. Lilian
3. Klauss
4. Luis

TURISMO:

5. Juan Rene
6. Rómulo
7. Geovanna
8. Roberto
5. Andrés

Siguiendo la metodología del Taller, el Sr. Castro explicó que para analizar los Públicos prioritarios, hay que responder a las tres siguientes preguntas:

1. **¿Quién Soy Yo?** (¿Adonde vivo, cual es mi trabajo, adonde consigo la información que necesito para mi trabajo, que tipo de información consumo, medios de comunicación que tienen impacto en mí, cuales son los factores más importantes de mi vida?)
2. **¿Que Quieres que Yo Haga?** (¿Que puedo hacer para apoyar los objetivos de la estrategia de comunicación ó ayudar la causa conservacionista, cual es el cambio esperado de mi comportamiento?)
3. **¿Que Gano con Esto?** (¿Si cambio mi comportamiento ó actitud en relación al medio ambiente, cuales son los beneficios que voy a recibir?)

3) PERFIL DE LOS PUBLICOS PRIORITARIOS

Después de dos horas de trabajo, cada grupo presentó sus resultados:

AUTORIDADES LOCALES

¿Quién soy yo?

- Represento la máxima autoridad al nivel de mi jurisdicción político territorial
- Soy autónomo con relación a definir políticas de desarrollo y manejo de recursos económicos.
- Los recursos humanos en mi zona son muy limitados.
- Mi acceso a la información es limitado – las vías de comunicación son deficientes, y los medios de comunicación son escasos.
- Creo que la información al nivel de formación local no debe ser especializada.
- Por limitaciones económicas, la población de mis jurisdicciones no prioriza la conservación.
- Si impongo restricciones a la extracción de madera, dejo de percibir recursos.
- No puedo imponer políticas de conservación sin proponer alternativas económicas para la población.

¿Qué quieren que haga?

- Que esté mejor informado sobre la importancia del Parque Nacional Madidi
- Que desarrolle estrategias y políticas conservacionistas y de promoción económica y productivas
- Que penetre a las discusiones sobre la importancia de la conservación
- Que sea líder de las campañas de información sobre los beneficios de la conservación del Parque Nacional Madidi a la población local

¿Qué gano con esto?

- Proporciono alternativas económicas a la población (turismo, económica, producción)
- Conservo nuestro ecosistema
- Mejoro la calidad de vida de la población local

COMUNIDADES CAMPESINAS**¿Quién soy yo?**

- Soy agricultor
- Tengo y escucho la radio
- Hablo quechua, castellano, y/o aymara
- Mi educación es de nivel básico
- No tengo medios de transportes y/o comunicación
- Tengo animales domésticos, utilizo la caza y la pesca

¿Qué quieren que haga?

- Que disminuya la quema
- Que tenga mejor conocimiento de las normas e importancias de la conservación del Parque
- Que conserve mi suelo
- Que mantenga las nacientes de agua
- Que pueda sacar recursos de una manera sostenible

¿Qué gano con esto?

- Mejores suelos conservados que evitan la erosión
- Nacientes de agua saludables
- Mejor privilegios en el mercado por ser área protegida

COMUNIDADES INDIGENAS

¿Quién soy yo?

- Soy originario nativo, vivo fuera y dentro del PNM, tenemos nuestra cultura propia, la cual respetamos y queremos conservar
- Aprovecho los recursos naturales
- Vivo en una manera sostenible, aunque estamos atravesando problemas en la agricultura, forestería, caza y pesca (por actores externo)
- Nuestro objetivo es consolidar la TCO Tacana, mantener nuestra cultura y recibir mejor educación
- Estamos organizados en el CIPTA (Central Indígena de Pueblos Tacana) y CIMTA (Central Indígena de Mujeres Tacana)
- Queremos aprender a manejar de mejor manera los recursos naturales
- Nos comunicamos mediante radios, cartas, reuniones al nivel comunal y viajamos a los centros más poblados para vender y comprar productos

¿Qué quieren que haga?

- Que disminuyamos la presión sobre los recursos naturales y sepamos conservar y utilizar adecuadamente nuestros recursos
- Que tengamos una predisposición para capacitarnos
- Que participemos en la elaboración de plan de manejo integrado

¿Qué gano con esto?

- La garantía de la vida futura de nuestro pueblo conservando nuestra cultura para que no falten nuestros medios de subsistencia de flora y fauna (agricultura, madera, pesca, plantas medicinales, etc.)
- Que el resto del mundo sepa que estamos protegiendo un parque, para las generaciones futuras

GOBIERNO NACIONAL

¿Quién soy yo?

- Soy diseñador de políticas, definidor de presupuestos, fiscalizador de acciones, canalizador de recursos e implementador y diseñador del PGDES
- Dicto y hago cumplir leyes y normas
- Mi educación es de formación superior de grado adelantado
- Mi profesión es multidisciplinaria y sectorial

- Mis objetivos incluyen el desarrollo social y económico (lucha contra la pobreza), y la reproducción del poder (continuidad en el gobierno y en la planificación)
- Mis fuentes de información son los medios de comunicación nacionales e internacionales, datos estadísticos, estudios sectoriales (consultorías), informes de la cooperación internacional (Banco Mundial, BID, FMI, etc.)
- Respondo a intereses políticos, muchas veces impositivos e impredecibles
- Mi interés en la conservación es sólo para mejorar mi imagen
- Recibo influencia del sector privado

¿Qué quieren que haga?

- Que tenga más voluntad política para priorizar acciones de conservación
- Que tenga una política coherente entre el discurso y la acción inter-ministerial en favor de la conservación
- Que genere interés ambiental
- Que esté bien informado sobre temas ambientales
- Que esté convencido de los beneficios de la conservación y valore las áreas protegidas como medio de inversión
- Que promueva políticas y leyes de estado en favor de la conservación

¿Qué gano con esto?

- Mejor imagen
- Más votos
- Más recursos
- La posibilidad de consolidar el equilibrio entre desarrollo y conservación

PROFESORES Y ESTUDIANTES RURALES

PROFESORES:

¿Quién soy yo?

- Soy bachiller y profesor en la zona de Madidi
- Tengo entre los 20 y 22 años
- Enseño a grupos de muy variados edades en un solo curso
- No tengo materiales de educación
- Recibo información de los distritos de educación rural, ONGs y Guardaparques
- No me interesa mucho la conservación

¿Qué quieren que haga?

- Que tenga capacitación para poder enseñar a los niños sobre temas de conservación
- Que use mi influencia con los niños y sus familiares para difundir prácticas de conservación
- Que me convierta en fuente de información ambiental
- Que quiera a mi parque

¿Qué gano?

- Gratificación personal – sentirme útil
- Mayor capacitación en un área de la educación
- Más materiales y recursos para trabajar
- Mayor categoría en mi formación académica

ESTUDIANTES:**¿Quién soy yo?**

- Soy estudiante y vivo en el Parque Madidi
- Voy a la escuela por obligación y para aprender a leer y escribir
- Mis papás son agricultores, y generalmente tengo más de 5 hermanos y hermanas
- Si soy mujer, no salgo de la comunidad
- Sólo alcanzo a estudiar hasta el 3er grado
- Mis fuentes de información son mis padres, profesores, las iglesias, ONGs y los guardaparques

¿Qué quieren que haga?

- Que entienda mejor la importancia del Parque
- Que me convierta en fuente de información ambiental para mi familia
- Que desarrolle un comportamiento de respeto hacia la naturaleza
- Que aprenda acerca del ecosistema, sus valores, sus potencialidades, amenazas y posibles soluciones
- Que sea orgulloso de mi parque

¿Que gano yo?

- Sentirme parte de algo importante para el mundo
- Mejor educación
- La posibilidad de prepararme para desarrollar y participar en oportunidades económicas como el eco-turismo

PERIODISTAS**¿Quién soy yo?**

- Vivo en las ciudades, aunque otros colegas están en las provincias.
- Trabajo en radio, TV, periódico, y revistas.
- Mis ingresos son aceptables, aunque no óptimos.
- Mi formación es universitaria.
- A diario me dedico a informarme sobre temas políticos, económicos y laborales y no siempre tengo tiempo para otros temas como los del medio ambiente. Ni me hablen de especializaciones.
- Me informo a través de las agencias nacionales e internacionales, boletines de prensa comunicados, conferencias de prensa, y desayunos y almuerzos para periodistas.
- Vivo el día intensamente hasta parte de la noche.
- Me creo dueño de la verdad.

¿Que quieren que haga?

- Que dé mayor cobertura a temas medio ambientales
- Que brinde información periódica a mis lectores sobre la importancia de proteger el Parque Madidi
- Que investigue con cuidado temas del medio ambiente
- Que visite el parque Madidi oficialmente para obtener una mayor visión de su importancia

¿Que gano con esto?

- Mayor capacitación profesional (y tal vez mayor sueldo o cargo)
- Sentirme útil a la sociedad y contribuir a la preservación del patrimonio natural

DONANTES Y AGENCIAS DE DESARROLLO**¿Quién soy yo?**

- Vivo en un país desarrollado
- Tengo título universitario y postgrado
- Quiero tener proyectos exitosos y eficaces y que sean sostenibles en el tiempo
- Quiero mejorar las condiciones de vida en países menos desarrollados
- La conservación y manejo de la biodiversidad son prioritarios para mi
- Mis fuentes de información son informes, documentos internos de mis socios, publicaciones, revistas, libros, ONGs y gobiernos nacionales y internacionales
- Soy idealista, ambicioso, analista, minucioso, visionario, me gusta figurar, soy de amplia visión; me gusta viajar, trabajar, conservar, intercambiar, coordinar, y soy cosmopolita

¿Qué quieren que haga?

- Que me informe ampliamente
- Que visite Madidi oficialmente para apreciar su importancia en la región
- Que no financie proyectos de impacto negativos
- Que me involucre e interese en la conservación
- Que financie apropiadamente proyectos de conservación
- Que coordine más con otros donantes y que dé más dinero a la conservación
- Que sea más flexible

¿Qué gano yo?

- Proyectos con éxito
- Protección de la Biodiversidad
- Buena reputación
- Justifico mi profesión y mi sueldo

OPERADORES LOCALES DE TURISMO**¿Quién soy yo?**

- Vivo en Rurrenabaque
- Tengo un nivel de educación de colegio y soy autodidacta
- Me informo a través de televisión, periódicos (La Razón, El Diario), teléfono, fax, reuniones gremiales, rumores, comentarios (boca a boca), talleres
- Soy casado con hijos
- Generalmente soy Boliviano
- Estoy interesado por el lucro del turismo
- Tengo entre 30 a 45 años
- Mi interés por la conservación se basa en la moda y las oportunidades de negocios
- Estoy en una etapa de concientización

¿Qué quieren que haga?

- Que respete las leyes de protección ambientales
- Que mis paquetes de turismo se enmarquen en los principios del eco-turismo
- Que busque nuevos mercados y mejor mercadeo

¿Que gano con esto?

- El paro de la competencia desleal
- La mejoría de mis ingresos a largo plazo
- La mejoría de mi imagen entre el público nacional y los turistas internacionales

IV. IDENTIFICACIÓN DE LOS PRODUCTOS

El Sr. Castro inicio el segundo día de reuniones, presentando una descripción de algunos de los productos y herramientas de comunicación. En seguida, el facilitador pidió a la plenaria una “lluvia de ideas” para identificar otras posibles herramientas de comunicación. El grupo empezó por los medios masivos de comunicación, incluyendo un listado de estos medios.

Prensa Escrita:

Diarios: La Razón, Presencia, El Deber, Los Tiempos, El Mundo, Extra, Gente, Opinión, La Prensa, Ultima Hora

Semanales: Pulso, Nueva Economía

Semanales en Inglés: Bolivia Times

Quincenal: Cosas

Productos para la Prensa Escrita:

- Noticias de prensa
- Reportajes centrales
- Editoriales
- Publicidades
- Suplementos dominicales
- Artículos para radios

Radio:

Existen 10 emisoras nacionales y 2 radios locales en Madidi

Llegan : Panamericana, Fides, La Paz, Cadena, Santana de Yacuba, Santa Cruz, San Gabriel

Productos para la Radio:

- Noticieros
- Publicidades
- Entretenimiento
- Forum para públicos específicos
- Programas de entrevistas
- Dramas teatrales
- Programas religiosos

Televisión:

Existen 19 canales nacionales: incluyendo C2, C4, C5, C7, C9, C11, C13, C21, C30, C39, C42 (Unitel C2),

En la región de Madidi: C11, C9

Por satélite: C13 Tele -Trece (C8, C2, C9, C11)

Sub-prefectura: C7, Ejercito (Batallón Ecológico); C9

El 80% de los 6.000 habitantes de Rurrenabaque tienen TV.
El 50% de los 3.000 habitantes de San Buenaventura tienen TV.

Los participantes se dividieron en los mismos 8 grupos para contestar dos preguntas:

- 1) ¿Cuáles son las herramientas los productos más importantes para cada uno de los públicos prioritarios?
- 2) ¿Cuáles son los mensajes adecuados para alcanzar el objetivo deseado?

En seguida, después de un hora y medio de trabajo, los resultados fueron presentados en plenaria por cada grupo, los mismos que hicieron el análisis detallado de cada Público, de manera que las informaciones estuviesen complementares y coherentes.

GRUPO 1. AUTORIDADES LOCALES

Productos/Herramientas:

- Informes periódicos de actividades del parque
- Talleres informativos para los distintos sectores de la población acompañadas de materiales audiovisuales
- Boletines periódicos del gobierno municipal con temas de conservación
- Difusión de programas (TV- radio local) de sensibilización sobre temas de conservación por parte del gobierno municipal
- Distribución de materiales publicitarios: polleras, gorras con mensajes ambientales
- Periódicos murales que brinde información sobre áreas protegidas a población local y turistas
- Abrir una secretaría de comunicación del Parque Madidi en la sed del gobierno municipal

Mensajes:

- “Reactivemos nuestros municipios conservando nuestra naturaleza”
- “Honorable, el Parque Madidi es nuestro ‘pulmón’ no permitan que el mundo no respire”
- “Los recursos naturales no los heredaste, los tomaste prestado de tus hijos, entonces devuélvalos tal como los recibiste”

GRUPO 2. COMUNIDADES CAMPESINAS

Productos/Herramientas:

- Programas para las Radio Fides, Panamericana, San Gabriel, de las 6:00 a las 7:00 a.m. y de las 20:00 adelante
 - Reuniones, asambleas y visitas puerta a puerta
 - Seminarios, cursos
 - Talleres participativos
 - Concursos de ecología
- } Organizado por las instituciones de la zona
(federaciones, organizaciones y otros).
- Organización y promoción de eventos deportivos
 - Teatro (para todos) y títeres
 - Rumores y chismes dirigidos en lugares apropiados para mujeres y hombres
 - Polleras (t-shirts), gorras y pósters
 - Calendarios
 - Folletos y manuales educativos, trípticos
 - Revista de historietas (romances Bibosi y Motacú)
 - Recopilar leyendas del bosque relacionadas con la preservación del medio ambiente
 - Videos para proyección de diapositivas móvil
 - Mensajes difundidos por alto parlantes
 - Promover el proyecto "Niños Guardianes del Bosque"
 - Entrenamiento para promover el medio ambiente dentro de la estructura organizativa de la comunidad
 - Carteles en lugares apropiadas (arroyos, ríos)
 - Radio novelas, debates ambientales en video
 - Flanelógrafos con historietas
 - Concursos de canciones y poesías

Mensajes:

- "Aprovechemos los recursos naturales adecuadamente para vivir mejor hoy, mañana y siempre"
- "No hemos heredado la tierra de nuestros hijos"
- "La capacidad de producción de nuestras tierras depende de la preservación del Parque Madidi"
- "Cuidando nuestros bosques, siempre seremos libres"
- "Preservar el bosque no es quitarse el pan de la boca, es aumentar la producción, mejorar nuestro nivel de vida hoy y mañana"
- "Guarda para mañana lo que echarías a perder hoy"
- "Si no aprendo hoy a manejar el bosque el mundo lo sentirá mañana"
- "Producir sin destruir"
- "Dios perdona todo, los hombres algunas veces, la Naturaleza nunca"

- Otros mensajes que generan orgullo de lo que tenemos (el Parque)
- Mensajes sobre nuevas oportunidades de ingresos económicos (turismo, artesanía, servicio).

GRUPO 3. COMUNIDADES INDIGENAS

Productos/Herramientas:

- Programas para la radio en la comunidad
- Seminarios, talleres para las comunidades
- Reuniones comunales
- Gorras, polleras
- Videos sobre la importancia del Parque Madidi
- Obras de teatro que circulan en las comunidades
- Concursos inter-colegiales con comunidades indígenas
- Actividades especiales para mujeres
- Trípticos con dibujos
- Pósters, calendarios con fotos y dibujos del PNM

Mensajes:

- “Cuidar nuestro bosque ayuda a mantener el agua que tenemos”
- “Aprender a utilizar nuevas y mejores prácticas agropecuarias sostenibles que ayuden a mejorar la economía familiar”
- “¡Somos parte del bosque, somos parte de la solución!”
- “¡Si dañas al bosque te dañas a ti mismo!”
- “Cuidar el bosque es preservar la vida de nuestra familia”
- “Cuidemos nuestro bosque ahora, mañana puede ser tarde”
- “Somos parte del parque igual que tú”
- “Somos dueño del lugar del bosque (Pacha Mama, Jichi)”
- “Rescatar de las culturas (Tacana) los valores de la naturaleza”

GRUPO 4. GOBIERNO NACIONAL

Enfoque: Campaña de información permanente y continua

Productos/Herramientas:

- Entrevistas con personalidades (políticos, etc.) por TV
- Entrevistas con expertos en el tema por TV
- Noticias sobre el Parque a ser difundidas en TV
- Editoriales de opinión en diarios
- Reportajes de fondo sobre los temas referentes al Parque para suplementos dominicales
- Notas en informes oficiales
- Noticieros de Radio
- Noticias sobre el Parque para entrevistas con personalidades y opinadores por radio
- Lanzamiento del libro Hotspots
- Visitas al campo para autoridades
- Presentación directa (seminario, charlas, foros, debates)
- Conferencia de prensa para marcar eventos especiales
- Almuerzos, cenas, cocteles de información
- Contactos personales o por terceros (cooperación internacional, amistad, etc.)

Mensaje: Utilizar el orgullo nacional

- “El crecimiento económico es compatible con la conservación”
- “La conservación es sustentable”
- “La conservación contribuye a aliviar la pobreza”
- “La conservación es un buen negocio”
- “La conservación genera empleo”
- “El desarrollo sostenible es vivir de los intereses y no del capital”
- “La biodiversidad de Bolivia y de Madidi es altamente competitiva en el mundo”
- “Las áreas protegidas son medios de inversión”

GRUPO 5. PROFESORES Y ESTUDIANTES RURALES

Productos/Herramientas:

- Material curricular participativo de educación ambiental, implementado de los diferentes municipios alrededor del Parque
- Concursos en la radio
- Manuales para profesores sobre educación ambiental con ideas de actividades específicas de biodiversidad del PNM

- Brigadas ecológicas comunitarias organizadas por genero y edades
- Elaboración de videos (spots) relacionados a la conservación del PNM realizados por los estudiantes mismos
- Elaboración de programas cortos de radio realizado por los estudiantes
- Murales con mensajes, realizados por los estudiantes
- Distribución de cuadernos y lápiz con mensajes ambientales
- Concurso de pinturas o dibujos para los estudiantes sobre el PNM (un calendario podría ser elaborado incluyendo 12 de los dibujos)
- Entrevistas por los estudiantes a los ancianos sobre sus conocimientos tradicionales para elaborar cartillas educativas sobre el medio ambiente
- Intercambio de experiencias entre escuelas, sobre temas ambientales
- Eventos y excursiones con temáticas ambientales, como el Día de la Tierra del Medio Ambiente
- Globos, pelotas y basureros con mensajes ambientales

Mensajes:

- “No tenemos derecho a destruir lo que no podemos crear”
- “Nosotros, los jóvenes, somos los guardianes de nuestro Parque”
- “¡El Parque Madidi es mi vida!”
- “Cuidemos de los animales y de las plantas ahora; ellos nos proveerán el día de mañana”
- “Nosotros los niños, tenemos que cuidar nuestro Parque, porque es el sustento para nuestro futuro”
- “Yo sé cuanto vale mi parque y por eso, quiero saber como funciona la naturaleza”
- “Nosotros, los profesores, tenemos un papel especial en la conservación del Parque Madidi”

GRUPO 6. PERIODISTAS

Enfoque: Crear una red de contacto con los periodistas

Productos/Herramientas:

- Un flujo de información constante por llamadas telefónicas, correo electrónico
- Reuniones (desayuno, almuerzo y trabajo)
- Conferencias de Prensa
- Boletines de prensa redactados de forma periódica y acompañados de imágenes
- Carpetas de prensa
- Página web actualizada
- Talleres de capacitación sobre temas ambientales para periodistas
- Facilitar entrevistas a los periodistas con gente especializada en el Parque y su conservación
- Cartas a los Directores de los medios

- Invitación a los periodistas para visitar PNM
- Promover la creación de una asociación de periodistas ambientales
- Promover un concurso de periodismo ambiental
- Reconocimiento especial al medio que dé mayor cobertura

Mensajes:

- “Ayuda a salvar el bosque; escriba con tinta verde”
- “El papel se acaba donde el bosque termina”
- “No dejes que la depredación de la naturaleza te patee”
- “Evita la depredación del medio ambiente y vivirás feliz toda la vida”
- “Cuando escribes sobre medio ambiente estas preservando el futuro de tus hijos”

GRUPO 7. DONANTES Y AGENCIAS DE DESARROLLO

Enfoque: Demostrar la eficacia y sostenibilidad multi-institucional del proyecto

Productos/Herramientas:

- Visitas de donantes, conferencias y talleres para donantes
- Documentos en inglés y otros idiomas informativos sobre el Parque
- Polleras y gorros
- Pagina Web del Parque (enlaces a paginas web de ONGs Internacionales)
- Guía del Parque para donantes basándose en un análisis técnica de las necesidades de financiamiento, coordinada entre todas las instituciones
- Póster calendarios
- Videos (documentales y cortos) y spots de televisión
- Postales, tarjetas
- Artículos en Bolivian Times, La Prensa, La Razón
- Aprovechamiento de artículos ya publicados en revistas como National Geographic
- Notas en boletines de ONGs (CI)
- Folleto del parque
- Album de fotografías
- Mapa del corredor ecológico de la región con su riqueza en biodiversidad

Mensajes:

- “Todos hablan de biodiversidad, nosotros queremos conservarla”
- “We have the forest, you have the bucks” , “More species for your bucks”
- Lista de hábitats, lista de especies de Madidi
- Lista de las 7 maravillas de mundo y al final “y en el séptimo día, Dios creó Madidi”
- Por hectárea: numero de especies animales y vegetales, numero de especies endémicas

- “Las especies endémicas necesitan ser protegidas”
- “Species R’ US”

GRUPO 8. TURISTAS Y OPERADORES

Enfoque: Generar interés genuino y ofrecer exclusividad.

Productos/Herramientas:

- TV Spots 30-segundos
- Spots de Radio
- Talleres para Operadores
- Rumores
- Boletines
- Guías turísticas
- Video corto sobre el Parque
- Polleras
- Postales
- Sellos de calidad
- Visita de los medios
- Encuestas con turistas

V. PLAN

El Sr. Haroldo Castro abrió la última sesión del Taller diciendo que todas las informaciones que fueron elaboradas por los participantes hasta ahora - Problemas, Públicos y Productos - representan la base necesaria para la elaboración de un Plan de Acción. El facilitador pasó a dar varias sugerencias que deben ser llevadas en consideración en esta etapa del trabajo:

- Revisar los 8 objetivos
- Revisar los 8 públicos prioritarios y otros
- Revisar los productos
- Fechas importantes

Lista de Fechas Importantes

16 de julio: Día La Paz
6 de agosto: Día Nacional
5 de junio: Día Medio Ambiente
22 de abril: Día de la Tierra
21 de septiembre: Día de la Creación del PNM
27 de mayo: Día de la Madre
1er de mayo: Día del Trabajo
2 de febrero: Día de Rurrenabaque
14 de julio: Día de San Buenaventura
13 de junio: Día de Ixiamas
8 de diciembre: Día de Apolo
12 de abril: Día del Niño
8 de marzo: Día Internacional de la Mujer
Semana Santa
8 de noviembre: Día del Guarda Parque
1er de octubre: Día del Arbol

Los participantes trabajaron, organizados en dos grupos, durante dos horas en la identificación de las principales actividades de cada uno de sus planes. Cada grupo elaboró una tabla con su plan borrador y explicó su Plan en la reunión plenaria final.

Grupo A

Carmaña
Beatriz
Rosa Ruiz
Jorge
Victor Hugo
Juan Rene
Mary Anne
Andrés
Vidal
Maria Jose
Maria Eugenia
Juan Pablo
Cándido
Gabriel
Robin
Lilian
Klauss
Valerio
Ebelio
Adiva

Grupo B

Ana María
José Ayala
Amy
Simeón
Eduardo
Rómulo
Geovanna
Roberto
Dario
Guido
Oscar
Ciro
Boris
Guimer
Luz Mery
John Arce
Teresa
Reynaldo
Alex
Ilse

PLAN PROPUESTO POR EL GRUPO A

Fecha	Actividad	Objetivo	Publico	Local	Responsables
Agosto 2000 hasta Septiembre 2001	Generar agenda publica en prensa, TV, radio.	1,8	gobierno nacional y departamental	La Paz, el Alto	SERNAP
21 Septiembre 2000	Invitar representante del gobierno a visitar Madidi	1,8	gobierno, periodistas	La Paz	Parque Nacional Madidi, municipios
21 Septiembre 2000	Invitar a periodistas, donantes y operadoras a visitar el P.N. Madidi	1,2,8	periodistas, donantes, operadores	La Paz	SERNAP
Septiembre 2000	Elaboración de un programa de títeres (teatrín)	1,8	comunidades	Apolo, San Buenaventura Ixiamas	CARE, CI
17 - 24 Septiembre 2000	Elaboración y difusión de vídeo y radio "spots" del P.N. Madidi a Tele 13 y radio locales (y entrevistas) para la Semana del Madidi	1,2,8	estudiantes, profesores, autoridades locales, operadores turistas	Rurre, San Buenaventura Apolo, Ixiamas	CI - Washington, CI - Bolivia, Reserva Pilon Lajas, EcoBolivia, SERNAP
Julio - Septiembre 2000	Elaboración de pósters, videos y programas audiovisuales	1,6,8	comunidades indígenas, comunidades campesinas	Area de Influencia P.N.M.	SERNAP
Julio - Septiembre 2000	Creación del Logo de la campaña de información	1	todos	Todos	CI
Julio 2000 a 2002	Elaboración de materiales (manuales, cuadernillos, juegos)	3,4,6	comunidades indígenas, comunidades campesinas	Apolo, San Buenaventura Ixiamas	CARE
Abril 2000	Elaboración de materiales (manuales, manejo de fauna, folleto, juegos, talleres)	3,4,6	comunidades indígenas	Ixiamas	WCS
2000 al 2002	Elaboración de cartillas y materiales audiovisuales	5,6	comunidades campesinas	Apolo	EcoBolivia

Mayo 2000 al 2003	Campaña de educación ambiental para profesores, con material educativo y entrenamiento de su uso	3,4,6	estudiantes, profesores	Rurre, San Buenaventura, Ixiamas, Tumupasa, Apolo	Reserva Pilon Lajas, CARE, WCS
Julio 2000	Guía para donantes y Apolobamba	2,8	donantes	La Paz	WCS, CI, SERNAP
Agosto - Diciembre 2001	Extensión y intercambio de experiencias (talleres, seminarios, lección aprendidas)	7,8	auditores locales, comunidades indígenas, operadores, donantes, gobierno	La Paz, Rurre, Apolo, Ixiamas	CI, SERNAP
21 Septiembre (lanzamiento) hasta 10 Mayo, 2001	Premio de Reportaje sobre Biodiversidad	1	periodistas	nacional	CI
Julio 2000	Análisis de amenazas, al PNM (talleres y memoria)	5,8	todos	todos	WCS, CI
Septiembre 2000	Polleras y gorras (campaña Semana Madidi)	1	todos	locales	CI
21 Septiembre 2000	Conferencia de prensa en Semana Madidi	1	periodistas	La Paz, San Buenaventura	CI, SERNAP

PLAN PROPUESTO POR EL GRUPO B

Fecha	Actividad	Objetivo	Publico	Local	Responsables
Julio – Septiembre 2000	Estudio de sensibilización línea de base.	todos	Actores de Madidi	Madidi y Zonas	CI, USAID, Parque Nacional Madidi
Septiembre 2000 hasta junio 2001	Campaña de información y sensibilización, páginas web, documentales, técnicas, medios, difusión por charlas y reuniones.	1, 2,8	Donantes, públicos nacional y local, periodistas	Nacional y local	CI, CERNAP, PNM, CARE, BID, CI-Bolivia, y CI-WASH.
Julio 2000 Junio 2001	Desarrollo y elaboración de programa de Educación Ambiental.	1,2	Estudiantes y Profesores	local	ONGs Gobierno municipales, CI-Washington. La nueva Estación Biológica
Julio 2000- Junio 2001	Promoción de desarrollo económico sostenible (ventajas y beneficios potenciales del ecoturismo agroforestería, y artesanía)	3,4,5,7	Todos los públicos locales, el gobierno municipal, turistas	Madidi, zonas.	CI, ONGs, BID
Julio 2000 – Junio 2001	Talleres para operadores de ecoturismo	3,4,7	Turistas, Operadores	Madidi, zonas	CI, BID,
Enero – Junio 2001	Difusión de resultados y experiencias	8,4,5	Públicos locales y nacionales	Madidi/zonas	CI, ONGs, USAID, PNM
Julio 2000 – Diciembre 2001	Visitas al parque	1,2,3,7	Gobierno nacional, donantes, periodistas, agencias de turismo	Madidi	PNM, CARE, WCS

APPENDIX I

LISTA DE PARTICIPANTES

INSTITUCIÓN	NOMBRE
USAID	Douglas Maisson
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WCS	Lilian Painter
PAHS	Roberto Meloño
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CI - BOLIVIA / RBQ	Edil Téllez
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CI - BOLIVIA / RBQ	Rómulo Trujillo
CI - BOLIVIA / RBQ	José Ayala
CI - BOLIVIA / RBQ	Guido Mamani
CI - BOLIVIA / RBQ	Zenón Limaco
CI - PERU	Ana María Chonati
CI - COLOMBIA	Luz Mery Cortez
CI / USAID	Teresa Drake
CI - INTER COM	Robin Briggs

Julio 2000 – Octubre 2000	Difusión de prácticas de manejo de recursos naturales sostenibles (quema, tráfico de especies, caza, pesca, deforestación, cultivo en pendientes, etc.)	6,7	Comunidades campesinas y indígenas, autoridades locales	Madidi y zonas	CI, PNM, CARE, Autoridades locales, CI – BID
Julio – Septiembre 2000	Elaboración y distribución de documento sobre amenazas al Parque y potencialidades para donantes y autoridades	2,5	Donantes y autoridades	Madidi y zonas	CI, PNM, CARE, WCS, WWF, CI – USAID
Julio 2000 – Junio 2001	Rescate de las costumbres y tradiciones de culturas nativas	1,6	Comunidades indígenas y campesinas	Madidi	CI, PMN, CI – CARE,
5 Junio 2001	Evento Madidi para el Día del Medio-Ambiente	1	Estudiantes	Madidi y zonas	Ministerio de Educación

VI. CONCLUSION

Después de las dos presentaciones, el facilitador enfatizó los temas comunes de los planes. En realidad, en ambos grupos varias actividades fueron consideradas como prioritarias, tales como:

- Preparación de la “Semana de Madidi”
- Programa de Educación Ambiental para profesores y estudiantes
- Visitas al parque con autoridades, donantes, y periodistas
- Spots de TV y radio sobre el Parque
- Talleres para operadores de turismo

El Sr. Castro terminó el Taller felicitando a todos los participantes por la cantidad y calidad de información producida durante los dos días. Los miembros del taller tuvieron la oportunidad de compartir algunas palabras sobre su experiencia.

APPENDIX II

REUNIÓN INTERNA

En esta reunión, realizada entre las 9:30 y las 12:30 del día 6 de abril, participaron 12 personas:

Juan Pablo Arce
Boris Fernandez
Cándido Pastor
Mary Anne McConnel
Roberto Urioste
Rómulo Trujillo
José Ayala
Ilse Vivian Prado
Haroldo Castro
Amy Higgs
Robin Briggs
Theresa Drake

El Sr. Castro revisó los planes propuestos por los participantes del taller. El objetivo de esta reunión fue hacer una revisión y una priorización de las actividades para elaborar un plan de acción a ser implementado por CI. El grupo llevó en consideración las siguientes actividades:

PLAN DE TRABAJO

Fecha	Actividad	Responsables	Fondos
Mayo – Julio 2000, final Septiembre 2000	Estudio de sensibilización, línea de base, con encuesta	Boris, Ilse y cooperación de InterCom	CI –Bolivia, USAID
Abril – Agosto 2000	Sensibilización de operadores de turismo locales <ul style="list-style-type: none"> • Contactos personales • Talleres 	Mary Anne y Candido (relaciones con alcaldía)	CI - Bolivia
Fin de Agosto	Visitas al campo con 6-8 periodistas, gobernantes, autoridades y donantes	Ilse y Roberto	Aereo \$100, Bote \$200, Chalalán \$50, Rurre \$50, (precios por persona) Bote \$200, Avioneta \$800 50% InterCom, 50% CI-Bolivia

CI - INTER COM	Amy Higgs
CI - INTER COM	Haroldo Castro
CI - BOLIVIA / HCI	Martha Decker
CI - BOLIVIA	Juan Pablo Arce
CI - BOLIVIA	Boris Fernandez

Semana de 17 a 24 Septiembre	CAMPAÑA SEMANA DE MADIDI (Quinto aniversario del Parque) <ul style="list-style-type: none"> • Logo • Campaña de prensa y conferencia de prensa Semana Madidi • Poleras y gorras (200 – 300) • Evento en Rurre “Semana del Madidi” con prensa, autoridades, música • Spots de radio • Spots de TV 	Ilse Ilse Ilse Ilse Ilse y InterCom InterCom	InterCom (\$300) CI – Bolivia InterCom 100 poleras CI – Bolivia USAID InterCom InterCom
Septiembre (durante la Semana del Madidi)	Lanzamiento del Premio de Reportaje sobre Biodiversidad	Ilse y InterCom	InterCom
Mayo - Junio 2000	PRODUCTOS DE VIDEO <ul style="list-style-type: none"> • Vídeo Chalalán 3 –4 minutos, en español y en ingles para operadores locales, nacionales internacionales, ferias 	InterCom y Mary Ann	InterCom
Ago o Sept 2000	<ul style="list-style-type: none"> • Viaje de filmación a Madidi por InterCom para futuro documentales 	InterCom/Ilse	InterCom
Octubre 2000	Póster con fotos de Joe Cieira, contrato con Andres Barchi	Ilse y InterCom	InterCom, CI Bolivia
Noviembre 2000	Publicación y distribución de documentos <ul style="list-style-type: none"> • Análisis de amenazas • Resultados y experiencias • Lecciones aprendidas 	Boris y WCS Ilse	USAID

APPENIDX III

CALENDARIO DE ACTIVIDADES MENSUALES

FECHA	ACTIVIDAD
Abril 2000	<ul style="list-style-type: none"> • Estudio de sensibilización, línea de base, con encuesta • Sensibilización de operadores de turismo locales
Mayo 2000	<ul style="list-style-type: none"> • Estudio de sensibilización, línea de base, con encuesta • Inicio de producción del vídeo Chalalán 3 –4 minutos, en español y en inglés para operadores locales, nacionales internacionales, ferias • Sensibilización de operadores de turismo locales • Logo Semana de Madidi
Junio 2000	<ul style="list-style-type: none"> • Estudio de sensibilización, línea de base, con encuesta • Sensibilización de operadores de turismo locales • Producción de poleras y gorras (200–300) para la Semana del Madidi • Producción del Video Chalalán, 3 –4 minutos
Julio 2000	<ul style="list-style-type: none"> • Sensibilización de operadores de turismo locales • Producción de spots de radio • Producción de spots de TV • Finalización del Vídeo Chalalán
Agosto 2000	<ul style="list-style-type: none"> • Producción de spots de radio • Visitas al campo con 6-8 periodistas, gobernantes, autoridades y donantes • Producción de spots de TV • Sensibilización de operadores de turismo locales
Septiembre 2000 Semana del Madidi	<ul style="list-style-type: none"> • Semana del Madidi 17-24 • Distribución de spots de radio • Distribución de spots de TV • Campaña de prensa y conferencia de prensa Semana Madidi • Evento en Rurre Semana de Madidi, con prensa, autoridades, música • Lanzamiento del Premio de Reportaje sobre Biodiversidad
Octubre 2000	<ul style="list-style-type: none"> • Estudio de sensibilización, línea de base, con encuesta • Producción del Póster Calendario 2001 • Publicación y distribución del documento sobre análisis de amenazas
Noviembre 2000	<ul style="list-style-type: none"> • Publicación y distribución del documento sobre resultados y experiencias
Diciembre 2000	<ul style="list-style-type: none"> • Distribución del Póster Calendario 2001 • Premio de Reportaje Sobre Biodiversidad

**Witches' Broom Meeting--Ilheus, Brazil
21- 24 February 2000**

A Witches' Broom meeting was held in Ilheus, Brazil which included over 50 participants from nineteen organizations, including government, industry, NGO's, researchers, farmers and development agencies. The meeting aimed to review research and familiarize all participants with work in progress on efforts to solve the Witches' Broom problem which has plagued Brazilian cocoa for over a decade. The problem currently affects over 3 million people of the Bahia Region of Brazil covering 600,000 ha of arable land, and can have a devastating environmental impact if the Cabruca cocoa cultivation system should disappear. We looked for ways to initiate cooperative research, develop a collaborative approach and set in motion action plans to build on the on-going activities traditionally conducted by CEPLAC in Brazil and other Institutes worldwide. During the four-day period, working toward a model of sustainability, four essential teams were formed to focus attention and strengthen on-going research in the areas of Agroecology, Biocontrol, Genetics and Breeding and Communication/Collaboration. Each team developed and agreed a plan of action, including responsibilities and necessary resources, to be carried out over the next 6 months. This model of collaboration and planning, although initially applied to the Witches' Broom problem in Bahia, can be used to tackle other global cocoa disease problems.

Day 1:

CEPLAC hosted the first day at its site in Itabuna. Each participant was given the opportunity to express their desired outcomes for the meeting. Based on this energetic discussion, four major themes evolved, Agroecology, Biocontrol, Genetics and Breeding, and Communication/Collaboration and the work plan for the week was developed. Assignments were made to specific participants from each of the four areas to prepare key review presentations and serve as discussion leaders for a next day's panel. A tour of the CEPLAC research laboratories and biocontrol production facility was made. Additional visits were made to Biofabrica to see their plant multiplication systems and to the Almirante Center for Cocoa Studies where the group saw laboratories for biocontrol and plant propagation.

Day 2:

Teams began to form when presenters and other participants came together as panel members for each of the four areas. Each of the panels used the same format. A brief overview of the topic area was given by the discussion leader and was followed by a lively question and answer session with all attendees. The level of interest and discussion in each topic gave us the confidence that these were the right themes for the teams. Team membership and team leaders were selected. The leaders coordinated activities and acted as facilitators for meetings scheduled the next day. A process and format was agreed upon to help teams plan activities for the next six months.

Field trips were then made to small farmer run Biocontrol plots around the Una Biological Reserve area. Part of the group met with the farmer association who demonstrated how the biocontrol agents were applied. The farmers embraced the technology, although it was too early to determine if it had a significant impact. The experiment will continue for at least another six months before any final determination can be made. Observations were made by CABI Bioscience that improved spraying technology might be useful to the farmers.

The group was then taken on a tour of the Una Ecopark which is a private forest reserve bordering the Una Biological Reserve. The participants visited the Ecopark to view firsthand how a well preserved Atlantic Forest can offer lucrative economic alternatives for the region. The Ecopark of Una was created by the Institute for Socio-Environmental Studies of Southern Bahia (IESB), in partnership with Conservation International of Brazil, to contribute to the preservation of this important national heritage. These two non-profit organizations are also doing research on regional biodiversity and offering agroforestry extension assistance to farmers and communities where it can help save key forest fragments. The Cabruca cocoa system is seen as a key factor in the conservation and preservation of the ecoparks and act as corridors between them.

Day 3:

The teams met separately at Almirante Center and CEPLAC to set priorities and activities for their areas. The teams started the process of working through issues and differences and began to come together and build collaborative work plans. Each team used a process to identify at least four prioritized activities over the next six months and identified for each activity: "What needs to be done?", "Why do it?", "Who is the owner?", "Who is doing the work?", "Who needs to be kept informed?", "People resources?", "Money resources?", and "Timing?". In the process of sharing information and making plans the teams began build a foundation of trust and familiarity that will help them carry forward their work. The Biocontrol group ended their session with a demonstration of new sprayer technology by CABI Biosciences. Equipment was left at Almirante Center and CEPLAC for further testing and analysis.

Day 4:

In an effort to share information across teams, each team presented their prioritized activity plans to the general session. Major activities for each team were:

Agroecology:

- Evaluate farmer's tolerant plant material.
- Develop techniques to multiply good material.
- Create a decision support model for researchers and farmers.
- Develop and evolve a new paradigm for agricultural change.
- Find and evaluate plants for sustainable agroforestry systems.
- Help establish a pilot for micro-economic lending program.

Genetics and Breeding:

- Apply DNA fingerprinting techniques to 300 accessions at Almirante Center.
- Apply DNA fingerprinting techniques to 1000 accessions at CEPLAC.
- Identify and map Witches' Broom resistance genes for Scavina 6 and 12 and produce a complimentary DNA library for the Expressed Sequence Tags (EST) project.

Biocontrol:

- Ecology, predict behavior of Trichoderma in the field.
- Field application studies to optimize Trichoderma delivery systems.
- Search and screen field materials to find new biocontrol agents.

Communication/Collaboration:

- Will distribute comprehensive email list of participants.
- Will set up WWW (web) based repository of searchable data, information and knowledge related to Witches' Broom disease (which could be expanded to other cocoa diseases).
- Will set the WWW based cocoa research bulletin board to support collaboration within and between the teams.
- Provide links to other cocoa and scientific sites of interest.

The participants then conducted a gap analysis, which highlighted items for further consideration by the teams. Those items can be grouped into several themes; e.g. involving all stakeholders (particularly small farmers), how to optimize extension activities and technology transfer, and how to quickly acquire needed resources. Each team will consider additional activities to fill those gaps.

It was noted that two years ago most of the researchers in attendance were not even on each other's radar screen. By the end of 1999, they were a fragmented group at best. Now they were forming into research teams with action plans covering the next six months. Reference was made to the stages that teams go through as they evolve from an initial state of individual

Attachment Brazil-1

contribution to that of effective team collaboration to high performance state. A set of team building activities may be included in the agenda for the next general meeting in September.

Closing remarks were given by Carol Knight from ACRI representing the cocoa and chocolate industry. She acknowledged the cooperation and resources provided by the USDA, CABI Bioscience, Conservation International, IESB, CEPLAC, UESC (State University of Santa Cruz), OCP (Organic Commodity Project), and USAID, as well as the leadership provided by M&M/Mars and Almirante Center for the industry. A linkage was made between how the International WB teams that were formed this week, could work in concert with the International Sustainable Cocoa Program.

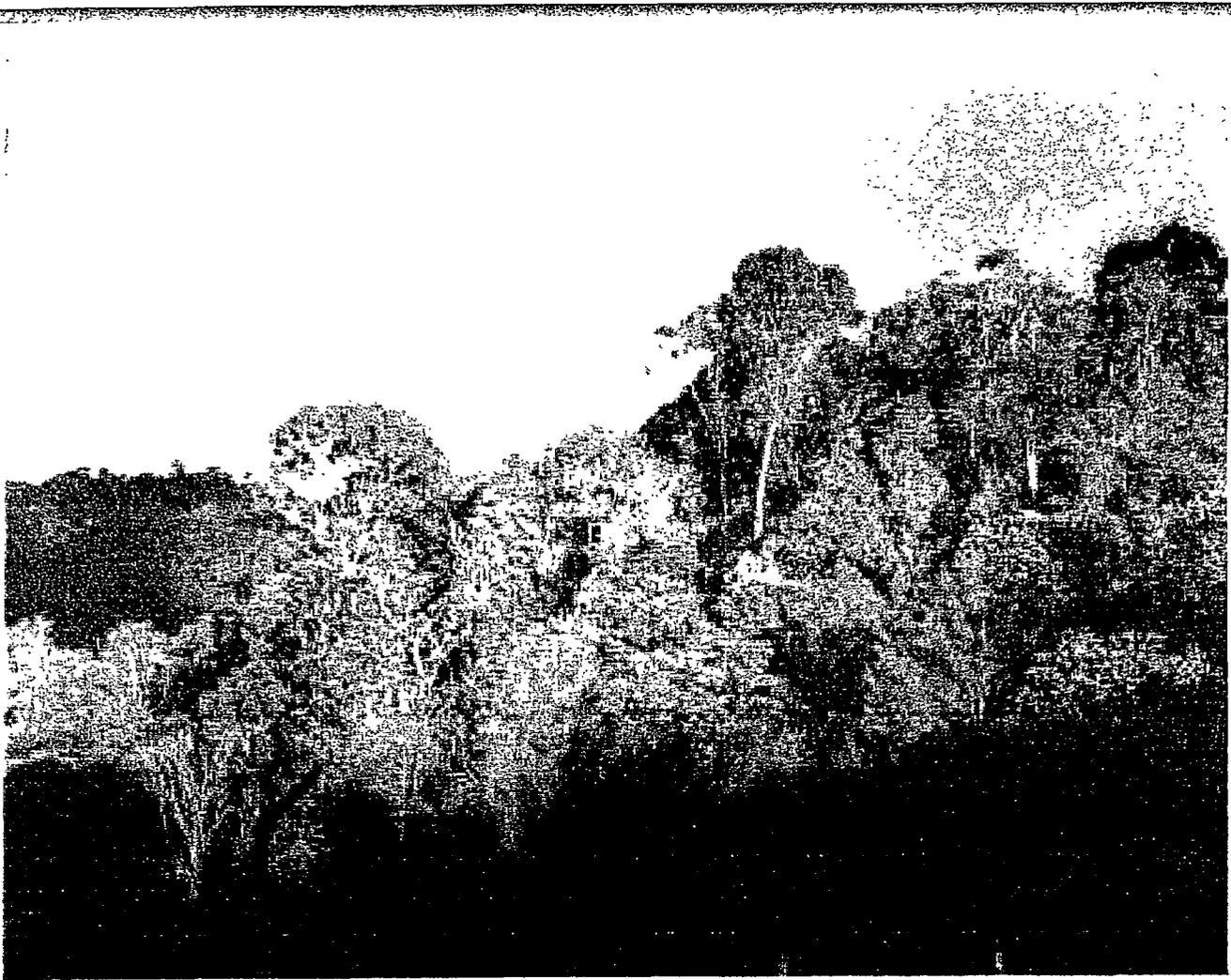
The final remarks were given by Raul Valle, Director, CEPLAC. He thanked all the attendees for their participation and saw this as a positive step forward in undertaking co-operative research to find a solution for Witches' Broom. He also referenced a pending Memorandum of Understanding between USDA and CEPLAC to cover collaborative research in genetics and biocontrol. He expressed the hope that concrete actions and results would follow as a result of this meeting.

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Attachment Brazil-1

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Conservation International	http://www.conservation.org http://www.conservation.org.br	World Brazil	
IESB	http://www.bdt.org.br/bdt/iesb		
O.C.P.	http://www.ocpchocolate.com		
Pest Management Resource Centre	http://www.pestmanagement.co.uk	Will give information on application of biopesticides (end of April 2000)	
Seeds of Change	http://www.seedsofchange.com		



Designing Sustainable Landscapes: The Discovery Corridor of the Brazilian Atlantic Forest

Planejando Paisagens Sustentáveis:
O Corredor de Descobrimto
da Mata Atlântica Brasileira

Center for Applied Biodiversity Science
Conservation International and
The Institute for Social and Environmental Studies of Southern Bahia



Acknowledgements The corridor research described here represents a unique collaborative effort between the Institute for Social and Environmental Studies of Southern Bahia (IESB), Conservation International (CI) and the World Bank's Development Research Group (DECRG) through funding by the Brazilian Environment Ministry's PROBIO program, DECRG and CI's Center for Applied Biodiversity Science (CABS). This publication was made possible by the Center for Applied Biodiversity Science. Conservation International IESB would like to thank the Brazilian Ministry of the Environment, the U.S. Agency for International Development, the Ford Foundation, the World Bank Development Research Group, the Pilot Program to Conserve the Brazilian Rain Forests (through the Rain Forest Trust Fund), the Ford Motor Company, and the Santa Cruz State University of Bahia (UESC) for their generous support for research on the Discovery Corridor. In addition, we are grateful to**** for support of Conservation International's Center for Applied Biodiversity Research. Keith Alger, Gustavo Fonseca, Ken Chomitz, Elena Charlotte Landau, John Musinsky, Paulo Inácio Prado, Raquel Moura, Paulo Cordeiro, Paulo Villanova, Cristina Alves, Sílvia Olivieiri, Heloisa Orlando, and **** all contributed to the creation of this publication. The contents of this paper do not necessarily reflect the views of the World Bank, its Board of Directors, or the countries they represent.

Agradecimentos: Os estudos sobre corredores ecológicos descritos aqui representa um marco de colaboração em pesquisa entre o Instituto de Estudos Sócio-Ambientais do Sul da Bahia (IESB), a Conservation International (CI) e o Grupo de Pesquisa de Desenvolvimento do Banco Mundial (DECRG) através de financiamento pela programa PROBIO do Ministério do Meio Ambiente do Brasil (MMA), DECRG e o Centro para Ciência Aplicada à Biodiversidade(CABS) do CI. Este publicação foi possível com o apoio de CABS. Conservation International e IESB agradecem o Ministério do Meio Ambiente do Brasil, a Agência Americana de Apoio ao Desenvolvimento Internacional, a Fundação Ford, Ford Veículos, a Universidade Estadual de Santa Cruz o o Departamento de Pesquisa do Banco Mundial pelo generoso apoio dado à pesquisa do Corredor do Descobrimeto. Adicionalmente, gostaríamos de agradecer o apoio do Centro para Ciência Aplicada à Biodiversidade do Conservation International. Keith Alger, Gustavo Fonseca, Ken Chomitz, Elena Charlotte Landau, John Musinsky, Paulo Inácio Prado, Raquel Moura, Paulo Cordeiro, Paulo Villanova, Cristina Alves, Sílvia Olivieiri, Heloisa Orlando, e **** contribuíram para a criação desta publicação. The contents of this paper do not necessarily reflect the views of the World Bank, its Board of Directors, or the countries they represent.



IESB Instituto de Estudos Sócio-Ambientais do Sul da Bahia



Aliança Para a Conservação da Mata Atlântica

Atlantic Forest Conservation Alliance

**Desmatamento Zero - Perda de Biodiversidade Zero
Zero Deforestation- Zero Biodiversity Loss**

At Conservation International (CI), we are convinced by an emerging scientific consensus that a regional or landscape scale for conservation

planning will significantly improve the chances for the long-term survival of biodiversity. One of the most promising approaches for regional planning is represented by the large-scale "biodiversity corridors" framework. The Brazilian Atlantic Forest, one of the world's top five biodiversity hotspots, is in desperate need for this more ambitious scale of conservation planning.

The conservation planning efforts undertaken by Conservation International's Center for Applied Biodiversity Science (CABS) and IESB focus on a landscape-level biodiversity corridor proposal for the coast of Southern Bahia and northern Espírito Santo, one of the most fragmented and endangered forest ecosystems in the world. Fragmented forests not only result in diminished populations of the most vulnerable species of plants and animals, but also isolate those that remain in forest "islands." If all that remains in a fragmented landscape are small and isolated patches of natural vegetation, we can expect many species to become extinct. In a region as rich in unique (*i.e.* endemic) plants, animals and microorganisms as the Atlantic Forest of Bahia and Espírito Santo, the continuing process of forest elimination, fragmentation and isolation could set world records for numbers of species lost forever. Biodiversity corridor planning is intended to reverse these alarming trends.

A landscape-level biodiversity corridor consists of a network of parks, reserves and other areas of less intensive use which are managed in an integrated way to ensure the survival of the largest spectrum of species unique to a particular region. The term "corridor" is sometimes misleading because of its wide use in scientific studies to refer to narrow strips of vegetation linking larger blocks of native habitat. Although the creation of links with reforestation and habitat rehabilitation will be necessary in specific locations, the terms "ecological corridor" or "biodiversity corridor" are known in Brazil as initiatives to develop and implement large-scale conservation plans for key areas in Amazonia and the Atlantic Forest.

Using landscape-level corridors as our planning units, we can accomplish what planning at the scale of individual parks and buffer zones cannot: the allocation of conservation resources so that they will have the greatest chance to conserve biodiversity at the least cost to society. This is fundamentally different from minimalist, "least area" solutions advocated in the past, since they did not adequately address the problems of fragmentation and isolation, nor consider how more efficient economic policy instruments might be employed to maintain large portions of the landscape friendly to biodiversity. The more flexibility in the means available to achieve environmental goals, the greater is the chance of finding mutually desirable outcomes.

The ambitious participatory planning process for regional conservation corridors is intended to challenge and complement the economic development plans for these regions undertaken by governments and multilateral agencies. Drawing largely on the Discovery Corridor experience, Conservation International is now designing and implementing biodiversity corridor plans in the Pantanal/Cerrado region of Brazil, in the Andes, Philippines, Madagascar, and other hotspots and wilderness areas.

This document reflects the first attempt by scientists, conservationists and important representatives of the people of Bahia to design and implement a sustainable landscape capable of passing on our biological heritage to future generations.

Gustavo Fonseca, Ph.D.
Executive Director, Center for Applied Biodiversity Science
Vice-President, Conservation International
Professor Titular, Instituto de Ciências Biológicas, Universidade Federal de Minas Gerais, Brazil

No Conservation International (CI) nós estamos convencidos por um consenso científico emergente de que uma escala regional ou paisagística para planejamento de conservação melhorará significativamente as chances de sobrevivência a longo prazo da biodiversidade. Um das abordagens mais promissoras para planejamento regional é aquela representada pelos "Corredores de Biodiversidade". A Mata Atlântica Brasileira, um dos cinco hotspots mais prioritários do mundo, necessita urgentemente de uma escala de planejamento para conservação mais ambiciosa.

Os esforços para planejamento de conservação feitos pelo Centro de Pesquisa Aplicada à Biodiversidade do CI (CABS) e IESB se concentram numa proposta de corredor a nível de paisagem para a costa sudeste da Bahia e norte do Espírito Santo, num dos ecossistemas florestais mais fragmentados e ameaçados do mundo. A fragmentação de florestas não resulta apenas na diminuição das populações das espécies mais vulneráveis de plantas e animais, mas também isolam aquelas que permanecem nas "ilhas" de florestas. Se o que restar de uma paisagem forem fragmentos pequenos e isolados da vegetação natural, a extinção de muitas espécies pode ser certamente esperada. Numa região tão rica de em espécies únicas (ou endêmicas) de plantas, animais e microorganismos como a Mata Atlântica da Bahia e Espírito Santo, o processo contínuo de eliminação, fragmentação e isolamento poderia marcar recordes mundiais para espécies perdidas para sempre. O planejamento do Corredor de Biodiversidade tem como objetivo reverter essas tendências alarmantes.

Um corredor de biodiversidade a nível de paisagem consiste de uma rede de parques, reservas e outras áreas de uso menos intensivo que são gerenciadas de maneira integrada para garantir a sobrevivência do maior espectro possível de espécies únicas de uma região em particular. O termo "corredor" é algumas vezes enganoso pelo seu amplo uso em estudos científicos em referência a tiras de vegetação ligando blocos maiores de habitat nativo. Embora a criação dessas conexões com reforestamento e reabilitação de habitat serão necessárias em locais específicos, os termos "corredor ecológico" e "corredor de biodiversidade" são conhecidos no Brasil como iniciativas para desenvolver e implementar planos de conservação de larga escala para áreas-chave na Amazônia e na Mata Atlântica.

Com o uso de corredores a nível de paisagem como nossas unidades de planejamento, nós podemos conseguir o que o planejamento a nível de unidades de conservação individuais e zonas-tampão não pode: o direcionamento dos recursos destinados à conservação de forma que eles alcancem a máxima possibilidade de conservar a biodiversidade com o mínimo custo para a sociedade. Isto é fundamentalmente diferente da abordagem simplista das "áreas mínima" do passado, que não tratavam adequadamente dos problemas relativos ao isolamento e fragmentação e nem consideravam o quanto mais eficientemente os instrumentos de política econômica devem ser empregados na manutenção de grandes porções da paisagem mais hospitaleiras em relação à biodiversidade. Maior a flexibilidade nos métodos empregados para alcançar objetivos de conservação, maior é a chance de encontrar resultados mutuamente desejáveis.

O processo ambicioso de planejamento participatório para corredores regionais tem a intenção de desafiar e complementar os planos de desenvolvimento econômico para essas regiões pelos governos e agências multilaterais. Baseando-se grandemente na experiência do Corredor do Descobrimento, o Conservation International está agora planejando e implementando planos para corredores de biodiversidade na região do Pantanal e Cerrado no Brasil, nos Andes, Filipinas, Madagascar e outras áreas prioritárias de conservação no mundo.

Gustavo Fonseca, Ph.D.
Diretor Executivo, Centro de Pesquisa Aplicada à Biodiversidade do CI
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INTRODUCTION

The Atlantic Forest of Southern Bahia, Brazil is a conservation priority due to its exceptional biological diversity and endemism. Fragile remnants of the Atlantic Forest are in danger of irreversible fragmentation or even total destruction as a result of economic conditions caused by a prolonged recession in the global cocoa market. Declining cocoa prices over the last decade and the devastating effects of Witch's Broom fungus (*Crinipellis pernicioso*) on cocoa tree productivity have encouraged deforestation and land conversion away from the existing cocoa agro-forestry system, also known as *cabruca*. While the greatest priority for conservation is the remaining primary forest in the region, *cabruca* is also an important component of conservation on the landscape level since it maintains some degree of forest canopy habitat and serves as a buffer between primary forest and open agriculture and pasture. Conversion of *cabruca* to alternative forms of agriculture such as coffee represents an irreversible loss for conservation.

The objective of this study is to determine land use trends in southern Bahia and to identify options within this context for integrating permanent conservation into the landscape. The study assembles and synthesizes primary and secondary data elucidating the dynamics of land use in Southern Bahia, and addresses the following questions:

1. In the short, medium, and long term, what are the existing incentives and constraints affecting landholder decisions related to land cover change?
2. What are the 'leverage points' for influencing landholder decisions in favor of ecologically preferred land cover? What policy instruments might be acceptable to landholders and effective in influencing their behavior?

This study complements related studies conducted under World Bank and PROBIO project funding that focus on topics such as: remote sensing analysis of actual land use allocation in the region; land valuation surveys; and focus group studies on local perceptions of land use in the region and the viability of land use incentives for conservation.

The results of the study indicate that Southern Bahia is currently at an economic inflection point where the ultimate survival of cocoa as the backbone of the regional economy may be determined. The factors that will decide this fate include the price of cocoa, the ability of farmers in the region to combat Witch's Broom, the appearance of commercial infrastructure to purchase and process new agricultural commodities (coffee, fruit, *pupunha*) in the region, and the likelihood that land owners will shift away from cocoa farming and its incumbent absentee oversight culture in favor of more intensive modes of agricultural production such as those required for coffee. Farm-level analyses show that traditional land uses, cocoa and cattle, offer little or no financial opportunity, while new products such as coffee, *pupunha*, and fruits are expected to be more profitable although there are no established producers to verify these claims. Because many farmers are already highly indebted, farm credit is a limiting factor for farm re-vitalization with *any* product. In those cases where farmers are creditworthy, only subsidized farm credit is sought as normal private interest rates are very high as a result of Brazil's currency stabilization efforts. In the context of the uncertain economic situation of Southern Bahia, there exist a variety of potential incentive mechanisms for conservation.

- Provide credit to critically located farms for rejuvenation of cocoa agriculture in exchange for conservation set-asides on farm property in excess of the minimum 20 percent required by law;
- Purchase bankrupt farms in critically located areas, establish conservation areas, and destroy cocoa trees on the property that might re-infect neighboring farms in exchange for additional forest conservation on those neighboring farms; and,

MEMORANDUM

30 October 1999

TO: Ken Chomitz – The World Bank

CC: Keith Alger – Instituto de Estudos Socio-Ambientais do Sul da Bahia
Rui Rocha – Instituto de Estudos Socio-Ambientais do Sul da Bahia

FROM: Jared Hardner

SUBJECT: Land Use Trends and Conservation Opportunities in the Atlantic Forest of Southern Bahia, Brazil

- Offset forest clearing for alternative products by creating tradeable development rights that can be purchased from land owners with forests in critically located areas in excess of the minimum 20 percent required by law.

This memorandum is organized into three major sections. First, we discuss the overall land use trends and their relation to Bahia's competitive position in the global cocoa market. Second, we present farm-level analyses of cocoa, cattle, coffee, and a variety of alternative agricultural products appearing in the region at present. Finally, we discuss potential conservation incentives in the third section of the memorandum.

TRENDS IN LAND USE

Regional Cocoa Economy

Cocoa has been the dominant land use in Southern Bahia since the colonial era. Cocoa production was originally conducted on large landholdings (hundreds to thousands of hectares), historically controlled by individuals colloquially known as "colonels." In more recent decades, cocoa production has continued on increasingly smaller farms that resulted from dividing large plantations among children in family inheritances, now averaging 40 hectares in size. In the late 1970s, the combination of very strong international cocoa prices and a premium placed on the flavor of Bahian cocoa contributed to the very profitable production of this product in the region. During this "boom" period, land owners planted cocoa aggressively on over 600,000 hectares in Southern Bahia (pers. com., Ebiesel Nascimento Andrade Filho: Chief of Extension Center, CEPLAC).

The Impact of Witch's Broom

By the 1980s, the promising economic scenario took a decisive turn for the worse. With the concurrence of swift international price declines and the appearance of the damaging Witch's Broom fungus, the regional cocoa economy began to deteriorate. Because the falling price of cocoa did not support the rising labor costs associated with combatting the disease, and the shift in terms of trade for agricultural exports resulting from Brazil's *Plano Real*, most cocoa farms succumbed to infestation of the fungus. With the manifestation of Witch's Broom, production fell dramatically from 700 kg/ha to 150 kg/ha, or worse (pers. com., Claudio M. Dessimoni Pinto: Manager of Agronomy, Fazenda Almirante (Mars, Co.)) Both CEPLAC and local farmers indicate that Witch's Broom has effectively eliminated the profitable production of cocoa on farms in Southern Bahia. Today, rough estimates of the extent of productive cocoa trees range from 50,000 to 150,000 hectares. Of the land that is no longer productive, much has fallen into disuse due to the lack of credit to reinvest in new crops. Land that has been converted to other uses now supports cattle ranching and a host of other experimental products.

Witch's Broom is a fungus that penetrates the growing tissue of cocoa plants, causing apical division – the development of many small branches in the place of one single new branch, often having the appearance of a small broom and giving the manifestation of the fungus its name. The fungus also attacks the cocoa fruit, changing its external color from a healthy green, yellow or red, to black and destroying the internal quality of the fruit. At present there is no certain means to eradicate Witch's Broom from the region, though CEPLAC currently recommends two methods: biological control using the *Trichoderma* fungus; and, replacement of infested cocoa trees with clones resistant to witch's broom.

Trichoderma is a competitive fungus that halts the spread of Witch's Broom, or in some cases actually destroys Witch's Broom. The actual mechanism by which *Trichoderma* functions is unknown and experiments are underway to determine the most effective strains and modes of dispersal (pers. com. Smilja Lambert: Manager of Research, Fazenda Almirante (Mars Co.)).

By far a more popular alternative is replacing infected trees with clones resistant to Witch's Broom. Cloning is based on phenotypic resistance to the fungus only, and at present there is no plant physiological theory explaining resistance (pers. com., Smilja Lambert: Manager of Research, Fazenda Almirante (Mars Co.)). To date, there is no documented evidence that resistant clones maintain this resistance under the wide variety of agronomic conditions in which they are planted. Nevertheless, we encountered a series of farmers with adequate financing to invest in replanting their farms with clones from trees with phenotypic resistance. The new plantings show both resistance to infection as well as increased productivity (pers. com. and observation with farm owners, Alfredo Landim, Jose Roberto Benjamin, Augusto Roberto Sena Gomes). The extent to which this will be replicable in the region remains undetermined. CEPLAC expects that programs to replant cocoa will stabilize 300,000 hectares of production, or half of the region's peak extent.

Farm Credit

The development of potentially resistant clones of cocoa trees in the past two years is not completely sufficient to ensure the revitalization of cocoa in the region. The constraining factor is access to farm credit. At present approximately 80% of land owners in the region are in debt from subsidized farm loans (pers. com. Banco do Brasil) and are either unwilling or unable to shoulder more debt. Without access to inexpensive credit to revitalize farms, the properties remain either untended or are sold to individuals often from outside the region for conversion to other uses.

A complicating factor is the necessity for subsidized credit, as private loans carry real interest rates of approximately 20 percent. Subsidized farm loans are generally offered by Banco do Brasil or the regional development banks Banco do Nordeste and Desenbanco. Such loans are often bundled with a technical assistance package promoted by CEPLAC. At present there are R\$ 380 million available for cocoa re-investment (Banco do Brasil 75 percent, Banco do Nordeste 25 percent) bundled with a technical program developed by CEPLAC (Pers. com. name Banco do Brasil, pers. com. name CEPLAC). Nevertheless, many farmers are unable to access this credit because: i) they can not conduct replanting in the manner dictated by the banks; ii) the financing is insufficient to conduct replanting¹; ii) farmers are already in sufficient debt to prevent access to further credit.

Within this tight credit scenario, the Banco do Nordeste and the Desenbanco are offering R\$ 82 million for the conversion of land to coffee production in Bahia (*A Tarde* 7/20/99). It is the expectation of the development banks that this relatively new agricultural endeavor will prove a source of employment and economic growth. Farmers with whom we discussed this credit situation reported that bank requirements for coffee credit were less stringent than those for credit for replanting cocoa.

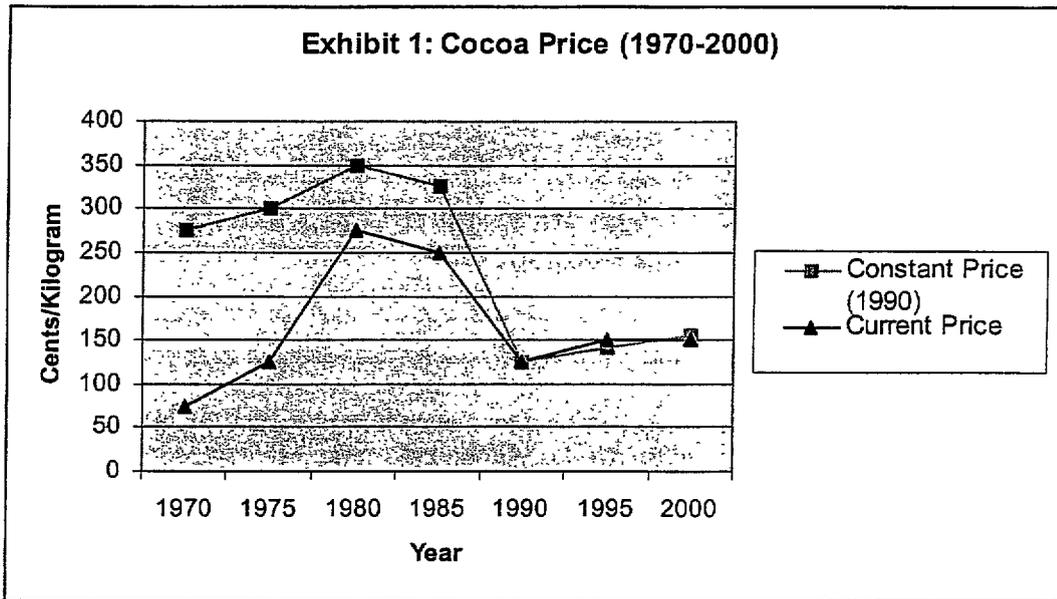
Cocoa Price

The price of cocoa has fallen dramatically in real terms since its peak in the late 1970s (Exhibit 1). Demand models for cocoa have predicted an increase in cocoa prices for a decade (UNCTAD, 1991; Andoh and Gately, 1989). The Andoh and Gately econometric model specifies cocoa price, real income in consuming countries, percentage of population that are children in consuming countries, and the price of confectionary as the critical explanatory variables for global cocoa demand². While real income has been increasing in consuming nations (World Bank,

¹ Financing for replanting is approximately R\$ 700 per ha, while farm interviews reveal replanting costs in the range of R\$ 2,400 to R\$ 3,000.

² The Andoh and Gately (1989) is specified as follows:

1999 World Development Indicators), this has been offset to some degree by the decline in the percentage of population that are children in those countries (World Bank, 1999 World Development Indicators). Nevertheless, the demand for cocoa in major consuming nations such as the U.S. has steadily increased (U.S. Department of Commerce, 1995 Current Industrial Reports).



Price remains low because producer nations have not been successful in managing global supply (cite ICCO paper), and the greatest producers have remarkably low labor costs (Ivory Coast, Ghana, and Indonesia), as seen in Exhibit 2. It is also easily observed that Brazil's labor wages are multiples of its greatest competitors. In this environment of falling prices and increasing labor costs, Bahia must increase productivity dramatically in order to offset its production costs. Productivity must increase from the previous maximum yield of 700 kg/ha to over 1000 kg/ha in order to achieve profitability at current prices.

Exhibit 2: Labor Costs in Cocoa Producing Nations

Exhibit 3 shows the growth of low cost cocoa exports from Brazil's competitors. At present, Brazil sells none of its domestic production on the international market, consuming most of its production domestically and exporting to Argentina under Mercosul trade protection. Cocoa

$$\text{Per capita demand} = \beta_0 + \beta_1(\text{Price Cocoa}) + \beta_2(\text{Income}) + \beta_3(\% \text{ Pop. Children}) + \beta_4(\text{Price Confectionary})$$

<u>Coefficient</u>	<u>Value</u>	<u>T-Statistic</u>	<u>Adj. R²</u>	<u>Durbin-Watson</u>	<u>F-Stat</u>
β_0	1.43	1.95	0.76	1.89	23.4
β_1	-0.05	-2.2			
β_2	0.24	3.9			
β_3	0.33	1.4			
β_4	-0.97	-3.5			

grindings that currently appear in Brazil's trade statistics are produced from beans purchased on the international market, processed in Brazil, and then exported.

Exhibit 3 Production and Export Volumes for Cocoa Producing Countries (000 tons)								
Country	1995/6		1996/7		1997/8		1998/9	
	Prod.	Export	Prod.	Export	Prod.	Export	Prod.	Export
Ivory Coast	1,200	1,038	1,108	928	1,113	931	1,100	966
Ghana	404	331	323	267	409	336	370	311
Indonesia	285	224	325	264	325	148	350	212
Nigeria	158	147	160	137	165	141	180	142
Brazil	231	0	185	0	170	0	160	0
Cameroon	135	93	126	95	127	86	130	91

Source: World Bank, 1999. *Global Commodity Markets*.

This scenario is not entirely gloomy. There exist several factors that could assist Brazil in re-entering the global market. First, Brazil is not the only nation susceptible to Witch's Broom (*Crinipellis pernicioso*) or a host of other cocoa pathogens such as watery pod rot (*Moniliophthora roreri*), black pod disease (*Phytophthora spp.*), *Ceratocytis* wilt, vascular-streak dieback (*Oncobasidium theobromae*), and swollen shoot virus (CSSV). If, for example, Ivory Coast were to succumb to witch's broom, without decisive intervention their cocoa economy could be destroyed in much the same way it destroyed Bahia. The elimination of such a major producer would surely elevate global prices.

A second factor is the access to land for new cocoa plantings. Cocoa cultivation costs are kept low in most producing nations by replanting on forested lands rather than on existing agricultural or aging cocoa farms. The reason is that establishment of cocoa within forests eliminates the need for intensive weeding and chemical inputs – a concept known as "forest rent" (Ruf, 1995). Eventually, forests will no longer be available for replanting, especially in the large producing nations of Africa (Ruf, 1998). As this begins to occur, producer prices should increase.

The Shift to Alternative Land Uses

The recession in the cocoa economy has been accompanied by a shift toward alternative land uses in the region. Two characteristics of this shift are noteworthy: i) land owners demonstrate reluctance to shift entirely out of cocoa production, but rather seek opportunities to put the least productive cocoa plantings into alternative crops in an effort to stem the tide of farm losses during this recession in the cocoa economy; ii) alternatives are adopted on an experimental basis, often without concrete demonstration of long-term economic potential. Nevertheless, more than half of the original *cabruca* will ultimately be converted to another land use. In this section we discuss the economics of alternative land uses.

Soils

During the cocoa economy boom of the 1970s, the total area planted in cocoa in the region reached 600,000 ha. This area greatly exceeded that appropriate for cocoa production. Cocoa grows best on *alfisols* of at least 80 cm depth, a soil profile that comprises approximately seven percent of the land area of the *cabruca* region of Southern Bahia³. High cocoa prices drove land owners to plant cocoa on marginal lands that exhibited neither proper soil nor moisture

³ A detailed soils map is available at IESB and CEPLAC, but could not be acquired for inclusion in this report.

conditions. Cocoa trees appeared on *latasols* and *oxisols* as shallow as 20 cm in depth. Farms compensated for sub-optimal cocoa cultivation conditions with fertilization and other chemical and labor inputs. As prices fell, it became impossible to cover these costs, and such lands were the first to be taken out of cocoa. At present, shallow *latasols* are finding use as a medium for coffee cultivation.

Cattle and Dairy Production

Five years ago IESB researchers Reid and Blanes reported an alarming rate of conversion of *cabruca* to pasture (Reid and Blanes, 1995). At that time, it appeared that witch's broom and low cocoa prices were encouraging a large-scale shift away from cocoa farming in favor of cattle ranching. Reid and Blanes cite a 19 percent increase in the number of cattle between 1985 and 1989, and a notable area of new pasture appearing around the towns of Una and Camacan. In addition, subsidized financing encouraged the adoption of dairy production in place of the traditional extensive ranching practices (one head per ha) of the region. Interestingly, this study found the conversion rate of *cabruca* to pasture to have fallen, and interest in dairy production to be insignificant (pers. com., Claudio M. Dessimoni Pinto: Manager of Agronomy, Fazenda Almirante (Mars, Co.)) Indeed, the threat of ranching seems to have given way to coffee cultivation. The short-lived expansion of cattle production is characteristic of the "flash-in-the-pan" interest in alternative land uses in the region.

Land conversion to cattle production was most swift in the area around Camacan. This is explained by two factors: Camacan was the first and hardest hit by witch's broom in the region; and, there was a fair amount of land planted in cocoa that was inappropriate for such use. The swift economic blow suffered by the region led to the need for a ready alternative to cocoa production, particularly for the marginal lands that were expensive to maintain. Among the options to which land owners were accustomed, cattle ranching was attractive because it was not intensive, required minimum investment, and in most cases was already being practiced to a smaller extent on their farms (pers. com. Edmundo Paolilo Mandarino, Gerente Technico, FUNDECAU). Marginal cocoa-growing land was therefore converted to pasture.

The conversion of *cabruca* to pasture has not proceeded in a meaningful way to land that is well-suited for cocoa growing (pers. com. Edmundo Paolilo Mandarino, Gerente Technico, FUNDECAU). This is characteristic of the adoption of alternative land uses in the region. Land holders tend to exhibit aversion to converting away from traditional cocoa growing practices (Johns, 1999), and prefer to avoid large-scale adoption of any one alternative. There are several reasons for this behavior. First, cocoa has represented the backbone of agricultural production in the region since the colonial era. Land owners are far less knowledgeable about alternative products. Second, cocoa is easy sell. All cocoa farmers that participated in this study reported that cocoa is "like money-in-hand." This is because there is a well developed infrastructure for cocoa commercialization, with large buyers such as Cargill and ADM always prepared to purchase it. Alternative products, even beef, are more difficult to sell. Third, cattle ranching is not very profitable. As we show in the micro-economics section, cattle ranching generates a meager profit. As this reality has sunk in, enthusiasm for the conversion of *cabruca* to pasture has waned.

Robusta Coffee

History has a tendency to repeat itself, and landowners remain in search of a viable alternative land use. The combination of government promotion, subsidized credit (as described earlier), and a highly-visible coffee investment of several hundred hectares near Camacan all contribute to a growing trend towards coffee cultivation. Each of the land owners that contributed to this study, with the exception of one, is planting coffee on lands not suitable for cocoa (largely shallow *latasols*). Based on informal observations and discussions with land owners, it appears that the conversion rate to coffee is increasing.

The critical factors that will determine the continued conversion to coffee planting are: 1) erosion of soils in coffee plantation due to the forest clearing and steep topography of the region; 2) the ability of land owners to shift away from absentee farm management to intensive coffee management; 3) the long-run profitability of *robusta* cultivation in the context of high labor and chemical inputs and a depressed international coffee market. At this time, coffee seems to be adopted on an experimental basis and only as a hedge against continued depression in the cocoa economy.

Other Alternatives

In addition to cattle and coffee, there are a host of other products cultivated in the region, including pupunha, black pepper, cloves, coconuts, and various fruits. In most cases the adoption of these products is part of a portfolio of other products, and at present mostly on an experimental basis. There is almost no concrete data on the long-term potential of these products, as experience producing them is short, and in most cases there is little or no means to commercialize the product. We examine the farm-level economics of producing a variety of these products in the following section.

FARM-LEVEL ECONOMICS

This section describes the farm-level economics of a variety of products, including replanting cocoa plantations damaged by witch's broom. While the data for the major products (cocoa, coffee, and cattle) are from primary sources, the remainder are derived from research on alternative products conducted by CEPLAC. In Exhibit 4, we present the costs, productivity, and profitability of each product on a per hectare basis. All costs are averages for operations of 40 ha in size, but are indicative of farms of most sizes as mechanization is not a factor in creating economies of scale for any of these products. We calculate the NPV of each activity over a ten year period, using a 20 percent discount rate. Planting and installation costs are assumed to be paid up-front and are not depreciated over the 10 year period.

Based on the figures in Exhibit 4, one can see that if production targets for replanted cocoa are met, the product could return to profitability. It is also important to note that none of the farmers that participated in this study or representatives of CEPLAC, FUNDECAU, or Almarante Cacau saw alternative products as a complete substitute for cocoa, but rather a complement. Therefore, a measure of profitability alone provides an inadequate argument for full-scale production.

In addition, each product carries a risk in price movement as well as natural growing conditions as they occur from year to year. For this reason, the land owners that participated in this study stated that they chose to diversify their output. Further examination of this strategy reveals that it does not imply the cultivation of products with inverse price behavior or complementary weather requirements – that is to say, the strategy is no more sophisticated than diversification for the sake of diversification.

EXHIBIT X													
FARM-LEVEL ECONOMICS IN SOUTHERN BAHIA													
(ALL UNITS EXPRESSED IN 1999 \$US PER HECTARE)													
	Cocoa	Major Alternatives				Minor Alternatives							
		Cattle	Coffee	Pupunha	Manioc	Graviola	Guarana	Coconut	Banana	Acerola	Black Pepper	Cloves	Urucum
Establishment/Planting Cost	\$ 1,000	\$ 150	\$ 3,390	\$ 3,133	Annual crop, planting costs included below	\$ 1,575	\$ 1,481	\$ 771	\$ 2,470	\$ 1,594	\$ 6,671	\$ 1 955	\$ 2,365
Time to yield	3 rd yr	2 nd yr	2 nd yr	3 rd yr	1 st yr	2 nd yr	3 rd yr	5 th yr	2 nd yr	3 rd yr	3 nd yr	5 th yr	3 rd yr
Annual Cost Pre-Yield	\$ 400	NA	NA	\$ 722	NA	NA	\$ 350	\$ 146	NA	\$ 266	\$ 2,960	\$ 300	577
Annual Costs During Yield													
Labor	\$ 242	\$ 18	\$ 1,389	\$ 319	\$ 694	\$ 495	\$ 560	\$ 57	\$ 358	\$ 409	\$ 296	\$ 80	\$ 438
Fertilizers	\$ 50	NA	\$ 250	\$ 266	\$ 224	\$ 284	\$ 44	\$ 70	\$ 227	\$ 146	\$ 219	\$ 300	\$ 99
Herbicides, Fungicides, Insecticides	\$ 12	NA	\$ 556	\$ 52	\$ 6			\$ 6				\$ 30	\$ 10
Fuel/Transport	\$ 5	NA	\$ 28	\$ 40	\$ 23	\$ 28	\$ 4	\$ 44	\$ 23	\$ 15	\$ 23	\$ 171	\$ 11
Maintenance	\$ 22	NA	\$ 22	\$ 22	\$ 22	\$ 22	\$ 22	\$ 22	\$ 22	\$ 22	\$ 22	\$ 22	\$ 22

Attachment Brazil-4

Other	\$ 39	(Calves) \$ 37	\$ 39										
Revenue													
Planting/Stock Density	1,000	1	2,222	500	1,600	400	625	205	1,111	625	2,000	100	500
Annual Yield	500 to 1,000 kg	75 kg	2,000 to 2,700 kg	5,000 to 6,000 kg									
Price	\$1.04/kg	\$ 1.15/kg	\$ 1.21/kg	\$ 0.17/kg									
Annual Revenue	\$ 520 to 1,039	\$ 86	\$ 2,420 to 3,255	\$ 850 to 1,000									
NPV 10 yrs. (20% Dis. Rate)	\$ -853 to 806	\$ -25	\$ -2842 to 524	\$ - 3,252 to - 2,772									

122

OPPORTUNITIES FOR CONSERVATION

At present, legislation requires that land owners preserve 20 percent of their property in natural forest. Unfortunately, the sum of many fragmented conservation units does not provide the same ecological benefits as a contiguous forest corridor of equal size. Our objective is to identify opportunities to optimize the spatial arrangement of forest conservation units, and if possible increase their total area. Based on the land use trends identified in this study, we present three potential mechanisms by which this conservation concept can be promoted in the region:

- Provide credit to critically located farms for rejuvenation of cocoa agriculture in exchange for conservation set-asides on farm property in excess of the minimum 20 percent required by law;
- Purchase bankrupt farms in critically located areas, establish conservation areas, and destroy cocoa trees on the property that might re-infect neighboring farms in exchange for additional forest conservation on those neighboring farms; and,
- Offset forest clearing for alternative products by creating tradeable development rights that can be purchased from land owners with forests in critically located areas in excess of the minimum 20 percent required by law.

The first two options will require external financing, the source of which is not yet identified. The third option merely requires a change in the current forest protection legislation. The next section explains each option in detail, followed by a summary of feedback from land owners on their viability.

Conservation Mechanisms

At present there are two means by which landowners will survive the current economic situation: replant cocoa and increase productivity by 50 percent; and, find viable alternatives to cocoa. It is likely that the regional economy is at an inflection point where either of these two options might work, or neither. The limiting factor in developing either strategy for most land owners is access to credit to replant their farms in cocoa or alternative products. For others, farms may likely remain abandoned until sold or repossessed to pay bank loans. Within the context of this uncertain future, conservation opportunities arise as a component of a regional revitalization initiative. Mechanisms that directly address land owners immediate needs are most likely to succeed. Furthermore, conservation for non-economic reasons at this point in time is likely to be perceived negatively by many.

For this reason, a credit program that assists landowners in the re-establishment of cabruca farms offers appeal. The advantages of this approach are that economic recovery is promoted, and conservation of both forest and cabruca are promoted. The disadvantage of this program is that increased cocoa prices and improved productivity are not certain eventualities. A credit program could distort market signals and further the indebtedness of land owners. Nevertheless, binding long-term conservation agreements associated with the credit program could ensure permanent protection of forests whether cocoa investments succeed in paying out or not.

The purchase of defunct farms is a less direct economic intervention. At present land prices are extremely low (see Heloisa's study) and land owners that wish to sell are finding it difficult to find buyers. The purchase of defunct farms could serve as a means to relieve land owners of debt and permit the allocation of forests on these properties into permanent protection. This strategy offers an interesting leveraging opportunity. Land owners that are currently replanting cocoa indicate that neighboring abandoned cabruca re-infects their new plantings. Though replanted cocoa exhibits resistance to witch's broom, the presence of nearby infected

trees is reported to increase the chance that infection will re-occur in resistant trees in addition to infection of cocoa fruits themselves, which are not resistant under any circumstances (pers. com., Claudio M. Dessimoni Pinto: Manager of Agronomy, Fazenda Almirante (Mars, Co.)). The opportunity exists to destroy infected cocoa trees, leaving the remainder of the cabruca forest matrix intact, on purchased properties in exchange for increased forest and cabruca protection on neighboring farms. This is a service that would otherwise not be performed by any entity. To further enhance this option, land that is already cleared on these properties, as well as farm buildings, could be resold to INCRA for resettlement programs.

Tradeable development rights offer a series of complementary advantages to the previous two mechanisms. Tradeable development permits would be utilized by those land owners whose profitability is constrained by the maintenance of legally required forest reserves. First, there is less implied reliance on the success of any particular agricultural initiative. Those land owners who succeed at making a turnaround with any product may purchase development rights from land owners that are either not interested in expanding production and/or are in need of additional income. Tradeable development could prove key to offsetting the ecological impacts of intensive land uses such as coffee cultivation. Lastly, tradeable development permits could serve as a retro-active mechanism for paying penalties for failure to obey the law and preserve 20 percent of land in natural forest. Much like natural resource damage retribution is accomplished in the U.S., penalties can be assigned in the form of purchase of development rights from other land owners with natural forest areas in excess of 20 percent of their land area.

In addition to forest protection using these mechanisms, it may be desirable to restore forest habitat on critical parcels of land. In these cases, the same mechanisms could be used to encourage reforestation and landscape restoration. Though this option is second-best to protection of existing forests from the perspective of ecological value, exhibit x provides a cost assessment for such activities. See dec 98? Forest ecology and mgmt, also see fearnside's carbon paper....

Exhibit x: Costs of landscape restoration

The Costs of Conservation Actions

It is likely that no one conservation mechanism will provide the perfection solution achieving the conservation objectives for this region. In some cases land purchases where agricultural revival is impossible will make more sense than subsidized credit, and vice versa. Determining the relative costs of each mechanism is critical in order to assess the relative tradeoffs associated with the use of different combinations of mechanisms to install a biodiversity corridor in the region. Exhibit x provides a generic estimate of these costs.

Exhibit X Costs of Conservation Mechanisms (\$/ha)	
Land purchase	See results from Heloisa's study (approx. \$500/ha)
Credit	Ken, how would the bank cost this out?
Tradeable Development Permits	\$0

Focus Group Feedback

INSERT HERE RESULTS FROM FOCUS GROUPS

124

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Appendix A: Data Sources

This study is based on both primary and secondary sources of information, as outlined in Exhibit X. To the extent possible, the study attempts to verify, or triangulate, on data provided by both primary and secondary sources. Due to the scarcity of farm-level data that is properly organized, or even collected at all, and the short period of time that many alternative products have been in cultivation, it is not possible to provide a complete statistical analysis.

EXHIBIT X		
FARM-LEVEL ECONOMICS DATA SOURCES		
<i>Data</i>	<i>Primary Sources</i>	<i>Secondary Sources</i>
Cocoa costs and revenues	4 cocoa farmers in region	
Coffee costs and revenues	3 coffee farmers in region	CEPLAC
Cattle costs and revenues		IESB survey of cattle economics
Pupunha costs and revenues	1 pupunha farmer in region	CEPLAC
Seringa costs and revenues		CEPLAC
Graviola costs and revenues		CEPLAC
Guarana costs and revenues		CEPLAC
Coconut costs and revenues		CEPLAC
Banana costs and revenues		CEPLAC
costs and revenues		CEPLAC
Forest restoration costs	Rio Vale Doce, S.A.	Various (see literature citations)

Appendix B: Soils

DEBT RELIEF AND CONSERVATION IN SOUTHERN BAHIA:
OPPORTUNITIES AND IMPEDIMENTS

Anita Sundari Akella and James Cannon, Conservation International

I. Introduction

Recent work done by a partnership between IESB, CI and the World Bank in the Atlantic Rainforest of Southern Bahia has focused on identifying economic incentives that could encourage the protection of privately-held forest lands as part of a conservation strategy for the region. Among the economic incentives that have been discussed as potential conservation tools in Southern Bahia are outright purchase of forestland from indebted farmers, exchanging debt relief for conservation agreements, offering credit to farmers in exchange for conservation set-asides, and creating a system of tradable development rights to forested land.

The idea that relieving debt in exchange for agreements limiting land use or establishing RPPNs could be a viable conservation tool arises from the perception that many cacao farmers in Southern Bahia are highly indebted, and that much of the remaining Atlantic Forest lies in their lands. Working with banks to negotiate debt, while simultaneously negotiating conservation agreements with indebted farmers, seems like an excellent way to use indebtedness to leverage more conservation of remaining forest fragments. In the short-run, the debt relief option may also be preferable to other economic incentives like offering credit or creating a system of tradable development rights, because it carries little financial risk and can be implemented in the near-term.

Debt in Southern Bahia presents both a threat and an opportunity for conservation efforts in the region. The threats are multiple – on the one hand, indebtedness and the lack of new credit that accompany it increase producer incentives to illegally log or to expand agricultural cultivation into their forested land in hopes of making a buck. On the other hand, indebted farmers who are interested in selling or protecting a portion of their land in exchange for a conservation payment of some sort may be unable to do so because their land is held as collateral by creditor banks. Opportunity arises from the fact that indebtedness can be used to leverage conservation, since both the banks who hold debt and the farmers who owe it potentially have something to gain from negotiating with the conservation community.

This study investigates the question of Southern Bahia's cacao farmer debt and its conservation implications more closely, hoping to answer a series of questions that will shed light on the applicability of a debt relief strategy while also providing insights that can facilitate implementation of such a strategy. The origin, terms and status of loans taken out by cacao farmers since the 1970s are examined in an effort to characterize current debts and assess their current value. Data on debt levels by type and municipality are then analyzed to describe the distribution of debt and the viability of using debt as leverage in making conservation deals. The form of debt-for-conservation agreements and impediments to their success are also discussed.

The results of this inquiry show that while exchanging debt relief for conservation is a very promising tactic for some areas and with some farmers of Southern Bahia, it cannot be viewed as a regional conservation strategy. The distribution of debt across municipalities varies greatly, as does the distribution of forest remnants across municipalities, making debt relief a more effective strategy in some places than in others. Furthermore, since the majority of debtholders are medium and large farmers, any conservation strategy that focuses on debt relief will necessarily apply to only a small segment of producers. In the end, it becomes clear that debt relief is an important conservation tool, but one which must be strengthened by institutional capacity building and complemented by other economic incentives if conservation on a large scale is to be achieved.

II. History of Cacau Debt in Southern Bahia

Between 1960 and 1993, Banco do Brasil was the primary creditor for cacau farmers in Southern Bahia, supplying close to 99% of the credit available to farmers of all sizes in the region (José Brandt Silva Filho, pers. comm.). Other banks that were involved to a lesser degree in offering cacau credit included the now-defunct institutions Banco Economico and BANEBA. The sources of this financing were varied – some of it came from the banks' own coffers, some was passed to the banks from the Tesouro Nacional, some was passed to banks from specific government agricultural funds such as PROCACAU. While some involved in this work have highlighted BNDES as a key creditor to cacau cultivators, a number of sources reported that BNDES did not enter the cacau financing arena until 1995/96, and has only ever been a 'repassador' of funds from the Tesouro Nacional to those banks who are actually making loans (José Brandt Silva Filho, Elieser Barros Correia, Sergio Pedrosa, pers. comm.).

The majority of loans given to cacau farmers fall into two categories – *investimento* loans and *custeio* loans. *Investimento* loans were given for activities that would generate returns in the medium- to long-run, including such items as infrastructure and new plantings. The property of the farmer in question was generally offered up as collateral for an *investimento* loan. *Custeio* loans were used to cover costs associated with one harvest – for example, costs of inputs and labor – and would generate returns in the short term. This type of loan enabled a producer to hold onto his cacau until the season in which prices had risen, rather than having to sell product in the time of year when prices were low to cover his costs for the next harvest. *Custeio* loans did not require the same type of collateral as *investimento* loans, rather, a guarantee in terms of *arrobas* of cacau was offered, and this determined the value for which the loan could be taken (*penhor de safra*). For example, a cacau producer would take out a loan in local currency, which would then be converted into *arrobas* of cacau owed using dollarized world cacau prices at the time the loan was taken, to estimate how many *arrobas* were owed. When the loan came up for repayment, the principal plus interest and other charges would again be converted into *arrobas* of cacau according to the dollarized world price of cacau at the time of repayment. *Custeio* loans represent the majority of loans that were made to cacau producers from the 1970s onward.

Between 1960 and 1983 – perhaps as part of the government initiative to incentivize the planting of cacau, whose world price in the 1970s approached US\$4000/metric ton – heavily subsidized¹ credit was offered to cacau farmers. This subsidization resulted from nominal interest rates that were consistently and significantly lower than inflation rates – although inflation rates ranged from 18% to 225% during this time period (Nascimento et al. 1994), debtors were not required to pay any sort of 'monetary correction' to compensate for the decreased value of the money they were paying back. Subsidization was at its lowest in 1973, when it was 12.8% (Nascimento et al. 1994) (See Figure 1). Between 1973 and 1983, the rate of subsidization increased steadily with inflation rates, reaching 79.2% in 1981. From 1983 onward, monetary correction was introduced to agricultural credit, as debtors were charged either ORTN (a measure of monetary correction used until 1986) or some percentage of it in addition to interest – the rate of subsidization dropped to 15% in 1983 and to 5% in 1984. By 1985, interest rate plus monetary correction charged was equivalent to the rate of inflation, bringing this form of subsidized agricultural credit to an end.

Any cacau farmer will tell you that 1985 was a bad year for many reasons. In addition to the fact that it heralded the end of subsidized credit for cacau production, 1985 was also the year in which:

- the Banco do Brasil prohibited further financing of *investimento* loans and began decreasing the number of *custeio* loans offered (José Brandt Silva Filho, pers. comm.);
- a prolonged drought which lasted until 1989 began, significantly reducing Southern Bahia's cacau production;

¹ This 'subsidy' is defined by Nascimento et al. as being equivalent to $1 - (\text{interest rate}/\text{inflation rate})$.

- cacao prices fell to roughly \$2000/ton, their lowest level in close to a decade;
- inflation rates of 225.5% significantly augmented the costs of farm inputs and labor;
- technical assistance to cacao farmers decreased.

The rapid decline in the availability of credit to cacao producers between the late 1970s and the early 1990s was marked, although the reasons for this decline are uncertain – particularly given the fact that the government had heavily encouraged expansion of cacao planted area throughout the 1970s. Government may have been attempting to end the country's inflationary crisis by decreasing the supplies of money and credit in the economy, or may have decided to invest elsewhere when cacao prices began to fall in the mid-1980s². Between 1977/80 and 1989/92, the amount of credit given to cacao producers dropped from US\$121 million to US\$3.4 million. Between these dates, availability of *custeio* loans fell by 98% -- these loans decreased in number from 5,208 to 612, and decreased in value from US\$72.8 million to US\$3.4 million. As a result of Banco do Brasil's prohibition of *investimento* loans, the amount of financing offered for investment purposes declined from US\$48.9 million in 1977/80 to US\$60,000 in 1989/92 (Nascimento et al. 1994).

Given rising input and labor costs, depressed prices and the lack of access to new credit, many of the cacao farmers who had borrowed money to cover harvest costs or investments in the 1980s decided not to pay back their loans. A cacao farmer will tell you that there was no way to pay back loans, because prices were low, and costs and interest rates high. While there were certainly many variables acting against the interests of cacao producers, others will tell you that these same producers – addicted to highly subsidized credit and very high profitability – could have paid, but simply chose not to.

According to bank sources, a significant proportion of cacao farmers did not even take loans in the 1970s and 1980s, and were able to cover their costs using farm income – this undermines the claim of medium to large indebted cacao farmers that it was impossible to make a living off of cacao without taking on debt in this era. In fact, there is a widespread perception among many in Southern Bahia that highly subsidized loans were taken by cacao farmers not to pay for farm operations, but because they provided a cheap source of financing which could be used to buy pricey condos on the beaches of Salvador and other such luxury items. Furthermore, bank officials assert that some 50%-60% of the cacao farmers who incurred debt in these years actually did pay off their debt – again, undermining the claims of indebted cacao farmers that high interest rates and costs in an era of low cacao prices made it impossible to pay off debts.

A simple true example of the workings of a *custeio* loan³ – the most significant contributor to cacao debt between the 1970s and the early 1990s – supports the hypothesis that many cacao farmers could have paid their debts had they chosen to do so.

- In 1988, a farmer offered 10,500 *arrobas* of cacao as a guarantee for a loan taken through the Banco do Brasil.
- A loan valuing Cr\$764,000 was taken, and using dollarized cacao prices, the Banco do Brasil estimated that the value of this loan in *arrobas* of cacao was 865 *arrobas*.
- Given interest and other bank charges, the farmer would have expected to hand over more than 865 *arrobas* of cacao to the bank when the loan came due.
- When the loan came due, the monetary value of the total (principal+interest+bank charges+monetary correction) owed was Cr\$70,652,428⁴. This value was then translated into *arrobas* of cacao using the dollarized world price of cacao at the time

² A specific government statement on the reasons behind this credit decline was not found in available sources.

³ This example is taken from a study of 57 loans done at Banco do Brasil. Since the study is confidential, further source information is not given.

⁴ Inflation rates in this era were roughly 685% (Nascimento et al. 1994)

the loan came due. In the end, the farmer was asked to hand over 785 *arrobas* of cacao to the bank.

In the end, the farmer in the example above ended up paying less than the principal of his loan (865 *arrobas*, vs. 785 *arrobas* paid back) to the bank, in spite of monetary correction and high interest rates, because the price of cacao had risen in the time period before his loan came due. The example of this farmer is by no means an exception. A sample of 57 loan contracts given by the Banco do Brasil to mini, small, medium and large producers between 1987 and 1992 shows that 64% of debtors actually owed less than the value of their principal in *aroba* terms when their *custeio* loans came due. For 1987 contracts, farmers paid back an average of 30% less, and they also paid 27% less and 18% less on contracts taken out in 1988 and 1989, respectively. In 1990, when cacao prices dropped sharply, farmers paid roughly 23% more than principal on loans taken out in that year. In 1991 and 1992, they paid approximately 1% more. This evidence contradicts the allegation that interest rates were so unreasonably high that farmers could not have possibly paid their debts even if they had wanted to.

Surely, the notion that cacao farmers could have paid their debts if they wanted to does not alter the conservation community's desire to use debt relief as an instrument for achieving more protection and healthier ecosystems in Southern Bahia – although it certainly brings up some ethical questions, such as whether we should be rewarding those farmers who are indebted because they didn't want to pay while ignoring those farmers who actually paid or those who never had access to credit. However, the analysis above does give us an insight into the people that we will be trying to establish conservation agreements with, and should signal to us that we need to use the utmost caution and rely heavily on binding contracts, monitoring and enforcement if we hope to make conservation agreements that cacao farmers will adhere to.

III. Debt, Delinquency and Deferral

Indebtedness among Southern Bahia's cacao farmers is to some extent abetted by the very banks to whom they are indebted. Rather than enforcing payment or seizing properties when debts are not paid, Banco do Brasil (the largest creditor in the region) has accommodated debtors by continually rescheduling and delaying the repayment periods of outstanding loans. The reasons for this leniency are unclear – a lack of enforcement capacity, lack of political will, high costs of collection, unwillingness to have to deal with seizure and sale of properties, and lack of incentive given the fact that Banco do Brasil is a state-owned enterprise which will not be allowed to fail may all be factors. Interestingly, while debts from as far back as the mid-1980s have not been repaid, they have not yet been written off as losses either.

Instead, as stated, loan conditions and terms have been rescheduled a number of times since 1988 in hopes of facilitating repayment. Rescheduling has encompassed *custeio* and *investimento* loans to cacao producers, as well as other rural investment loans made in the cacao region (Sergio Pedrosa, pers. comm.). The payment periods of these debts were rescheduled every two years between 1988 and 1998. The 1992 rescheduling – initiated when vassoura de bruxa began contaminating the region, causing productivity to fall by 40% (CEPLAC 1999) – involved the consolidation of all a farmer's previous debts into one unique debt, and made new *custeio* credit for combatting vassoura de bruxa (through pruning and use of defensive agents as recommended by CEPLAC) available to farmers.

The Programa de Recuperação de Lavoura Cacaueira Bahiana

As vassoura de bruxa became more problematic in the region, a new source of financing for cacao farmers – the *Programa de Recuperação de Lavoura Cacaueira Bahiana* (PRLCB), or Program for the Recuperation of Bahian Cacauculture – was initiated in June 1995. Thus far, there have been three stages of financing through this program: the first stage covered June 1995 to June 1996, the second stage December 1996 to December 1997, and the third stage –

which is currently in operation – began in March 1999. The goal of this line of credit is to combat vassoura de bruxa through cutting and destruction of the infected parts of the plant, use of biocontrol techniques, and replanting of infected cacau areas with 'tolerant' cacau. Under this program, financing is available to farms of all sizes, ranging from mini producers to large producers. The banks in Southern Bahia have established a sort of division of labor in terms of which clients they give credit to:

- Mini Producers – those who rely on agriculture for at least 80% of their income, and whose Gross Annual Agricultural Income is less than R\$22,000 – were serviced in the first and second stages by the now-defunct BANE (Bahia State Bank), and are now serviced by the Banco do Nordeste, using funds from the Fundo de Desenvolvimento do Nordeste (FNE – Fund for the Development of the Northeast);
- Small producers – those who rely on agriculture for at least 70% of their income, and whose Gross Annual Agricultural Income is between R\$22,000 and R\$48,000 – are serviced by Banco do Brasil, using funds from the National Treasury;
- Medium producers – those who rely on agriculture for at least 60% of their income and whose Gross Annual Agricultural Income is between R\$48,000 and R\$362,000 – are serviced by Banco do Brasil, using funds from BNDES;
- Large producers – those whose Gross Annual Agricultural Income is greater than R\$362,00 – are also serviced by Banco do Brasil, also using funds from BNDES.

In the first and second stages of the PRLCB financing, interest rates for mini and small producers were 4% + TJLP (a monetary correction measure currently equivalent to roughly 18% per year). Interest rates for medium and large producers were 6% + TJLP annually.

Given the virulence of vassoura de bruxa's spread through the region, the control methods that loan money was spent on proved largely ineffectual, and these debts were incurred without yielding improvements in productivity. In June 1998, before the first and second stage debts had come due, and before the third stage of funding was disbursed, these loans were renegotiated. In the renegotiations:

- PRLCB debts from the first and second stages of funding were consolidated and rescheduled such that payments would begin in July 2002 and continue for 10 years;
- The interest rate on all PRLCB loans taken after July 1997 was reduced to 3% + TJLP for mini and small producers, and to 4% + TJLP annually for medium and large producers.

Approval of contracts for the third stage of PRLCB financing is ongoing, an estimated R\$20 million have been liberated thus far, and some speculate that total funding liberated in this stage will fall far short of what was lent in the first and second stages (Elieser Barros Correia and others at CEPLAC, pers. comm.).

Securitization and PESA

The 1996 loan rescheduling was called *securitização*, securitization, and encompassed all previous rural debts – not only those of cacau farmers– up to a value of R\$200,000⁵. The bulk of the debt that was securitized had been accumulated between 1986 and 1994, but had never been paid off (José Brandt Silva Filho, pers. comm.). In this securitization process:

- The value of an individual's debt as of 11/30/95 was taken as a baseline figure, and the debt was divided into 10 equal parcels to be paid over a 10 year period beginning in 1997.
- In addition, debtors would pay annual interest of 3% corrected for inflation by using the percentage variation in the government-established prices floors for corn or soy (the producer

⁵ The newer PRLCB loans offered beginning in 1995 were not included in securitization.

would choose one of these commodities when his loan was securitized). For example, if the price of corn increased 4% in a year, the interest paid that year would be 7%.

- No collateral was refunded to the debtor upon entering into a securitization agreement.

In 1998, a new program called PESA – *Programa Especial de Saneamento de Ativos* – was created to extend rescheduling to the portion of rural debts that had not been included in securitization because they exceeded R\$200,000. For example, if a farmer had R\$300,000 of debt, only R\$200,000 of it would have been eligible for restructuring through securitization. PESA offered this farmer an opportunity to reschedule the remaining R\$100,000 of his debt, although according to slightly different terms:

- The debtor was asked to pay 10.336% of the current value of debt exceeding R\$200,000. This 10.336% would be used to purchase Brazilian Treasury Bonds, which over a 20-year time horizon were expected to yield sufficient returns to cover the capital of the loan. The farmer with R\$100,000 of non-securitized debt, for example, would pay R\$10,336 for the purchase of Treasury Bonds to the bank, which was expected to grow to R\$100,000 over 20 years.
- In addition to the initial 10.336%, the debtor would also have to make annual payments equivalent to 8% of the total debt corrected by the IGPM (*Índice Geral de Preços das Mercadorias*, a general price index, currently equivalent to roughly 4.5%) for 20 years. For example, the farmer with R\$100,000 of debt in PESA would pay R\$8,000 per year plus an additional R\$4500 in a year when the IGPM was 4.5%.
- Upon payment of the initial 10.336%, 50% of the value of the PESA debt would be liberated as a guarantee. For example, the debtor with R\$100,000 of PESA debt would have R\$50,000 in guarantees made available to him upon paying R\$10,336.

As of 1999, a large number of the debtors who had their loans renegotiated through securitization and PESA were still not paying off their loans. According to data from Banco do Brasil, 2,331 Bahian producers were delinquent in their payments by June 1999⁶. As a result, both the securitization debts and the PESA debts had their repayment periods deferred by the bank in late 1999, so that payments that should have begun in 1997 will now begin in 2001. Furthermore, the bank is offering bonuses to anyone who pays on time – payments made in 2001 on up to R\$50,000 of credit will be discounted by 30%, payments on loans in excess of R\$50,000 will be discounted by 15%. Whether these bonuses will extend to each year of repayment is unclear⁷.

One interesting result of these payment deferrals is the fact that the bank now cannot seize any debtor's property, because technically, nobody is delinquent on payments. Property can only be seized if the producer tells the bank that he refuses to ever pay back his loans. Therefore, the bank's ability to force people to pay by threatening to seize their land has been foregone, as has the possibility of the conservation community purchasing seized lands at a discounted rate from the bank (Sergio Pedroso, pers.comm.).

Firm numbers on how much securitized and PESA debt exists in Southern Bahia are hard to come by, although regional debt undoubtedly lies in the hundreds of millions of dollars. Banco do Brasil is currently reworking its numbers on how much debt was included in securitization and PESA, and these numbers should be available by February 2000.

⁶ Unfortunately, data on the total number of indebted farmers who participated in securitization and PESA were unavailable. However, Banco do Brasil considered this 2,331 to be a significant enough proportion of participating producers that they rescheduled these loans.

⁷ In November of 1999, PESA was expanded to include the first and second stages of PRLCB debts, extending the repayment period of those loans from 10 years to 20 years.

What is clear is that cacao farmers are still not paying their debts, in spite of the constant renegotiations that have gone on. Annual payments on securitized debt are not being made, and very few producers have made the initial 10.336% payment on their PESA debt. At this point, Banco do Brasil sources assert that they believe repayment of these loans is highly unlikely, particularly since producers are aware that if enough of them do not pay, the bank will have to renegotiate and defer again, relieving them of responsibility to pay in the short- to medium-term.

From the perspective of the banks involved in Southern Bahia's cacao debt, working with conservation organizations to negotiate debt relief agreements could be worthwhile because it guarantees them some payment in the present, rather than the dubious promise of a payment in the future.

Indeed, there is some evidence that Banco do Brasil is quietly renegotiating individual loans at highly discounted rates. Sources at CEPLAC were told by an agent of Banco do Brasil that in October 1999, the owner of several ailing properties, a farmer with R\$4 million in agricultural debt, had his debt forgiven by Banco do Brasil after paying only R\$200,000 – or 5% of his debt. If these types of deals are already being made, it is extremely important that the conservation community enter this process as soon as possible to ensure that it yields environmental benefits.

IV. Currently Available Credit and Access Issues

Given the the fact that Bahian cacao farmers and the banks they are indebted to have fallen into a pattern of non-payment and rescheduling in which nobody seems to believe that these debts must or will be paid, the usefulness of debt relief as a technique for leveraging conservation agreements may seem minimal. However, while severe penalties are not being imposed on non-paying farmers, these farmers' ability to access new credit sources is being hampered by their old debts.

Most significant among the new credit sources currently being offered are the PRLCB loans, which have already been discussed. Aside from PRLCB loans, Banco do Nordeste offers loans to farmers for diversification and specific agricultural investments. While the interest rates of these loans vary according to the specific credit fund, they fall generally in the 2.5% to 3.5% + TJLP range. These loans are in demand because a number of cacao farmers, while still devoted to trying to recoup the lost productivity of their cacao, recognize that diversification may contribute significantly to the long-term economic viability of their farms.

Accessing PRLCB and other credit sources is complicated for cacao farmers with prior unpaid debt primarily because they cannot offer sufficient collateral or guarantees to potential lenders. The rules regarding guarantees differ slightly between the two primary banks involved:

- At Banco do Brasil, a farmer can get credit equivalent to 50% of the guarantee he is able to offer. The guarantee available is determined by subtracting any pre-existing debt from the value of the assets held by the farmer. Thus, for example, if a farmer has property valued at R\$150,000 with previous debts totalling R\$100,000 he has R\$50,000 disposable to use as a guarantee, which will qualify him for R\$25,000 of new credit.
- At Banco do Nordeste, the percentage of the guarantee value that is offered as credit varies according to how project risk is classified by the bank. In the case of a low-risk investment, the farmer is eligible for credit equivalent to 70% of the guarantee he is able to offer. Thus, a farmer in the situation illustrated above would have access to R\$35,000 of new credit if his project were low-risk. In the case of a high-risk investment, the farmer is eligible for credit equivalent to 40% of the guarantee he is able to offer. Thus, a farmer in the situation illustrated above would have access to R\$20,000 of new credit if his project were high-risk.
- Neither bank will accept as a guarantee land that is already held as collateral by another bank. This is a source of great frustration to cacao farmers, because in the

era when cacau was highly profitable, the same farm could be offered as a guarantee to various creditors. Today however, a farmer who has put up his farm as a guarantee on loans taken from Banco do Brasil cannot use the same farm to, for example, guarantee a diversification loan from Banco do Nordeste.

Given these circumstances, many farmers complain either that 1) the guarantee they are able to offer does not make them eligible for enough credit to combat vassoura de bruxa effectively or invest in new production systems, or that 2) because their land is held as a guarantee by one bank, they are unable to access attractive credit options that may be available through other banks. While these farmers are uninterested in paying off old debts and convinced that no serious action will be taken against them if they fail to pay, they are certainly aware that their previous indebtedness is complicating access to new credit sources, which they want.

V. Current Distribution of Debt

While the debt relief option may be a promising conservation strategy for certain sites in Southern Bahia, it will not work equally well in all areas as the spatial distribution of debt varies across the landscape. A sample of 27 municipalities in Southern Bahia⁸ (see Figure 2) offers some interesting insights into the relationships between debt, the cultivation of cacau, and forest cover:

- Total debt in Southern Bahia is significant, it ranges in the hundreds of millions of dollars. For this sample of 27 municipalities alone, total debt among only those farmers who had applied for or received PRLCB loans was R\$201,436,169 – equivalent to roughly US\$100,000,000 or more.
- In this sample, PRLCB debt makes up 66% of total debt currently held by farmers.
- Levels of indebtedness vary significantly between municipalities (see Figure 3).
- Municipalities with low percentages of land in cacau production tend to have lower total debt and lower non-PRLCB debt than municipalities with more land in cacau production. This implies that regions of Southern Bahia where cacau production is most expansive are likely to demonstrate the most severe indebtedness.
- In general terms, higher percentages of forested land remain in municipalities with less cacau than in municipalities with more cacau (see Figure 4).

These findings highlight important details about the debt relief option which must be considered before steps toward implementation are taken:

- In regions with high debt, the debt relief option is highly applicable, but not much forest remains to protect. For example, the municipality of Itajuípe has more debt than any other municipality in the sample (over R\$17 million), 68% area under cabruca, but only 1% forestland remaining. In such areas, debt relief could be a very expensive conservation strategy, yielding relatively little protected forest area per dollar spent on debt relief. However, since these regions house large tracts of cabruca, developing a conservation strategy that incorporates cabruca rather than forest may be possible.
- In regions with low debt, more forest exists, but the debt relief option may not be as applicable since fewer farmers are indebted. The municipality of Una provides a good example of this situation – it has 32% forest cover, higher than any other municipality in the sample, and is of known ecological importance, but there is relatively little debt (just over R\$2 million). Sources report that only some 20% of farmers in Una are indebted, because the agricultural economy of the municipality is highly diversified and does not rely primarily on cacau (Gabriel Santos, Elieser Barros Correia, pers. comm.) In the case of indebted farmers with low debts and large areas of forest cover, the debt relief strategy could be extremely attractive, yielding large returns in terms of hectares of forest protected per dollar spent on

⁸ The sample represents only those farmers in each municipality who applied for PRLCB loans – these farmers, according to sources at CEPLAC, represent 20% of farmers but 90% of debt.

debt relief. But clearly other options must be developed to appeal to farmers who do not have debt, but who do have large or ecologically important tracts of forest on their properties.

Another important point that should be made regarding the distribution of debt is that the majority of debt in the region is held by larger farmers. The distribution pattern of the first and second stages of PRLCB lending provide a clear example of the credit bias in favor of medium and large farmers.

- In the first stage of PRLCB, a total of 4,256 loans valuing over R\$68 million were given out. While loans given to medium and large farmers accounted for only 22% of the total number of loans given, they accounted for over 67% of the total funds lent (Banco do Brasil).
- In the second stage of PRLCB, a total of 3,056 loans valuing roughly R\$58 million were given; again, 76% of these funds went to medium and large farmers (Banco do Brasil).

This pattern holds equally well for securitized and PESA debts. Many in Southern Bahia will tell you that roughly speaking, 90% of the region's debt is held by 20% of farmers, the vast majority of whom are medium and large cacao farmers (Elieser Barros Correia and others at CEPLAC, Joaquim Blanes, Gabriel Santos, pers. comm.) The upshot of this finding is that the debt relief option will incorporate primarily medium and large farmers in a regional conservation strategy, but will not be applicable to smaller producers. The importance of small farmers and means of involving them in a conservation strategy for Southern Bahia will be discussed further on.

VI. Concerns

The lack of effective enforcement and appropriate technical assistance in Southern Bahia are two issues that may compromise the success of any conservation deals that are brokered with farmers – indebted and otherwise – in the region.

The enforcement capacity of the state and federal institutions responsible for ensuring that environmental laws are complied with has time and again proven to be inefficient. This is evidenced by the continuing problems the region has with deforestation and illegal timber harvest, in spite of laws prohibiting further destruction of the remnants of the Atlantic Forest. While farmers in the region might voice their willingness to uphold conservation agreements in hopes of cutting beneficial deals with conservationists, it is unlikely that they will adhere to conservation conditionalities when the opportunity cost of conservation seems high – that is, when they believe that they can gain financially by venturing into forests they have promised to protect. As the previous discussion highlights, many farmers in this region have a sense of entitlement that leads them to believe that they can take money and agree to conditions on the one hand, while doing whatever they want as soon as the back of the person they made the agreement with is turned. Conservation agreements can only be truly 'binding' if there is a credible deterrent to breaking them – for example, if farmers believe that they will be caught and penalized for their transgressions.

Unfortunately, under the current system of monitoring and enforcement, there is no credible threat of penalization, and existing institutions cannot be trusted to do an adequate job of ensuring compliance with conservation agreements. Before any debt-for-conservation agreements are made, more thought and action will have to be devoted to the question of how monitoring and enforcement can be improved. Perhaps the best strategy is for conservation organizations themselves to expand their capacity to provide third-party monitoring, and to penalize non-compliance by withholding disbursement of tranches of debt relief or credit, without ever involving or relying on government institutions. The viability of this and other enforcement options should be explored more thoroughly prior to implementation of a debt-relief strategy in Southern Bahia. Without enforcement, conservation agreements will exist only in name, and will yield little or no ecological benefit.

Technical assistance to Southern Bahia's farmers has traditionally been offered by agriculturally-minded institutions – CEPLAC, EBDA – whose primary concern is maximizing agricultural productivity. For those conservation agreements that involve not outright protection but conditions regarding use of already existing agricultural land, technical assistance professionals capable of designing and helping implement and monitor ecologically-minded land use plans are indispensable. CEPLAC and EBDA have little or no capacity to develop management plans involving, for example, agroforestry systems or organic cultivation. Therefore, relying on these institutions to help implement more ecologically sensitive land uses in and around priority conservation areas is bound to fail.

The necessity of developing a sufficiently large cadre of agronomy professionals capable of working with farmers to promote land uses that are ecologically minded must be considered a priority by conservationists. Since institutional inertia seems strong in the currently existing technical assistance groups in Southern Bahia, such an effort is more likely to be successful if it happens outside of these institutions – through, for example, the University Estadual de Santa Cruz, or through IESB. Once trained, this group of professionals could be charged not only with designing and implementing land-use plans, but also with aiding in the monitoring of agricultural projects on the properties of landholders with whom conservation agreements are made.

VII. Conservation Tools for Indebted Farmers

The complexity of sources, terms and distribution of debt in Southern Bahia make it clear that applying debt relief as a region-wide strategy for achieving conservation of remaining forestland may not be viable. The sheer magnitude of cacao debt also contributes to this notion – with total debt in the hundreds of millions of dollars, it is inconceivable that the conservation community will be able to fund widespread debt relief across the region if conservation money is the only source of financing for this endeavour. Negotiating debt-relief deals at a municipal level may also be a poor strategy, since the distribution of debt within municipalities undoubtedly demonstrates the same patterns seen across the region – relatively few producers hold debt, and those with the highest debt may not have forests worth conserving.

Nonetheless, debt relief is an attractive conservation tool, and may actually be critical to protecting land belonging to indebted farmers, since establishing RPPNs on land held as collateral by a bank could prove difficult or impossible. By the same token, the effectiveness of the RPPN mechanism in protecting forest throughout the region may be hampered by indebtedness. Given these conclusions, it seems clear that the debt relief option is an important conservation tool – albeit one that should be applied on a case-by-case basis, and that is most likely to be worthwhile on properties that are of extreme ecological significance or that have a high ratio of forestland to dollars of debt. If other funding sources – such as agricultural development funds, for example – can be leveraged for debt relief and tied to conservation conditions, the application of this strategy region-wide may become more feasible.

Where debt relief is an effective conservation tool, it will be extremely important to develop agreements which yield strong positive incentives for both the bank and the farmer to participate, and that also carry strong deterrents to violating the terms of the agreement. Incentives for banks and farmers to participate in debt-for-conservation agreements clearly exist:

- For banks, selling cacao debt even at greatly discounted rates assures some repayment of loans made long ago, can lead to savings on transactions costs associated with future enforcement or further rescheduling, and creates a public image that these institutions 'care about the environment.' Sources at Banco do Brasil believed that the institution's decision-makers were likely to be interested in the benefits that conservation-linked debt relief deals could bring.
- For indebted farmers, the lack of access to new credit sources that arises from inability to provide a sufficient guarantee creates a need that can potentially be filled through debt relief agreements. If debt or some portion of it is relieved, farmers will have collateral which can be

used to get financing for rejuvenation of cacao areas or diversification. Conceivably, farmers would be willing to exchange conservation for this access to new credit. Indeed, focus group interviews conducted by a World Bank consultant in Bahia have shown that farmers find the possibility of trading debt for conservation highly attractive (Heloisa Orlando, pers. comm.).

Given this confluence of needs, there is undoubtedly a way for conservation-minded institutions to become 'brokers' of debt relief predicated on conservation agreements. Outlined below are some options for the form that agreements between 1) the conservation community and the banks, and 2) the conservation community and indebted farmers might take.

1. *Debt relief deals made with banks*

- When the notion of negotiating debt relief was discussed with mid-level bank officials at Banco do Brasil, it was suggested that the bank would likely be willing to offer debt relief for a percentage payment – 40% was suggested by bank staff – of farmer debt.
- Analysis shows that when a 100% repayment rate and a 30% discount rate⁹ are assumed, the stream of repayments associated with a securitization loan or a PESA loan have an expected present value equivalent to the 40% rate mentioned by bank officials¹⁰ (see Figure 5). However, if lower repayment rates are assumed, the present value of a debt to be paid over 10 or 20 years drops considerably. If we assume that 40% of existing debts will be paid – a generous assumption, given that by this time, only the most delinquent of the delinquent still have debts – the expected present value of loan repayments drops to roughly 15% of the original loan¹¹.
- As mentioned earlier, sources not directly linked to Banco do Brasil have reported that the bank recently made an agreement with a deeply indebted large farmer, relieving debt for a payment equivalent to 5% of the original value of the debt. If this negotiation can be taken as an indication of how the bank perceives probability of repayment (discount rate is still assumed to be 30%), it shows that the bank expects that a mere 13% of outstanding loans will be repaid.
- The present value analysis makes it clear that the bank's willingness to sell debt for 40% of its original value should be negotiable in future discussions with higher-level bank officials. Since repayment rates are undoubtedly lower and discount rates perhaps higher than the 40% figure suggests, it seems likely that debt relief could be purchased for much less.

2. *Conservation agreements made with indebted farmers*

- In a general sense, deals made will require that a conservation agreement be made in exchange for debt relief; but there must be flexibility in what types of conservation agreements are accepted by the conservation community, since each farmer will have a different take on what form of conservation is feasible for him. The specifics of deals made with individual farmers will also have to be dependent on site-specific factors such as ecological importance, level of debt, current land uses, etc.
- Some farmers may be willing to hand over title of their forestland (i.e. sell/trade it) in exchange for debt relief. This option is most likely to be attractive to farmers who are

⁹ 30% is a discount rate chosen by this researcher because it seems to capture the higher cost of capital and higher risk prevalent in most developing countries. However, the official discount rate used by Banco do Brasil is unknown. In Figure 5, sensitivity analysis of these present value calculations at 10% and 50% discount rates can also be found. Clearly, the percentage rates that debt can be negotiated at vary strongly depending on the chosen discount rate.

¹⁰ Specifically, the present value of a 10-year stream of payments on a R\$100,000 securitization loan is R\$40,190 (40%), while that of a one-time 10.336% payment and subsequent 20-year stream of payments on a R\$100,000 PESA loan is R\$36,862 (~37%).

¹¹ This means that a present-day payment of only 15% of the total loan amount should be sufficient to compensate the bank for what they would have received over 10 or 20 years (depending on loan type) at a 30% interest rate if 40% of debtors repaid.

operating with difficulty and want to reduce the area of land that they are responsible for. However, this option may have problems associated with it – namely because it involves giving up land that might otherwise be used to earn farm income, and because reducing the size of a farmer's property reduces the value of the assets they are able to offer as collateral for getting new credit.

- Some farmers may be willing to enter into legally binding agreements to create RPPNs on forestland in exchange for debt relief. This option leaves some land uses – i.e. tourism – available to the farmer, but will require substantial monitoring and enforcement.
- Some farmers may be interested in trading the development rights to their forestland in exchange for debt relief – a conservation easement. However, it is currently unclear whether the conservation easement mechanism exists in Brasil, and this option will have monitoring and enforcement requirements comparable to those of the RPPN option.
- As the analysis of distribution of debt shows, many farmers with the highest debt have little forest that can be protected through conservation agreements. However, since these farmers generally have large tracts of cabruca on their properties, it may be possible to develop agreements that put conditions on what is to be done with land currently under cabruca. For example, debt relief could be offered in exchange for allowing cabruca to regenerate or maintaining agroforestry systems in areas of cabruca, since cabruca plays an important role in providing connectivity between fragments of primary forest.

This list of options should again highlight the point that deals will have to be made on a site-specific basis in each case. No hard-and-fast rule linking dollars of debt relieved to hectares of land protected can be established and applied to all farms, and some modicum of flexibility in dealings with individual farmers will be essential.

Although strong possibilities for establishing deals with both banks and farmers clearly exist, some questions about the form that debt-for-conservation agreements should take remain:

- *How much debt and which kind of debt should be relieved?*
Relieving only securitized debt will not free up any collateral for debtors. Relieving PESA debt will free up guarantee money, but the amount of PESA debt is enormous, particularly since the first two stages of PRLCB debt have been incorporated. Furthermore, PESA only applies to those farmers with more than R\$200,000 initial debt, who will be primarily the largest farmers – therefore, if only PESA debts are relieved, only the largest farmers will be included in the conservation strategy. Conceivably, some maximum percentage of any single farmer's debt could be relieved, although it may be difficult to convince farmers to conserve land when they are still under pressure to pay off other debts.
- *How can we guarantee that new credit taken by farmers whose debt has been relieved will not be invested in destructive land uses?*
It is unlikely or impossible that the Banco do Brasil itself could be convinced to impose conservation conditionalities on the debtors that debt relief is negotiated with. Ideally, in addition to agreeing to protect existing forestland and/or cabruca, farmers would also agree to use new credit for specific purposes. While writing conditions for uses of new credit into conservation agreements would be attractive from the conservationist standpoint, the additional limitations imposed by such conditions may dissuade some farmers from entering into agreements at all.
- *How can an effective deterrent to breaking the terms of conservation agreements be developed?*
Enforcement capacity in Southern Bahia is frustratingly low. Banks have shown themselves to be ineffectual in monitoring farmers that they lend to – as evidenced by the substantial problems with repayment that regional banks have had. Furthermore, government-affiliated

agencies charged with monitoring and enforcement – including CEPLAC, DDF and IBAMA – are notoriously poor at enforcing environmental laws, and will undoubtedly be equally poor at enforcing conservation conditionalities. In hard financial times, farmers involved in debt-for-conservation deals may be incentivized to invade 'protected' forests for timber or agricultural expansion unless an effective deterrent exists.

Given the fact that a credible threat of enforcement does not exist in Southern Bahia, the following activities seem indispensable:

- Debt relief agreements should be based on some sort of performance-bond scheme – that is, debt relief should be incremental, and the liberation of each tranche of debt relief should be contingent on periodically-reviewed compliance with conservation conditionalities. One difficulty with this approach is that if debt relief is incremental, guarantees sufficient to acquire new credit may not become available to farmers – unless some agreement regarding the liberation of guarantees can be established with the banks that hold debt.
- Capacity for monitoring the activities of farmers involved in debt-for-conservation agreements must be bolstered. Whether capacity would be built within IESB, in currently existing enforcement agencies or in some as yet unestablished third-party agency will have to be determined.

VIII. Conservation Tools for Debt-free Farmers

Medium and Large Producers

The question of how to involve farmers who are not indebted in a conservation strategy for Southern Bahia is a critical issue. Many farmers in the region are debt-free for a variety of reasons. As mentioned, some farmers – primarily medium and large producers – never incurred debt because they relied on private resources or farm income to fund agricultural investments, while others paid off their past debts and are now debt-free. These farmers are as likely to have conservation-worthy forest and as likely to be in financial straits as an indebted farmer.

A good example of this situation is a 2050 ha farm containing roughly 800 ha of forest that is located in the municipality of Una. According to IESB, the forest contained on this land represents a significant forest fragment that could act as an additional node in the 'Discovery Corridor' if it were under some form of protection (Keith Alger, pers. comm.). This farm has traditionally relied heavily on cacao and rubber, but has been struck by *vassoura de bruxa*, causing a severe decline in cacao receipts. While the owner of this property has no debts, he has had difficulty covering the costs involved in maintaining his farm's productivity. In order to make ends meet, the owner has fired the majority of his employees, entered in sharecropping agreements for rubber and cacao with many of his remaining employees, and is cutting and processing timber from his forests. Of the total 800 ha of forestland on this property, the owner estimates that some 300 ha have been periodically logged in recent years, leaving roughly 500 ha of relatively pristine forest. This farmer does not need debt relief, does not want credit unless it is highly subsidized, and will continue to harvest timber until he can find another viable alternative.

For medium and large farms that are debt-free, as with indebted farmers, the dangers of timber extraction or conversion of forest or *cabruca* to land uses that do not maintain forest cover are threats that conservationists must seek to offset. Since there is no leverage to negotiate the *quid pro quo* deals that we may establish with indebted farmers, we need to identify other economic incentives that can encourage these farmers to protect their forests and *cabruca*. Some possibilities include:

- Offering highly subsidized credit for designated land uses (i.e. agroforestry systems, organic cacao production), perhaps in exchange for conservation set-asides. This option is only feasible if the farmer is willing to take on debt, and if we can convince

local financial institutions to offer highly subsidized credit to these farmers. Given these farmers' tendency to not pay off their debts, it seems unwise for the conservation community to consider directly offering subsidized credit.

- Buying conservation easements or offering annual conservation payments to these farmers in exchange for the establishment of RPPNs on their forestland. The price of the easement or the annual payment would have to be sufficiently large that it would discourage timber extraction. Payments should be divided into parcels, and the distribution of each parcel should be contingent on whether or not the farmer is complying with the terms of the agreement. The establishment of a system of monitoring to ensure compliance would also be necessary.

The attractiveness and costs of these options must be further explored in future research.

Mini and Small Producers

Other farmers, particularly mini and small producers, are debt-free because they have never had access to credit – either because credit was not offered to them; or because they lacked the information, documentation, land title, or technical assistance that would have facilitated access. While they do not have much forest on their lands, these mini (primarily land-reform) and small producers must also be part of a conservation strategy for Southern Bahia, as the potential threat their production system poses to the region's ecosystems is significant, and as agricultural development strategies for the region have traditionally overlooked their needs. This situation is highly evident along the boundary of the Una Biological Reserve, where communities of squatters and small producers clear small areas adjacent to the reserve for the cultivation of subsistence and other crops, occasionally entering the reserve itself. Although these farmers put significant pressure on forestland, they have also proven to be highly receptive – much more so than their larger, wealthier counterparts – to adopting ecologically-minded production systems when they are provided the inputs, technical assistance and other resources necessary to implement them (Joaquim Blanes, pers. comm.).

While debt relief is not applicable to these farmers, a financing source currently offered by the Banco do Nordeste provides an instrument that could be used to incorporate mini and small producers into a regional conservation strategy.

- The '*Fundo de Desenvolvimento Municipal*' is a fund held at the Banco do Nordeste (BNB), which has been particularly set up to serve as a guarantee fund for mini and small producers who otherwise would have no collateral with which to secure credit. A fund of this type exists in each of the municipalities served by BNB.
- BNB liberates credit equivalent to 14 times the amount in the guarantee fund, for mini and small producers. For example, if R\$1000 are deposited into the fund, R\$14,000 will be liberated as credit by the bank. Financing is available to farmers with specific agricultural projects in mind, and prospective borrowers must present a project document and budget explaining how much credit is needed and how it will be used before financing can be authorized.
- While loans made through this fund do not require a guarantee and do not charge interest, a commission (suggested 3% - 5%) is charged by the lender. This commission goes partly to fund maintenance and the rest is incorporated into the fund itself. In addition, the borrower pays another 2% to cover the costs of technical assistance and capacity building. The commission and other charges are deducted from the total financing that the producer receives. Loan payments are made over an eight-year time period.
- Credit is distributed to the borrower in parcels, contingent on the recommendation of enforcement agents (generally from the same agency that provided technical assistance at the outset) affirming that the borrower is using the credit in the manner described in the initial project document.

While BNB is currently marketing this instrument to municipal governments, hoping that they will make contributions to the fund, other organizations including NGOs may make contributions into the guarantee fund as well. The contributing agency has the right to determine: 1) how the money is to be used – for example, it can establish conditions stating that credit made available can only be used for projects involving agroforestry systems or to producers who agree to protect any forest remaining on their land; 2) how much commission will be charged – while 3% - 5% is recommended by BNB, the contributor can select a lower commission rate to make conservation conditionality credit more competitive with other sources of credit within the fund. Furthermore, should the contributor decide at the end of the contract to withdraw contributed resources from the fund, the initial contribution plus interest will be returned (although this return is contingent on repayment and may be affected by fluctuations in the Brazilian economy).

Whether or not there is a limit to contributions to the fund, and the extent to which BNB will be financially able to match fund deposits with credit are unclear. Nonetheless, this opportunity may be of interest to CI for the following reasons:

- Municipalities of extreme ecological importance, which demonstrate a high degree of threat from mini and small producers, could be specifically targeted with conservation-linked credit;
- The precise purposes for which this credit is to be used can be defined;
- With a relatively small investment, a substantial amount of credit uniquely directed to underserved mini and small producers becomes available. For example, a US\$100,000 investment would liberate US\$1,400,000 or roughly R\$2,500,000 to small producers;
- Through this mechanism, the production behaviour of all mini and small producers borrowing from this credit source would be modified, and could potentially serve as a model for other producers;
- The political importance of offering benefits to small producers who are willing to enter into conservation agreements is significant where such benefits are being offered to large producers.

One concern that may influence the viability of this guarantee fund as a conservation tool is the lack of technical assistance professionals in Southern Bahia who are versed in developing ecologically sustainable projects or management plans. The agencies that currently offer most of the technical assistance in the region are CEPLAC and EBDA (Empresa Bahiana de Desenvolvimento Agrícola), and as stated, they are primarily focused on maximizing agricultural productivity, not ecosystem services. While IESB's extension arm has the credentials to write agroforestry projects, they lack the personnel necessary to serve large numbers of small producers spread over the entire region. The broader importance of better trained personnel to provide technical assistance has been addressed in Section VI.

Another concern is the enforcement of conservation/production agreements made in exchange for this credit. Again, the incapacity of currently available technical assistance organizations to design ecologically sustainable projects will undoubtedly also affect their ability to monitor such projects. To some extent, the costs of monitoring and enforcement could be reduced if credit were offered to communities or cooperatives of small producers – credit could be offered on the condition that if any member of the cooperative did not comply with conservation conditions, the cooperative as a whole would lose access to credit. In this way, some self-policing within the cooperative would take place, reducing the time and money costs involved in having one or two agents responsible for monitoring a large number of producers.

IX. Recommendations for Future Research

A few key pieces of future research could improve the level of understanding among interested parties and contribute to the effective design and implementation of regional conservation strategies for Southern Bahia. These include:

1. *Site-specific research on properties that are candidates for debt-for-conservation deals.* A few key indebted properties should be identified, and full information on these farms obtained: magnitude of debt, what type of debt is held, terms of the debt, hectares of pristine forest and other land uses on the property, cost of debt relief at different discount rates and risk percentages and conservation returns on debt relief investment. This research would help identify which proprietors deals should be made with, and would serve as a basis for any deals made. Furthermore, more specific conclusions about situations in which debt relief is a cost-effective conservation strategy could be reached.
2. *Research in preparation for debt relief negotiations with banks.* As the present value discussion in Section VII brings up, the ultimate rate at which debt is purchased from banks is highly negotiable, and the percentage payment that is considered 'reasonable' will vary according to the probability of repayment and discount rate assumed. Further research to determine 1) the bank's discount rate and its applicability and 2) repayment rates should be conducted so that the conservation community is better informed when negotiating debt relief with banks.
3. *Research on promising conservation strategies for debt-free farmers.* As discussed, the debt relief option can only work with a percentage of ecologically-important properties in Southern Bahia. A thorough investigation of other proposed strategies – such as outright land purchase and offering subsidized credit in exchange for conservation – should be conducted to broaden the suite of economic tools that can be used to achieve conservation objectives in the region.
4. *Comprehensive land survey.* The process of conservation deal-making would be greatly facilitated if a registry of properties in Southern Bahia were to be compiled. Such a registry would include data on: hectares of land under forest and other land uses, precise location and mapping of each property, information on land tenure situation, information on debt (if any) and its structure. A registry of this sort would not only be useful in helping identify and design specific conservation agreements, it would also serve as a baseline for monitoring and enforcement. Since the output of a survey of this type would surely be useful to government agencies as well as to the conservation community, it is possible that the Bahia state or federal governments might contribute funding and manpower to this endeavour.

X. Conclusions

In sum, the following conclusions regarding the use of debt relief as a conservation tool in Southern Bahia seem clear:

- Debt relief can be a key element in promoting conservation in Southern Bahia, particularly since the lands of indebted farmers may not be accessible for conservation if they are held as collateral but left unseized by banks.
- Given the size of debts and the distributional aspects of how debt levels relate to forest area, debt relief should be applied on a case-by-case basis to specific farms that demonstrate high ecological importance or high forest-to-debt ratios.
- Conservationists, banks and farmers all stand to gain from debt relief agreements, but the conservation community must be careful to ensure that 1) debt is bought from banks at a rate that is low enough to accurately reflect high discount rates and low repayment rates, and that 2) conservation agreements made with farmers are established, monitored and enforced in such a way that some conservation actually comes out of them.
- Other conservation tools that are applicable to farmers who are not indebted, including mini and small farmers, must also be designed and implemented if regional conservation is to be achieved.

- Without more investment in enforcement and technical assistance, the implementation, monitoring and enforcement of any conservation strategy in Southern Bahia will be weak, compromising effectiveness. NGOs should work with the state to ensure that adequate and appropriate institutional capacity to design and ensure compliance with conservation agreements exists.

The best manner of implementing debt-for-nature agreements is undoubtedly to develop and execute a handful of well-researched deals in the first stages of implementation, and to gradually expand the number of deals that are made as financial means, baseline data, and monitoring and enforcement capacity improve over time. Ultimately, a sort of 'green brokerage' capable of providing a portfolio of conservation options to interested landowners – debt relief, subsidized credit, outright buyouts of forestland – could be established to coordinate the use of economic incentives in the region (Keith Alger, pers. comm.). Such a 'brokerage' could not only be responsible for researching and designing agreements, but could also house an internal third-party monitoring team and a team of conservation professionals capable of providing ecologically-minded technical assistance to farmers who make conservation deals.

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SENIOR CONSERVATION BIOLOGY MANAGER DRAFT 10/21/99

YANCE DE FRETES

I. BASIC FUNCTION:

Assisting Country Director in implementing programs of Conservation International Indonesia Programs by applying the expertise in biology conservation in coordinating field research, providing recommendations and technical assistance in order to facilitate especially program managers or any other conservation non government organizations, government institutions and individuals related to conservation issues in monitoring impact project sites

II. ACCOUNTABILITIES

A. PRINCIPAL ACCOUNTABILITIES

1. *Assisting Country Director and Deputy Director to develop and implement policy initiatives and secure key policy actions by multilateral, bilateral, and Indonesian Government agencies.*
2. *In coordination with Irian Jaya Program Manager, provide assistance to develop Irian Jaya program and liase with Irian Jaya stakeholders based in Jakarta to implement the program.*
3. *Providing recommendations on biodiversity to Country Director, Deputy Director and program Managers based on program implementation need by involving other cross-cutters to get input about policies, education matters, monitoring, etc.*
4. Providing research design, methods, and analysis to monitor impacts of Conservation International Indonesia Program's project sites:
 - a. Take request for monitoring impacts of project sites
 - b. Conduct monitoring need analysis
 - c. Set up monitoring system by constructing design and deciding method and technical approach based on need
 - d. Set up monitoring team by providing people who will involve in monitoring
 - e. Provide training for monitoring team by transferring knowledge and skill of data collecting
 - f. Take data from site together with monitoring team
 - g. Analyze collected data
5. By request, providing technical assistance by giving skill improvement training for all program managers, program implementers, other cross-cutters, and partners of Conservation International on conservation issues.

- a. Take request for providing training
 - b. Analyze need of training
 - c. Schedule and organize the training program based on Conservation International Indonesia Program work-plan schedule
 - d. Create training module in accordance with training need
 - e. Conduct training by being facilitator
 - f. Evaluate and monitor the training implementation
6. *Assisting Country Director and Deputy Director in coordination with Program Managers and Cross cutters in conducting fund-raising for the programs especially Irian Jaya Program of Conservation International Indonesia.*
7. Reviewing program managers' proposal and other general proposal of Conservation International:
- a. Analyze, make notes on corrected subjects, and adjust the received proposal to provide a well-prepared one
 - b. Provide alternative suggestion to improve the proposal

B. ADDITIONAL ACCOUNTABILITIES:

8. Writing papers or articles for internal newsletter by request from Conservation International organization or consortium where Conservation International Indonesia Program is a member
9. By request, reviewing papers or articles written by other Conservation International organizations' staffs by criticizing and providing corrections to improve the papers or articles
10. By request, reviewing annual report or workshop report of program managers by editing and criticizing to improve the report
11. Accompanying the officials of Conservation International organizations in some events related to biology conservation issues.
12. Organize special event of Conservation International Indonesia Program by implementing received assignment.

PAPUA PROGRAM MANAGER

SUER SURYADI

I. BASIC FUNCTION:

Management of the Papua Program to ensure the program is line with Conservation International's vision and mission, and that approaches and activities are implemented effectively. Program management includes coordinating development of the strategy, approaches and activities, coordination, management and facilitation of technical support and implementation of activities, and supervision (or oversight) of the smooth administration of the Jayapura office and overall Papua Program of CI-IP. The position also serves to develop and maintain effective partnerships with other non- government organizations and government institutions in order to effectively socialize and build awareness of, and implement the conservation program.

This position reports to the Country Director, but works cooperatively and in a team environment in conducting the biodiversity conservation program of Conservation International Indonesia Program in the Papua region. Primary day to day contact and communications will be with the Deputy Director, the Senior Conservation Biology Manager, the Finance Manager, GIS manager and DC-based Senior Director for Asia Pacific, Program Manager (and relevant technical staff based in Washington, D.C.), and Papua-based staff.

II. ACCOUNTABILITIES

A. Principal Accountabilities

- 1. Strategic Program Development:** Work effectively with Country Director, Deputy Director, Senior Conservation Biology Manager and other relevant CI (Indonesia, Washington, other) staff to develop Papua conservation strategy, including information and ideas sharing, and exploration and analysis of feasibility of different approaches (including partnership development) and activities. Responsibilities within this section include risk assessment, CI internal capacity assessment, prioritization and reporting of new developments, trends and problems to appropriate staff.
- 2. Fundraising:** Assisting Country Director in conducting fund-raising for the programs of Papua Program of Conservation International Indonesia to ensure that programs are fully funded. This includes working effectively with Jakarta and Washington-based staff to provide programmatic, budgetary and donor information, develop ideas, research donors, write proposals and reports, etc, as needed, given donor contact, donor interest and context.
- 3. Program Implementation:** Managing, coordinating, supervising and organizing the program activities, and monitoring the implementation of the Papua program to ensure they follow as planned (unless changes agreed). These activities are implemented by

many staff with a range of expertise and based in both Indonesia, and US. This position will seek to coordinate their activities and ensure good communications to maximize the contribution of all relevant staff and the efficiency and efficacy of implementation.

- a. Analyze all programs-related aspects to ensure that the programs are realistic and feasible to be run (including budget, staffing, etc)
- b. Manage and organize the program's schedules and the action-plan of the programs in term of priority (including staff timing and workload, etc)
- c. Ensure the meeting of donor needs such as USAID reports and meetings, with guidance of Deputy Director and DC-based Program Manager.
- d. Improve the programs implementation by considering the feedback got from programs implementations evaluated (monitoring and evaluation and adaptive management.)
- e. Provide Papua Program and project information as needed.

4. Program Administration: Controlling and monitoring the Papua programs-related office and finance management. This responsibility entail's working effectively with DD, FM, and DC-based Program Manager and Financial Officer on budgeting, budget management, financial reporting and other financial and administrative issues. This position is responsible to work with this staff on developing "fully costed project" budgets and to ensure accurate and timely reporting to both internal CI finance/administration and external to donors.

5. General Management: Providing sufficient guidance, and management support to Papua Program staff based in Papua to ensure common goal and vision among the team to enable their improved implementation of program activities, including effective communication and coordination with relevant CI staff and external stakeholders.) Supervise activities of junior staff to ensure effective, efficient and timely implementation of activities. Work together with DD to resolve personnel conflicts within the team if any.

B. Additional Accountabilities:

1. External Relations: Developing and maintaining professional relationships with other programs-related non-government organizations for the purposes of advancing biodiversity conservation and CI's mission in Papua Jaya. This will be accomplished by information sharing, coordinating project implementation, where appropriate, and evaluating further proposal/joint activity feasibility. Working effectively with the Papua Government Liaison to develop and maintain a professional relationship with government institutions to raise government policy and activity, and to generate support for CI. These activities will help CI develop a more effective approach in Papua.

2. Program Representation and General Public Awareness: Exploring different avenues to raise public awareness of conservation issues, and of CI. For example, lecturing in local public universities, if assessed to have strategic added value, for getting and giving information related to conservation and environmental issues. This includes working with the Jakarta office and Washington office on internal and external opportunities to raise the profile of the Papua Program.

From: jaya
Sent: Tuesday, February 15, 2000 9:47 AM
To: 'W.TAN@CONSERVATION.ORG'; ary; bodhi; edi; erma; indri; iwan; irvan; jatna; myrna; putu; rizal; sari; suer; yulia; server
Subject: TRIP REPORT TO MEXICO
TRIP REPORT TO MEXICO
15-24 January 2000
Sundjaya, Community Development Specialist

PURPOSE

1. Attended HCI Workshop at Canon Las Barajitas, Province Sonora, Mexico at 18-22 January 2000 for:
 - Review on CI's country programs relates to HCI
 - Capacity building for CI's country program teams on program development, facilitated by Sam Myers and Jennifer Swansons (HCI Washington) and Richard Margoluis (Biodiversity Support Program)
2. Discussed with Wendy Tan (CI-DC) on up date Togean program and plans to do next in Togeant

RESULTS

A. HCI Workshop at Canon Las Barajitas

Geneal results:

- Whole overview of HCI
- Skill on Program Development relates to HCI's purposes
- Next steps will be followed up by HCI and CI's country programs.

Workshop was attended by 28 participants that are representatives of CI-DC, CI-Country Programs, Biodiversity Support Program (BSP), and HCI. They are:

- Sam Myers, Jennifer Swansons, and Kevin Starr (HCI)
- Wendy Tan, Patrizia Pierantoni, Karl Morrison, Chuck Burg (CI-DC Regional Staff)
- Richard Margoluis, Jonnel Allen (BSP)
- Luis Murillo, Manuel Ramirez (Costa Rica)
- Roberto Bonilla, Carlos Soza (Guatemala)
- Juan Pablo Arce, Martha Decker (Bolivia)
- Innocent Magole, Seheni 'Shex' Tlotlego (Botswana)
- Redempto Anda (Philipines)
- Roger James, Sarah Wilson (Solomon Islands)
- Luis 'Lucho' Davalos (Peru)
- Neville Wadron (Guyana)
- Erwin Palacios (Columbia)
- Vivian Zeidemnn (Brazil)
- Maria del Carmen, Maria des los Angeles Caraval (Mexico)
- Sari Surjadi, Sundjaya (Indonesia)

Workshop had run interesting and very useful for participants who fully gave attention to all scheduled programs. Moreover, the meeting were be the sharing information forum by participants which have particular experiences. It is a good condition for perspectives enlargement

First day

Sam Myers gave summary of HCI paradigm and addressed it to the portfolio of CI country programs. Richard Margoluis explained on Learning Programs versus Results oriented programs.

In this session, participants had comprehension in distinguishing *themes* and *processes* when develop program. Participants also got a book and two papers about Learning Program that written by Richard and Salafsky.

Second day

First session . was filled by presentation of country program representatives. Each presenter summarized goal, objectives, related activities, and problems that faced. Presentation followed by discussion among participants.

In the last session Richard and Sam commented each country program. They classified points of presentation into some major themes: Healthy, ecotourism, conservation education, linked enterprises, unlinked enterprises, safe water, and land tenure. These theme will be developed by participant on the third day.

Third day

Participants able to design scheme of relations between theme and conservation outcomes. Participants got comprehension on how to elaborate goal, objectives and related activities based on basic elements had been briefed by Richard.

Fourth day

First session was dedicated to learn about project development. Participants designed conceptual models as the framework of the program. *Conceptual model* is a diagram of a set of relationships between certain factors that are believed to impact or lead to a target condition.

In the second session in the evening, participants involved in discussion on engagment community. Participants exchanged experiences of working with community on the obstacles, suggestions might be applicable to overcome problems, ways of enhanchment people participation, and suggested training supports capacities and skills for HCI's field officers.

Fifth day

Each representative of country programs presented conceptual models. It was clearly seen of the reasons of country programs emphasized the certain theme in formulating their conceptual models.

John Williams--an Environment Fellow who involved in Chiapas Progam of Mexico-- shared knowledge on how demographic approach significantly relates to conservation program. He recommended some activities which can be addressed to conservation objectives, such as: promote contraceptive, develope economic, save the children, empower women, and educate man.

The last session was dedicated to discuss on what can be done for next steps. The meeting finally produced some points to follow up by HCI and Field coordinators of each country:

1. List serve/web site as communication network center.
2. Report building
3. Resume of 15 minutes presentation
4. The conceptual model design and management plan
5. Monitoring Plan
6. Budget and guideline for budget
7. Comment on conceptual model by HCI
8. Discuss on next meeting paln.

B. Meeting with Wendy Tan (CI-DC)

Discussion with Wendy was in the rest time of the workshop. Sari and Jaya reported the up date in Togean and some proposed actions to be done for the better performance of Sekber. We (Sari, Jaya, and Wendy) arranged budget for Togean program under HCI. We agreed to evaluate Sekber and its works by the expert consultan. Wendy advised the improvement of CDS' roles in developing Togean program and build the capacity of Sekber crews.

Follow up agenda for CDS:

Attachment Indonesia-3

- Term of reference for Sekber Evaluation
- Enlarge capacity building to another Program Team of CI-IP
- Design conceptual model of Togeian Programs
- Trip report

TRIP REPORT

Travel name : Henni Ohee
Activity : Field Course on Biological Research
Destination : Kamiali Training Center-Lae, Morobe Province
Travel Dates : Nov. 20 – Dec. 20, 1999

1999 FIELD COURSE ON BIOLOGICAL RESEARCH
AT KAMIALI WILDLIFE MANAGEMENT AREA, LAE-MOROBE PROVINCE, PNG

The 1999 Field Course on Biological Research was held from Nov. 20, 1999 – Dec. 20, 1999 at the Kamiali Training Center, Lae. The course was organized by Wildlife Conservation Society (WCS) and The Christensen Fund. There were 22 participants come from UPNG-Port Moresby, FRI-Lae, Unitech-Lae, OHU Butterfly Conservation, Madang and CI-Irian Jaya Program, Jayapura

(**Tabel 1.**). In addition to course manual, the participants received 4 papers about biodiversity. Papers topic are Crocodile Tears and Skins: International Trade, Economic Constraints, and Limits to the Sustainable Use of Crocodylians (Conservation Biology, Volume 13, No.3, June 1999, pages 465-470); Ecology of *Aglaia mackiana* (Meliaceae) Seedlings in a New Guinea Rain Forest (by Andrew L. Mack, Kalan Ickes, J. Heinrich Jessen, Brian Kennedy, and J. Ross Sinclair);

Ants, Stem Borers, and Pubescence in *Endospermum* in Papua New Guinea (by Deborah K. Letourneau and Pedro Barbosa) and Worldwide Population Decline of Dermochelys coriacea: Are Leatherback Turtles Going Extinct? (by James R. Spotila, et al). These papers were discussed in the last week of the course. The course manual contains timeline and syllabus, reading and writing assignments, lecture and seminar schedules. It also contains CV, proposals and proposal review-sheets, and statistics tables. The course required participant to review 12 proposals before the course benign. Four proposals were accepted for implementation (project). The fourth proposals are Foraging movements of large hermit crabs at Kamiali Wildlife Management Area-Lae/PNG, Dispersion of ant-plants at Kamiali Wildlife Management Area, Are early successional plants less palatable than late successional plants ?, and The habitat requirements for terrestrial crabs: potential effects of logging on crab populations.

Later, the participant was divided into 4 groups, each with five participants, to implement the approved proposal. Each group must complete all the projects. Each project required 2 days of fieldwork and one day of data analysis and reporting. During the project, we were trained to plan and execute field research, included modified research methods, using appropriate equipment, record keeping, statistical analysis, and reporting. There were 4 instructors that helping each group. They are Andrew L. Mack, Debra D. Wright, Olivieri Missa, and Ed Scholes. The course was held from Monday to Friday.

The course consists three subjects:

1. Experimental Designs

We studied hypothesis testing, sampling and sampling protocols, designing an experiment, standard sampling units, replication, measurements, note-taking, and record-keeping.

2. Data Analysis

The participants were taught the use of statistics in data analyses, both descriptive statistics (summary statistics, graphs, tables), and inferential statistics (t-Test, U-Test, KS-Test, Chi-Square, Spearman-rank correlation). Seven statistical tests were introduced during the lecture, but later only five statistical test uses in the project analyses.

3. Proposal Writing

We studied steps in proposal writing. There were 13 steps what we must follow when writing a proposal. In this section, we also studied to "read" scientific reports. In the end of the course each participant was required to prepare and carry out a research proposal. This can be done individually or in-group. Participant, then, must prepare full report individually. A mini symposium was held in the end of the course, where participant presented, either individually or collectively their report.

Beside the main course, a series of seminars was held where instructors presented their research programs in PNG in the evening (**Tabel 2**). We also learnt how to use GPS, turtles watching, and hiking.

Grade for each participant will be submitted later.

**Tabel 1. 1999 Field Course on Biological Research Participants
(Kamiali Training Center, Lae-Morobe Province, PNG)**

No	Name	Institution
1	Billy Bau	Forest Research Institute (FRI), Lae
2	Dobon Taksey	University of Technology (UNITECH), Lae
3	Don Sambale	University of Papua New Guinea, Port Moresby
4	Francis Essacu	University of Papua New Guinea, Port Moresby
5	Fufuse Bewang	University of Technology (UNITECH), Lae
6	Gabriel Luluaki	University of Papua New Guinea, Port Moresby
7	Gimana Poigeno	University of Papua New Guinea, Port Moresby
8	Gou Bue	University of Papua New Guinea, Port Moresby
9	Hais Wasel	OHU Butterfly Conservation, Madang
10	Heagivere Lovai	University of Papua New Guinea, Port Moresby
11	Hendrite Ohee	Junior Ekologist, CI Irian Jaya Program, Jayapura
12	Ian	University of Papua New Guinea, Port Moresby
13	Jacinta Francis	University of Papua New Guinea, Port Moresby
14	Mango Ikiio	University of Papua New Guinea, Port Moresby
15	Max	University of Papua New Guinea, Port Moresby
16	Michael Lovave	Forest Research Institute (FRI), Lae
17	Michael Pepen	University of Papua New Guinea, Port Moresby
18	Muhammad Farid	Junior Ekologist, CI Irian Jaya Program, Jayapura
19	Raymond Negehove	Forest Research Institute (FRI), Lae
20	Robert Sine	University of Papua New Guinea, Port Moresby
21	Wane Paina	University of Papua New Guinea, Port Moresby
22	Wilfred Ted	University of Papua New Guinea, Port Moresby (Graduated student)

Tabel 2. The Seminars Topic and The Presenter on 1999 Field Course on Biological Research at Kamiali Wildlife Management Area, Lae-Morobe Province, Papua New Guinea

No	Date	Topic	Presenter
1	Nov.21, 1999	Seed Dispersal Distance by cassowaries	Andrew L. Mack
2	Nov.25, 1999	Rainforest Phenology in PNG	Debra D. Wright
3	Nov. 27, 1999	Weevils in PNG	Olivier Missa
4	Nov.30, 1999	Cassowary in PNG	Debra D. Wright
5	Dec.2, 1999	Fruit Production in <i>Aglaia mackiana</i>	Andrew L. Mack
6	Dec.4, 1999	Sexual selection in Birds of Paradise	Ed Scholes
7	Dec.8, 1999	Seedling Ecology in the Rainforest	Andrew L. Mack
8	Dec.11, 1999	Bird Phenology in PNG	Andrew L. Mack
9	Dec.14, 1999	Cassowary Fruit choice	Debra D. Waright
10	Dec.18, 1999	Disturbance of Seedlings	Andrew L. Mack

CONSERVATION INTERNATIONAL
IRIAN JAYA PROGRAM

TRIP REPORT

Traveler name : Muhammad Farid
Activity : Field Course on Biological Research
Destination : Kamiali Training Center
Travel Date : 20th Nov – 20th Dec 1999

Program : Irian Jaya Field Office

Donor:

Report on a field course on Biological Research at Kamiali Wildlife Management Area, Lae - Morobe Province, PNG

Field course on Biological Research was held from 20th Nov – 20th Dec 1999. The course was organized by Christensen Fund and Wildlife Conservation Society in collaboration with Village Development Trust, Research and Conservation Foundation of PNG, and University of Papua New Guinea. There were 22 participants that attended **appendix 1**. They come from UPNG, FRI, CIFOR and CI. Four instructors did the course, **appendix 2**.

Objectives

This course was designed to teach us research both from the perspective of a research biologist and the perspective of a grant-issuing agency. This is an intensive course because it combines these two perspectives. The overall objectives are experimental design, implementation of our design, data analysis and presentation.

Kamiali training center

Kamiali Training Centre is located 60 km south of Lae (a two hour speedboat ride) on an ocean shore with sea grass beds and coral reefs; fresh water streams are nearby and directly behind the center are trails going through undisturbed rain-forest. The center is nesting site leatherback sea turtles, from November- February.

The Course

1. Manual

Two weeks before the course run, participants have received manual. The course manual contains timeline, syllabus, reading and writing assignment, lecture and seminar schedule, including 12 proposal. The proposals were made by instructor who have a good deal of experience writing proposal.

. In additional to course manual, the participants also received 4 papers about biodiversity, **appendix 3**.

2. Methods

Panel

By the early course, participants make a panel to choose 4 best proposal (**appendix 4**) from 12 proposal in the manual. Each participant must be prepared to voice our opinions on all the proposal at the meeting to decide which ones we think are best, which ones need modification to be acceptable and which ones will not be funded. We received details of how to evaluate the proposal later in the course book. Participants will do the four proposals in the field.

Field work

Each project required 2 days of fieldwork and one of analysis. After 3 days, groups switched to a new project. Instructor helped each group and rotated among group also.

Lecture

In the lecture, Instructor assigned some topic that could help us in the process analysis, fieldwork and writing report and proposal. Lecture began at 17.00 AM and finished at 18.00 AM. The lecture of material consist of three majority subject, such as:

1. Experimental designs that contain of how to build up an experiment.
2. Data analysis that emphasized statistic as tools to conclude a problem.
3. Proposal writing; in this section, we studied steps in proposal writing. We also studied to "read" scientific reports.

The fully lecture material can be seen **appendix 5**.

Seminars

A series of seminars was held where instructors presented their research programs in PNG in the evening. The seminars began at 19.00 AM – 20.00 AM. The seminar topic can be seen in the **appendix 6**.

Writing proposal assignment

In the end of the course each participant was required to prepare and carry out a research proposal. This can be done individually or in-group. Participants, then, must prepare full report individually. A mini symposium was held in the end of the course, where participant presented, either individually or collectively their report.

3. Other activities

Beside formal activities, participants were let to recreation around the camp on Sunday. They could choose singing, snorkeling, getting picture and visiting interesting places.

All of us also conducted turtle watching for one night in the Lababia beach. The watching run from 22.00 PM to 02.00 AM. We could see the leatherback turtle that their weight can reach 400 kg and length 1,8 m.

Sickness

Unfortunately, I must come back early because I was ill. I had got dengue. So I can't follow a few the course activities in the end of course such as a mini symposium and the last project that must be arrange by participants individually or in-group. However,

Almost activities can be followed by me such as lecture, seminar and field project (3 of 5 project had been followed).

The course follow up

Grade for each participant will be submitted later.

Comments

- ◆ By the end of the course JE has gone throughout the entire process; reviewing proposal, performing the proposed research, analyzing the data, presenting it to other scientist, and making a final evaluation of the proposals in the light of the research accomplished. This exercise should help to give us the experience we need to design research, write a good proposal, and complete the research.
- ◆ There were some positif value in the training that should be implemented in biological training program in Irian Jaya such as manual, trainer selection, participants selection, location selection and reference books. Manual was arranged simply and participants could understand easily. Trainer that had been chosen could give their knowledgement perfectly. Training was attended by participants that had been had a good experiences. Kamiali is a perfect location for biological training because there were many objects that could be researched. During the training, there were some books that could be used as reference.

Acknowledgements

I would like to thank CI-Irian Jaya program for funding me to participate in this course. Especially, Mr. Andy L. mack and Debra Wright for inviting me to participate in this course.

TRIP REPORT

Traveler Name : Bodhi Ahmad Trisnadin
Activity : Finance Workshop
Destination : Puerto Princessa , Philippine
Travel Dates : March 27 – April 1, 2000

Objectives :

The purpose of this trip was to

1. Standardization of Quickbooks application in the Conservation International Accounting System.
2. Preparation of the Conservation International budgeting process FY2001.
3. Preparation of year-end financial audit and the review of Field Office Accounting System.

Observation :

- Need for a more advanced accounting system in Washington DC office and in the field office.
- Need for a more uniform accounting system between field office and Washington DC office.
- Need for a better exchange of information between field office and Washington DC office.

Major Outcomes:

1. Implementation of new Oracle codes and structure in the field office Quickbooks file.
2. Information of the guidelines in the CI budgeting process FY2001.
3. Reviewed CI field office accounting file.

Follow – up :

- Implementation based on availability and cost of technology.
- In-depth training.
- On-line real time access to Financial Data.
- Powerful reporting tools.
- The budget will use the new Oracle accounting structure.
- Country Director will develop strategies & implementation plans.
- Accountant will work with Director to cost out these plans.
- Preparation of the year end closing entries & schedules.
- Serves as liaison with external auditor.

List of Annexes :

1. Preparation of Strategy Update, Annual Implementation Plan and Budget (FY 2001).
2. New Oracle Account Code.

THE PAPUA STAKEHOLDERS CONSULTATION

**Impact Of Decentralization Law In Natural Resources Management In Papua
And Local Institutions Capacity Under Decentralization**

**HOTEL SENTANI INDAH, 21, 22 February 2000
JAYAPURA, PAPUA**



I. Biodiversity Significance

Papua (Irian Jaya)¹, located on the western half of the island of Papua New Guinea in the Indonesian Archipelago, is, in association with Indonesia, the biologically richest and most diverse assemblage of ecosystems on earth.² With an area of 416,000 km², it contains a significant portion of the planet's remaining tropical forests and healthy coral reefs. Scientists believe that Papua has at least 25,000 species of vascular plants (an amazing 60-90% are endemic), 164 mammals, 329 reptiles and amphibians, 650 bird species, 259 freshwater and 1200 marine fishes, 150,000 insect species, and thousands more yet to be identified. The percentage of endemic species is the highest in the world.

Globally, Papua's forests provide essential ecosystem services such as regulating and maintaining air quality, contributing to the formation of rain and other weather patterns, and storing excess carbon dioxide. Around the world, agriculture, fisheries, and forestry are all dependent on biological diversity. Since many potentially valuable genotypes are found in wild relatives of economically important agricultural products, the loss of Papuan biodiversity will reduce the ability of science to improve genetic stock of important crops and livestock. Papua's remaining habitats have a significant store of endemic species to contribute to future genetic research.

Papua's biodiversity is also essential to industrial and medicinal advances. Worldwide, 120 clinically used prescription drugs are made from plant species, and nearly 40% of these plants come from tropical forests. The cure for AIDS, cancer, and other diseases, as well as novel fuel sources, may be waiting to be discovered in the forests and reefs of Papua where an estimated 80% of species have not yet been recorded.

II. Special Circumstances In Papua

Indonesia has experienced a profound political and economic transformation, bringing to power its first democratically elected government in 40 years. Concurrently, the country is going through a catastrophic economic contraction that has resulted in widespread hardship for the rural poor and the urban middle class. The new government is promoting political freedoms as it struggles to deal with the economic crisis. One important trend has been the emergence of autonomy and independence movements, including in Papua Province. The political future of Papua remains unclear, with the GOI offering decentralization and Papuans demanding special autonomy or independence

¹ The Indonesia Government is considering a name change from Irian Jaya to Papua Province to boost recognition of the area's ethnic tradition. In this document, Irian Jaya will be referred to as Papua.

² The Irian Jaya (Papua) Biodiversity Conservation Priority Setting Workshop, 1999 Page 1

But resource management decentralization carries significant risks over the short-term, even if the central government has performed poorly in protecting Indonesia's environmental services - habitat, water recycling, and stable climate. For decades, decisions were made by the central government, and very suddenly, through the UU No. 22 & 25 on decentralization, the authority will be transferred to the district level where there is little experience in effectively balancing develop demands with conservation requirements. At the provincial and district levels, there is a legacy of unresolved policy conflicts leftover from the previous government; insufficient good quality decision-support information; weak management agency capacity; lower than required appreciation of the importance of biodiversity conservation in the context of socio-economic development, and very weak planning and management coordination among district, provincial, central government, local community and NGO agencies.

The key problem is that management of natural resources was vested in the State. In the name of economic development, conglomerates controlled by well-educated urban elites gained rights to harvest Papua's timber or open plantations in large areas of "state forest". Some areas were put aside for strict protection despite the fact that local communities considered these forests to be their own territory and had long depended on the same area for their livelihood strategies. However, following the collapse on the New Order, adat (traditional communities) have taken action to regain rights over what they previously considered community property. Furthermore, reformists have argued that the state forestry regime was both unjust and led to large-scale environmental and social problems. Consequently, during the current reform period (era reformasi), academics, NGO activists, and Papua's community leaders have called for the management of many concessions and protected areas to be handed back to the adat communities.

Unfortunately, the institutional arrangements to even begin this process are not present. Under the previous government, adat communities were integrated into new local government structures and patronage networks. As "certain parties" (oknum)³ operating at local to national levels used their positions to extract rent from the "state forests", thus weakening the capacity of adat leaders to govern resource use. With the emergence of alliances between local officials and business interests, new institutional forms and norms emerged around logging and other extractive industry operations. These forms supported what is referred to as KKN – corruption, cronyism, and nepotism that neutralized any ecologically based natural resources management. Unhappily, this infrastructure has been institutionalized to the point where it is generally accepted practice, and local government depends on it to raise revenues for their budgets. But current political, social, and economic circumstances might open a door for genuine reform.

³ Oknum: influential people who use their position for self-interest.

The question is, how will district, provincial, and NGO agencies, and adat leaders get the management skills, administrative experience, and information they want to make fully informed resource management decisions that will balance economic returns with effective biodiversity conservation? With that in mind, Conservation International facilitated a consultation process, inviting key stakeholders in Papua to discuss and analyze the impact of the new decentralization law and how the group anticipates managing the changing decision making process that will be coming in just a few months.

III. The Papua Stakeholders Consultation

Conservation International facilitated the 2-day consultation in Jayapura for 50 members of government, NGOs, academia, and individual conservation activists. The topic selected was "Conservation Implementation Under Decentralization", a timely subject that yielded a great deal of information and insight. Participants agreed to leave their differences of opinion and roles outside the meeting room, and to focus on problems, opportunities, and solutions. With the assistance from 2 facilitators, the group did a series of information development exercises:

- A. Identified key threats, and how they are changing in light of decentralization plans;**
- B. Posed key important questions about natural resources management at the district and sub-district level;**
- C. Developed tentative answers to the difficult questions raise; and**
- D. Suggested high priority project interventions.**

The responses provide rich detail of the "demand" side of conservation investments, and revealed the urgent need to address what is called KKN in Indonesia – corruption, cronyism, and nepotism that neutralizes the positive impact of good policy and conservation implementation strategies.

The Papua consultation open with remarks from representative from local NGOs (YPMD), Prof. Jatna Supriatna, and HE Mackbon, Head of the Papua Bapedalda

The speakers emphasized the importance of saving Papua's biodiversity to sustain the future economic, political, and social development of the Papuan people. From the local NGO, international NGO and government perspective, it is clear that we understand the importance and the challenge of saving biodiversity in Papua especially during the current decentralization movement/trend that is happening all across Indonesia. The speakers warned the participants to be realistic about the decentralization process. While there will be many benefits, there will be significant challenges as well. Unrealistic expectations may make people lose faith in the process. The speakers

concluded by saying that each problem can be solved step by step if we all can cooperate successfully.

CI reiterated its goal in this consultation process not to tell groups what CI needs to be doing, but rather support a consultative process so CI and the participants can together better understand the impact of decentralization on natural resources management. In Indonesia, CI has been considering decentralization and potential impacts on biodiversity very carefully. It has been working with a carefully balanced bottom-up and top-down approach in the Togeans, Central Sulawesi, working both with communities directly and with provincial level government to support their efforts to improve natural resource planning and management.

A. Threats

The participants identified a large number proximate and intermediate threats to biodiversity habitat related to:

- 1) extractive industries,
- 2) corruption;
- 3) police and military participation in resource exploitation;
- 4) Insufficient transparency; inadequate power sharing;
- 5) top down planning;
- 6) little or no enforcement of regulations;
- 7) inadequate decision-support information;
- 8) too rapid decentralization;
- 9) weak management techniques and systems,
- 10) rapid changes in demographic patterns;
- 11) inadequate appreciation of conservation benefits;
- 12) weak land-use planning; inappropriate attitudes,
- 13) values and behavior; unregulated commercial activities that result in over-harvesting and pollution;
- 14) insufficient community consultation in resource use decisions;
- 15) incomplete tenure recognition;
- 16) weak legal framework for conservation;
- 17) inadequate resource use conflict management;
- 18) overlapping, contradictory policies and law;
- 19) dramatic changes in community material aspirations;
- 20) over-exploitation and destructive harvesting practices;
- 21) poverty and inappropriate distribution of development benefits;
- 22) growing international demand for Papuan resources;
- 23) no conservation curricula in the education system;
- 24) a weak concession system;
- 25) Inconsistent outside support for conservation;
- 26) bad or conflicting development and conservation advice from international experts and organizations.

Most of these threats were described with an example from Papua experience. The growing illegal trade in wildlife⁴ was mentioned, but only anecdotal information was offered.

B. Key Conservation Management Questions

The participants generated 10 priority questions that had the following point in common:

“How will we organize ourselves to deal with these issues under decentralization?”

The specific questions were as follows:

- 1) “How will we ensure that local communities receive sufficient benefits from conservation and development so that public support for conservation will be sufficient?”
- 2) “What system needs to be developed so conflicts about use forest and marine resources can be resolved?”
- 3) “How will we monitor and cope with the threats to biodiversity?”
- 4) “How will NGOs and government work together?”
- 5) “What should be the role of international organizations?”
- 6) “How will the districts develop the capacity to negotiate with and manage oversight of commercial company operations?”
- 7) “Who will be held accountable for protecting environmental services across the whole of Papua?”
- 8) “How will local NGOs change their strategies as a result of decentralization?”
- 9) “How will PAs be adequately funded?”
- 10) “How will kabupatens, each with a new NRM mandate, (provincial sub-districts) coordinate their conservation policies?”

⁴ Little information is available on Papuan wildlife traffic, but a recent investigation of the Pramuka bird market in East Jakarta found that anyone can easily procure endangered animals through black market transactions. An informant said the local traders rely on suppliers who “come from as far away as Irian Jaya (Papua)”. He said his customers were “rich people or military top brass” and mentioned the name of a well-known Army general. The informant reported that among his best sellers is the Cendrawasih bird from (Jakarta Post, February 28, 2000)

C. Tentative Answers To Questions Developed By Participants

During the consultation selected questions were answered in plenary group, then each question was considered in break out groups. Below are some of the questions that were asked and answered by the breakout groups.

“How will we ensure that local communities receive sufficient benefits from conservation and development so that public support for conservation will be sufficient?”

Answers:

1. Civil society strengthening through empowering “institusi adat”, religious organizations and government.
Encourage participatory community mapping.
2. Increase local institution capacity.
3. Develop new mechanisms to channel people aspirations.
4. Socialize UU No. 22, 25, (make people aware of and understand) biodiversity issues, and traditional knowledge, including hukum adat.
5. Build a learning process together with all stakeholders.
6. Develop social and environmental conflict management capacity, and less confusing spatial planning processes.

“How will we monitor and cope with the threats to biodiversity?”

Answers:

1. Empower DPRD as control mechanism
2. Increase quality of member DPRD to understand biodiversity threats.
3. Increase quality of dialogue between community members and DPRD.
People are encouraged to organize themselves so the message is getting stronger.
4. Encourage development of pressure group: peer groups, NGOs, adat community
5. Develop “think tank” to help decision makers and DPRD to assess environmental issue.

“How will kabupaten, each with a new NRM mandate, (provincial sub-districts) coordinate their conservation policies?”

Answers:

1. Develop close coordination within each kabupaten
2. Implement “KPH” at Kabupaten level

3. Restructure forest management: Forest management should be managed by Operational Manager
4. Develop control mechanism for KPH through DPRD and civil society
5. Restructuring Ministry of Forestry; Dinas Konservasi & SDA should “buy into” community aspirations.

D. Potential Projects Identified By Consultation Participants:

The participants then identified priority projects for the international conservation community to consider:

1. Technical Assistance (TA)

- Government/NGO GIS team to assist district institutions in NRM planning;
- comparative study of community law and resource management regimes;
- resource management capacity building at all levels, especially in PAs;
- baseline study of mangrove forest conditions, value, and functions;
- simple analytic tools for economic valuation and resource use options.

2. Mechanisms

- Recognition of ancestral domains and resource use;
- creation of transparent oversight mechanisms;
- legal system that will enforce fair regulation;
- system to ensure community leadership in natural resource management;
- mechanism to facilitate coordination across sectors;
- a province-wide monitoring system to know the status of ecosystem health;
- a police agency that can stop illegal activities.

3. Awareness and Values

- innovative mechanisms linked to stakeholders interest and cultures for conservation awareness building;
- public information campaign on rights, roles, and responsibilities under decentralization; development of a conservation curriculum into education system; special “courses” and presentations to the local parliament; district heads (Bupati), and sub-district heads (Camat), and ethnic leaders;

4. Local Institutional Development

- think-tanks at district (kabupaten) level parliaments;
- mechanisms to strengthen traditional community enforcement (internal and external resource users) of indigenous management regimes;
- systematic conservation capacity audit;

- formation of village NRM committees;
- conservation functions technical training program adapted for Papua;
- database / information management development and training;

5. Resource Development

- set up an international campaign to save Papua;
- establish a well-managed, effective conservation trust fund;
- create a mechanism for industry contribution to local institutions for conservation activities; institute a conservation/environmental tax system;
- assess large fines for non-compliance and use income for conservation.

IV Outside of Plenary Advice

The CI participants asked for and received advice about the role that international organizations could play in Papua in general, and in conservation particularly. The participants provided the following advice.

On the question of appropriate roles for international conservation organizations, comments included the following. *International organizations should assume a supportive role assisting all levels to develop their capacities as quickly as possible. Sometimes there are too many meetings but nothing happens. We need information to make successful plans and to implement them. We get a lot of advice about what to do, but little help in actually doing it. Our decision-makers have to understand what is going on outside of Papua and Indonesia, and we want to take advantage of the experience of other countries that are struggling with the same issues. Our major challenge is how to achieve economic and social development without harming the environment. Sometimes international organizations quarrel with each other, and this is not a good situation. They should work together even if they have different ways of working. It is important to assist all levels. The employees should understand our way of living and making decisions and not be too quick to criticize, and we should be respected. The IO's should understand our traditional people deeply, and appreciate their aspirations. The IO's will have to be patient because the political aspirations of the people of Papua are still developing, and there are many differences of opinion, and there may be some difficult times ahead. Finally, international organizations should not take sides in our political development. We need help to make development sustainable, and this should be above politics.*

V. CI Participant Observations

During a short meeting after the Papua, the CI participants made the following observations:

An "historic" opportunity exists in Papua for a major shift in attitudes and practices supporting balanced economic development and environmental protection. Papuans and the Indonesian government are working out a new "deal" that will transform political, social, and economic life. The tension associated with this new deal opens the door for power shifts and changes in bureaucratic culture that favor sustainable development goals, and these include effective protection of environmental services, including.

Papuans (and all of us) cannot thrive without extensive, productive ecosystems and the benefits they "deliver" free of charge to its people. The most obvious are good land and water habitats for valuable plants and animals, dependable supplies of agricultural and drinking water, productive soils, and predictable climate patterns. Currently, Papua's ecosystems yield food, water, material, stable micro-climates, recreation, intangible spiritual benefits, and sources of income generation. A steady supply of all these is critical for sustainable development. Currently, some interests are planning to take short-term natural resource "profits" in lieu of long-term, stable environmental investment "income". If the pattern follows the rest of Indonesia, it will result in significant biodiversity loss and seriously degraded environmental services.

Papua's rich resources (oil, gas, minerals) are enormously attractive to Indonesian and international investors who have a vested interest in quickly securing permits to undertake operations. Many promise soft impact operations and multiple social benefits, but they deliver devastation and poverty, but others are serious about international environmental protection standards. The central government has declared 13 special economic development zones (KAPET) that will invite investment in large-scale infrastructure construction, oil and gas development, small and large-scale mining, additional logging, plantations, and agricultural expansion. Provincial, district and local authorities will have to judge among investment opportunities that will grow in number as resource availability declines in other parts of Indonesia and the region. According to consultation participants, district, provincial, and NGO agencies do not yet have the management skills, administrative experience, and information needed to make fully informed resource management decisions that will balance economic returns with effective biodiversity conservation. At the community level, traditional (adat) management regimes have been undermined from lack of use. How will these levels discern between competent commercial and government ventures, and get-rich-quick-and-run operations?

VI. CI Participant Conclusions Based On Consultation and CI Research

- The current political crisis and forest management decentralization process has created an atmosphere in which significant shifts in conservation strategy are being seriously considered. It is a unique opportunity for outsiders to help secure environmental stewardship and

biodiversity conservation goals in partnership with the Indonesian government and Papuans.

- Papua's habitats have suffered only minor fragmentation, and sufficient forests and reefs remain intact for international organizations to pursue global conservation goals in the region.
- There are a sufficient number of well-intentioned people in the public and private sectors to believe that positive changes in conservation management can be realized.
- The NGO and university communities are especially ready to benefit from assistance. They want to help Papuans find economically viable alternatives to destructive extractive industries. Government staff must not be left out of the skills development process.
- While personal safety cannot be guaranteed, all stakeholders felt that international organization staff would not be in danger while working in Papua.
- Papua, in spite of its current difficulties, offers international organizations a unique opportunity to foster conservation goals in this critically endangered New Guinea Wilderness Area.
- The CI/CII participants will recommend that Conservation International send a Program Development Team to Papua to begin preparing project plans. This recommendation does not obligate CI to any projects in Papua, but it establishes the beginning of the consideration process.

VIII. Closing and Vision

Closing remarks were made by Dr. Jatna Supriatna (CI Indonesia), Decky Rumaropen (YPMD) and Prof. F. Wanggai (UNCEN)

The closing remarks from CI, YPMD and UNCEN stated the importance of this consultative process. It was a good exercise for group, thinking not only about their organization role in saving biodiversity in the Papua, but also a group thinking beyond their organizational roles. This consultative process could be the basis for additional, regular discussion, either in small working groups, or all together again. Wanggai stated the importance of education for all levels as the issues discussed in the previous 2 days were very much related to education, both formal and informal. Decky Rumaropen stated the need to collaborate between local, international NGOs, University, government agencies, and private sectors, as Papua is too big and the issue is much too complicated to be solved by any single organization. Prof. Jatna Supriatna concluded the closing session

by thanking everybody for the full 2 days of energetic participation and hoped that the participants will return to their own institutions with the a new commitment to working together and listening to each other. That will go a long way to solving Papua's environment and development challenges. .

The Papua Stakeholders Consultation ended with the hope that similar consultations could be held on a regular basis to exchange ideas, information, and plans for the future. Privately, several participants said the consultations would help the participants to develop the habit of working together on difficult issues, and could be the basis for a coordinating forum on conservation.

Based on all that was heard and said, a small group of CI and Papuan participants drafted the following "vision" for Papua's environmental future.

By the year 2025, Papua will be recognized as a successful experiment in balancing economic and social development needs with science-informed environmental management. The central government, Papua's leaders, its people, and the international and domestic private sectors will have incorporated biodiversity conservation into resource use strategies by following rigorous and agreed upon environmental management standards. Former inefficient production methods will be replaced by diversified and non-destructive techniques.

There will be broad public support for effective environmental stewardship. The government will have demonstrated its commitment to biodiversity stewardship, and act transparently and efficiently in an open political system where conservation laws are fairly applied. A body of competent conservation managers will have the skills necessary to successfully manage Papua's environmental assets, and to introduce innovative conservation methods and adaptive management techniques.

There will be sufficient, credible information to make well-informed natural resources management decisions. Policies will be reformed and incentives created to support sustainable development objectives where the precautionary principle is applied in regards to environmental use and management. The private sector, recognizing Papua's strengthened natural resources management capacity, will effectively cooperate with communities to ensure clarity of resource use tenure, reduce environmental pressures, and achieve the objectives of sustainable development and resources management. Ethnic communities will have had their ancestral domains, resource tenure rights, and responsibilities recognized, and will be using their resources sustainably within the context of system-wide biodiversity conservation objectives. Traditional management regimes will have "modern" elements so that it can effectively protect its biodiversity assets.

As a result, the environment will be characterized by a fully protected ecosystem network of PAs, multiple-purpose PAs, and conservation corridors where biodiversity protection is assured. No species or unique ecosystem will have been allowed to disappear. Because of its international reputation for cultural, species and landscape diversity and beauty, a significant portion of Papua's income will be derived through non-extractive activities such as ecotourism, research, and other enterprises favoring the environment. Extractive industries will meet international standards for "soft footprint" operations. The international community will have made a long-term commitment to supporting species conservation through grants, loans, rents for carbon sequestration, research fees, technical assistance, appropriate tourism development, political support, and good offices.

Agenda Papua Stakeholder Consultation

Day 1: 21 February 2000

08:30 Participants arrive

09:00-09:30 Keynote speakers

Jatna Supriatna Country Director Conservation International

Kirk Talbott Senior Director Asia Pacific Conservation

International

Washington DC

Marthin Pathay FORERI/YPMD

H.E. Mackbon Head of Bapedalda Papua

09:30-10:00 Introduce participants

10:00-10:30 Identify threats in Papua, clustering threats

10:30-11:00 Coffee break

11:00-11:30 Presentation CI: Kirk Talbott & Jatna Supriatna

CI Global, Indonesia and Papua program, decentralization issue in Natural Resources Management (NRM)

11:30-12:30 Discussion and clustering on question: "What is the biggest impact on decentralization law in (NRM)?"

12:30-14:00 Lunch

14:00-14:30 Answers to questions "What is the biggest impact on decentralization law in NRM?"

Clustering all answers to each questions in groups

14:30-15:30 Continue answers to questions; and clustering answers to questions in groups

15:30-16:00 Coffee break

16:00-17:30 Continue answers to questions; and clustering answers to questions in groups

18:30 Dinner

Day 2, 22 February 2000

09:00-10:00 Brief summary of first day discussion

Continue discussion

10:00-10:30 Coffee break

10:30-12:00 Synthesis and verification to answers & questions raised in first day: plenary session

12:00-14:00 Lunch

14:00-14:30 Summary discussion to introduce to topic: "What needs to be done in Papua to save biodiversity?"

14:30-16:00 Discussion and analyze opportunities (project interventions) to save biodiversity in Papua.

16:00-16:30 Coffee break

16:30-17:30 Summary of result

17:30-18:00 Closing

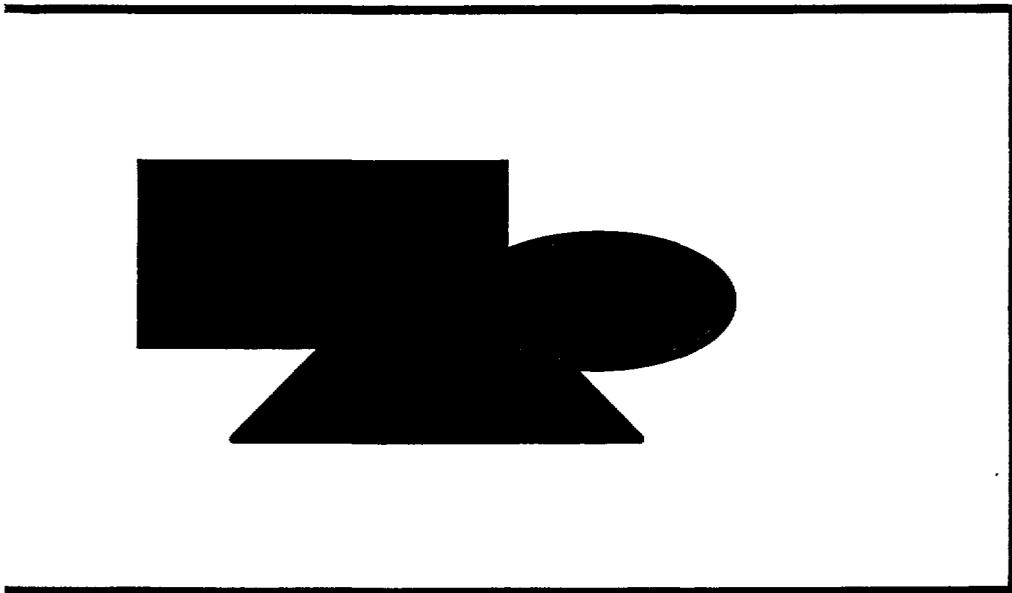
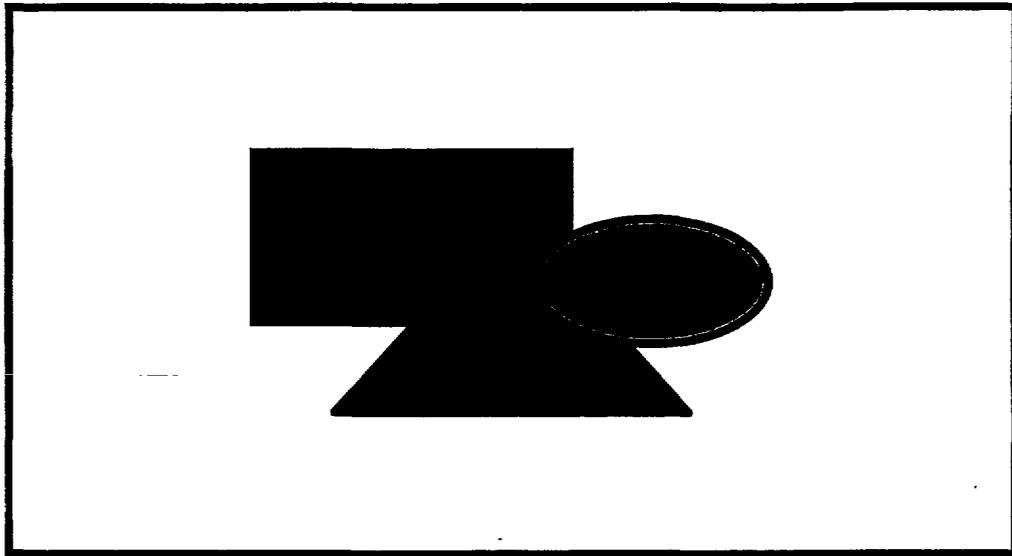
List of participants on Papua Stakeholders Consultation

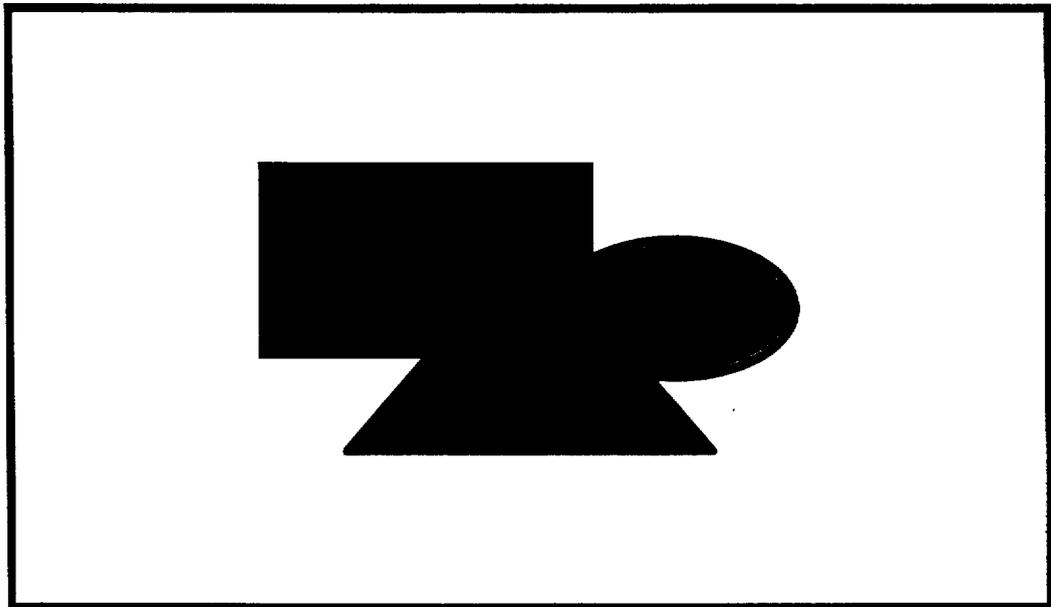
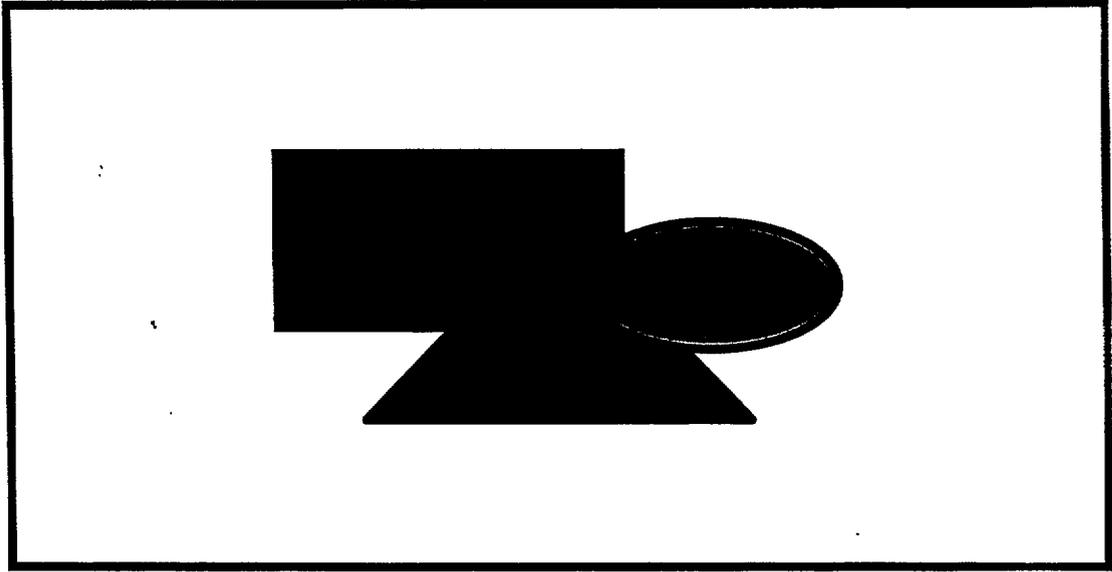
Hotel Sentani: 21 & 22 February 2000

No	Name	Institution
1	Edwin. L Yoroh	Biphut Wil 10
2	Hardono	Dinas Perikanan Tk I
3	Windi Hartono	Dinas Perikanan Tk I
4	Rahman Ramli	LBH Jayapura
5	Dominggas Nari	Konperma
6	Sam Renyaan	Uncen/CI
7	Martin Patay	Foreri/YPMD
8	Enos H. Rumnasara	Uncen
9	Frans Wanggai	Uncen, Faperta
10	Peter Pelamonia	Paradisea
11	Signatius SR	Rumsram
12	Muhamad Ali	Bappeda Jayapura
13	W. Bilanglabi	Bappeda Jayapura
14	Andi Wamafma	YALI
15	N. Suryadi	Kanwil DEPTAN
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17	Suhandri	WWF Sahul
18	Silvester Wogan	LPPMA
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21	Steve Dumbon	Jamping
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23	Tanga B.	BKSDA jayapura
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25	Anton Klanangame	DPRD Tk I
26	Basri Hassan	Elpera Papua
27	Herman Prayitno	Kanwil Hutbun
28	Yance Kambuaya	YPMD
29	Decky Rumaropen	YPMD
30	Evi Adipati	NRM II/LPO
31	Hendrikus Harun	YPLHC
32	Nicolas Yaung	Bappeda Kab Jayapura
33	Max Fofit	Yasanto
34	Maidepa	Kanwil Tamben
35	Purbasari Surjadi	CI-Indonesia
36	M. Farid	CI-Indonesia
37	Hendrite Ohee	CI-Indonesia
38	Jatna Supriatna	CI-Indonesia
39	Yance de Fretes	CI-Indonesia
40	Suer Suryadi	CI-Indonesia
41	Kirk Talbot	CI-Washington
42	Wendy Tan	CI-Washington
43	Tundi Agardy	CI-Washington

44 Peter Kristensen
45 Jim Cannon
46 David Richards

CI-Washington
CI-Washington
The Blue Marble Group





Material & Time

Training Material	Effective Time (hour)
A. Introduction to Biodiversity 1. Biodiversity Irian Jaya and PNG 2. Introduction to plants, birds, mammals, herpetofauna survey 3. Introduction to field and survey equipment. 4. Simulation on method "Mark and Recapture" 5. Introduction to method "Removing Trap"	20
B. Plants 1. Method/Practice data collection 2. Method/practice plants identification 3. Method/practice collection, preservation and developing herbarium 4. Sampling practice	30
C. Mammals 1. Method/practice data collection 2. Method/practice identification mammals 3. Method/practice specimen preservation (wet & dry)	30
D. Birds 1. Method/practice data collection 2. Method/practice identification birds	30
E. Herpetofauna 1. Method/practice data collection 2. Method/practice identification herpetofauna	30
F. Data Analyse 1. Statistical description 2. Use statistic 3. Scientific writing technique 4. Data analyse with computer program.	15
Total time	155

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TEKNIK DASAR INVENTARISASI KEANEKARAGAMAN HAYATI
YONGSU DOSOYO, 6-25 SEPTEMBER 1999

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			Tel.: (0967) 582739

Rencana Jadwal Kegiatan Latihan Peningkatan Keterampilan Dasar Survai Lapangan di Yongsu Kecil

No	Tgl Pelaksanaan	Materi	Kelompok	Pengajar	Keterangan
1	6 - 8 September	Umum	A,B,C dan D	Ydf & Semua Pelatih	Hari Senin, 6 September untuk
2	9 - 11 September	Tumbuhan	A	Pak Ismail	administrasi peserta, pendirian tenda dan lain-lain.
		Herpetofauna	B	Pak Darmawan/Steve Richards	
		Burung	C	Pak Wahyu	
		Mamalia	D	Pak Menzies	
3	13 - 15 September	Herpetofauna	B	Pak Darmawan/Steve Richards	
		Burung	C	Pak Wahyu	
		Mamalia	D	Pak Menzies	
		Tumbuhan	A	Pak Ismail	
4	16 - 18 September	Burung	C	Pak Wahyu	
		Mamalia	D	Pak Menzies	
		Tumbuhan	A	Pak Ismail	
		Herpetofauna	B	Pak Darmawan/Steve Richards	
5	20 - 22 September	Mamalia	D	Pak Menzies	
		Tumbuhan	A	Pak Ismail	
		Herpetofauna	B	Pak Darmawan/Steve Richards	
		Burung	C	Pak Wahyu	
6	23 - 25 September	Analisis Data	A,B,C dan D	Ydf & semua trainer	Kelompok dibagi berdasarkan minat peserta

**Brief of the Project Cycle Management Workshop
Costa Rica- 26th January to 04th February 2000.**

Forward:

This brief contains our impressions and insights into the overall CI organizational network. The workshop was designed to introduce a process that CI can use to manage project cycles.

For fairly new employees like ourselves (Bena & Banak), it was a timely initiative to introduce us to the broad network of activities and responsibilities that make this organization a dynamic and coherent institution.

The workshop covered group exercises based on a case study and plenary sessions, where smaller group exercises were presented, followed by discussions. We also had evening presentations by various country programs and departments within CI.

Journal:

DATE	EVENT
23 January 2000	Bena and I left PNG for Sydney via Brisbane, arrived in Sydney at 8.00 pm., caught a taxi to Airport Park Royal hotel and checked in for the night.
24 January 2000	Caught a taxi to the Costa Rican Consulate to follow-up on our visa applications. To our dismay, we were told that there was no response from the Migrations in Costa Rica. The Consular General was rather generous and told us to wait while he studied all the options and possibilities. He then announced after ten minutes that he will stick his neck out for us. We waited for about an hour and a half while he put all the necessary documents for our visas together and had our passports stamped. We returned to the hotel after two o'clock and checked in at the Sydney airport at 4pm. We boarded the Qantas flight 888 at 2200 hours for a long 14 hour flight to Los Angeles. We gained one day during the flight so we arrived on the same day in Los Angeles despite the 14 hour flight. There, we waited for nine hours until 2230 hours in the evening before our next flight to San Jose, Costa Rica.
25 January 2000	We arrived at San Jose at 0900 hours
26 January 2000	Other field friends who were in Washington and some Washington-based staffers could not make it to San Jose due to heavy snow, so those of us who had already arrived were asked by Christopher Radar (the lead Workshop organizer) to go on the Rainforest Aerial Tram tour. Bena and I joined the group for the day.
27 January 2000	Workshop began
28 January 2000	Workshop
29 January 2000	Workshop
30 January 2000	Day trip to the Carribean Coast
31 January 2000	Workshop
01 February 2000	Workshop
02 February 2000	Workshop
03 February 2000	Workshop ended
04 February 2000	Left San Jose and flew to Los Angeles, took another flight to Washington
05 February 2000	Arrived in Washington (Dulles Airport) at 5.00 am. Chuck picked us up, and we arrived at his house at 7.30 am. After settling in, we went out for lunch with Chuck and his family. We returned to the house at 2.00 pm and rested during the afternoon. We were met by Wendy and our Indonesian friends for dinner from seven until ten pm.
06 February 2000	Spent the day sight seeing around DC
07 February 2000	Went with Chuck to CI Office where we met some of the people we usually deal with back in PNG by email. The rest of the day, we met with Chuck. We also joined Kirk and a few other CI Country Program representatives for a meeting with representatives from a Japanese Bank who were interested in giving a soft loan to CI for the work we

	do in conservation.
08 February 2000	Left Washington for Los Angeles and Sydney. <i>"lost a day during our flight from Los Angeles to Sydney"</i>
10 February 2000	Arrived in Sydney at eight o'clock in the morning. Spent the night in Sydney.
11 February 2000	Flew back to Port Moresby.

Course Content:

In our ten day workshop we;

- Learned the chronology of steps required to prepare for articulating a strategy
- Learned to understand the power of using a force field analysis when discussing threats and opportunities
- Learned how to organize the list of stakeholder effectively to support the articulating of a strategy
- Learned how to do an alternatives analysis
- Learned how to analyze CI's niche within the greater analysis
- Learned how to articulate a strategy given the various options of the alternatives analysis
- Learned to understand the fundamental necessity of this component for both planning and management
- Learned to identify a portfolio of projects for consideration
- Learned about the initial pieces of information for a management plan
- Learned to develop the elements of a project in support of a strategy
- Learned to review the basics of the LogFRAME
- Learned to identify pieces of a management plan and discuss their importance
- Learned about work breakdown structures and how they contribute to sound project management
- Learned the use of Gantt chart(s) for management purposes
- Learned to write a budget that is directly linked to a strategy
- Learned to write budgets using CI's accounting system and conduct cost-benefit analysis
- Received a brief overview of how to develop an M&E plan for projects and programs that helps measure performance of a strategy (included a discussion of performance measurement)
- Learned briefly about review and evaluation methodologies and the importance of establishing a regular schedule for conducting them internally
- Learned how to use the given information for reporting to various people at various levels, including CI's EMT, PRT, Board of Directors, and donors
- Learned the steps for identifying operational needs/gaps
- Were presented with steps for developing a fundraising strategy
- Learned about possible software options for project management and managing strategy information-Microsoft Project.

Bena's Impression:

I have attended some development training that deals with project management cycles and the LOGFRAME. To me this prior training was very broad and often confusing as compared to this one. The Costa Rica training in content appeared to be more advanced, in that it attempted to present a revised version of the processes and methods that were in use for the past 30 years. The revised version of the processes and methods were made more relevant to CI's global mission and culture.

The course content was made very simple for people who spoke and used English as a second or third language. I certainly hope that what was learned will be put to use in the Milne Bay Project. To me, my principle for the use of this tool is that; "it is always better to be approximately correct than to be precisely wrong"; in other words, I am eager to learn but will still require

supervision where necessary and look forward to the follow-up by the Monitoring and Evaluation Department in DC.

Banak's Impression:

I have not attended Management Training before, and I found every topic covered a learning experience. I have written work-plans and budgets to cover the cost of activities in the work-plan, and then reported on these activities in the past. This workshop gave me a new way of looking at work-plans, budgets and reports. I now realize that all the work-plans, budgeting and reports are components of a bigger management plan or strategy.

I went to the training workshop thinking that I would come back a wizard in writing Monitoring and Evaluation (M&E) plans. It didn't work out the way I expected it to be. I ended up learning tools to articulate a Project/Program Strategy, and an M&E plan was only a small part of the whole Strategy. The course content ranged from visioning to strategy formulation to using LogFRAME as a management tool.

I intend to use the skills and tools I learned to assist in the articulation of a Lakekamu Strategy with project colleagues in CI and FPCD, our partner NGO. I would also like to assist with other CI project planning and management if required to do so.

As CI is growing very fast into a big organization, the workshop was a way of passing on important communication tools required by DC and the donors. There is an immediate need for coordination at all levels of management within the CI hierarchy.

The workshop also gave us a chance to share our experiences with other CI Country Programs and the Washington staff.

Recommendations:

1. During our training, we were asked by the M&E Department personnel, who were also our facilitators, to make recommendations for M&E focal person(s) within our country program (CI-PNG). It was suggested to us that one of us be the focal person to consult with M&E-Washington on matters related to the Monitoring and Evaluation of Projects/Program. We suggested that our Assistant Program Director (APD) could be the focal person to communicate with M&E-Washington, unless CI-PNG Management wanted one of us to be the person.
2. We see a need to schedule our own checkpoints throughout the year to assess the progress of each of our projects and the country program as a whole. We may do this on a monthly or quarterly basis, which ever works well for us. We can do this in collaboration with our M&E focal person (if we decide to have one).
3. A follow-up training specifically on Monitoring and Evaluation will be held sometime in September or October of this year. Information will be made available after the venue is confirmed in April. Depending on the availability of funds and time, we recommend that someone from our country program attends that training.

In conclusion, we (Bena & Banak) are happy to answer any questions regarding what we have put together above.

Signed;

Bena Seta (Mr)

.....
Banak Gamui (Mr)

Preliminary Report on findings of the Zoological Survey in lowland rainforest near Taintop Village,
East New Britain Province, Papua New Guinea

insert CI logo

Prepared by A. L. Mack
11 April 2000



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INTRODUCTION

Background

Conservation International (CI), in conjunction with the East New Britain Sosei Eksen Komiti (ENBSEK), has worked with the landowners of Taintop, Sampun and Klampun villages in East New Britain Province (ENB) to help conserve their lands and resist encroachment by logging companies. One component of the conservation program is to undertake biological studies of the unlogged forests to ascertain the health, and conservation importance of these forests. A desired corollary to is the study of nearby forests that were previously logged in order to predict impacts to the ecosystem and biodiversity should logging occur.

A survey was planned for March-April 2000 in the area with scientific expertise provided by the Wildlife Conservation Society (WCS), the University of Papua New Guinea (UPNG) and visiting scientists from James Cook University (Australia) and Dartmouth University (USA). The intended goal of the survey was to make comparisons of biota at two sites, one logged and one unlogged. During preliminary visits to the study area by organizers from CI, ENBSEK and WCS permission from landowners and potential study sites were negotiated. Subsequent to these negotiations a logging company became more active in the area, building a logging road right into Taintop Village where it was stopped under protest from the landowners. Conflict within the communities originating from controversies with the loggers eventuated in the abrupt termination of the field survey and completely prevented any survey work in logged forests (see timetable). A team of scientists from the Forest Research Institute was scheduled to perform a vegetation survey, but this was entirely cancelled due to the landowner disputes. Despite the truncation of fieldwork, the team made considerable scientific findings that demonstrate that the remaining lowland forests of ENB are of considerable scientific and conservation value.

Itinerary

February 2000: Preliminary logistic arrangements by M. Ewai and E. Lapaun.

March 9: Mack arrives in ENB for final logistics and establishing base camp.

March 10: begin field work; learn that logged site cannot be visited.

March 11-13: establish Wanui field camp. Main field team arrives 13th.

March 14-26: field work at Wanui Camp.

March 27: Landowners evict survey team from Wanui Camp.

March 28: Team hikes to Sampun.

March 29: Team leaves ENB.

Participants

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PROJECT SUMMARY

The biota of New Britain is biogeographically distinct from that of the New Guinea mainland and thus comprises a conservation priority as distinct as if it were a separate country. The environment around the survey camp is in pristine condition; there was little evidence of human presence or anthropocentric modifications. The biota of this area is not well known and highly endemic. In just two weeks of fieldwork, several new species were discovered and new records were added to the known fauna of New Britain. Certainly there are many more discoveries awaiting science in this region. The area also exhibits high levels of diversity; many of the taxa expected to occur in lowland New Britain were recorded or are reasonably expected to occur should more survey effort occur. The area also is under considerable threat from external commercial logging. From casual observation in nearby forest that has been logged, it is certain that such logging poses a critical threat to many of the organisms that comprise the New Britain lowland rainforest. From aerial inspection in East New Britain, it is apparent that much of the once extensive lowland forests of East New Britain have already been logged and their biota undoubtedly impoverished. Thus the area of the survey carries all four criteria for conservation priority: endemism, diversity, threat, and limited area. Few areas, if any, in Papua New Guinea have all four criteria to such extent and thus few areas should be considered a higher conservation priority.

SUMMARY OF SCIENTIFIC FINDINGS

Stream ecology

Very little is known about the fauna, either invertebrate or vertebrate, of Papua New Guinean streams and no published reports exist for the island of New Britain. Our goal was to quantitatively sample the macroinvertebrate community of Wanui Brook and, to a lesser extent, the larger parallel drainage of Viaet Brook. In the process, we also surveyed the physical habitat characteristics of Wanui Brook and qualitatively sampled the fish fauna of both Wanui and Viaet Brooks.

Wanui Brook is a pristine, second-order tropical stream. As a result of low nutrient input and a dense canopy cover (greater than 85% on average), most of the stream's organic matter is derived allochthonously in the form of leaf litter from riparian vegetation. The chemistry of Wanui Brook (and other nearby undisturbed streams) indicates water that is clean and unimpacted by human activities. Conductivity is low (0.130 mS/cm), pH is near neutral (6.90) and dissolved oxygen is high (7.35 mg/L). Additionally the physical habitat is an undisturbed sequence of riffles and pools marked by cobble-boulder substrate and very low suspended particulate matter. Consequently, the invertebrate fauna is dominated by a community indicative of pristine tropical streams with many species adapted to shredding leaf matter and collecting suspended fine detritus. Species richness is high (more than insect families represented), but relative abundances are generally low. The most abundant and diverse insect orders in Wanui Brook (at least 7 families of Trichoptera, 4 families of Ephemeroptera, and 1 family of Plecoptera) are those that are most sensitive to human induced environmental changes (e.g. pollution, logging). To our knowledge, there are no previously published reports of the order Plecoptera anywhere in Papua New Guinea. In a previous study of a small undisturbed stream on Bougainville Island, over 30 different taxa of Trichoptera were found, of which only one species had been previously described. Once all of our samples are processed and identified, we expect to find similar levels of undescribed species.

The streams in this area also support a diverse and productive decapod community. Wanui Brook contained two families of freshwater shrimp and at least three families of crab. Additionally, Wanui had at least four fish species all in the family, Gobiidae. Larger Viaet Brook had fewer decapods, but a surprisingly diverse fish community with at least five families representing eleven genera. At least one of these probably represents a previously undescribed species

The physical structure and biological communities of streams can provide sensitive indicators of changes in watershed land use. Most human-induced changes to a watershed reduce the complexity of stream habitats (i.e. riffle-pool sequences disappear) and, as a result, the streams support fewer species. In speciose ecosystems such as the streams of Papua New Guinea, this poses a major threat to an important but largely undiscovered resource, animal diversity. As such, it is important to not only study the biology and geomorphology of these aquatic habitats before major human-induced changes occur, but also to prevent these major changes from occurring.

Herpetofauna

A total of twelve native frog species were collected during a 14-day period. The frog fauna at Wide Bay is surprisingly diverse, representing the equivalent of 75% of species known from the island of New Britain. At least one, and probably two species appear to be new to science. One species, *Platymantis magnus*, was previously known only from New Ireland, and one New Britain endemic, *P. nexipus*, was previously known only from a single specimen. In addition, two species of the genus *Rana* are confirmed for the island of New Britain (previous reports suggested that only one species occurs in the Bismarcks). Six species of frogs (50%) reported from the Wide Bay sites are endemic to New Britain, and a further four species (33%) are endemic to the Bismarck Archipelago.

Twelve species of reptiles were recorded during the survey. Of these, two species (17%) are endemic to the Bismarck Archipelago, but most species appear to belong to taxa with wide distributions in New Guinea or the South Pacific.

As frogs are known to be sensitive indicators of habitat quality, the discovery of such a diverse frog fauna at the Wanui Camp indicates a healthy forest environment. As all the frogs of New Britain exhibit direct development, the changes in temperature and humidity that follow from logging would be expected to detrimentally affect frog populations. Due to the high levels of endemism in the New Britain frog fauna (50% of the species at Wanui) it is particularly important to ensure the few remaining intact forests of lowland New Britain are conserved.

Birds

About fifty-three species of forest birds were recorded during the survey. Roughly 190 species are known from the island of New Britain, including coastal, and montane habitats unvisited in this survey. In the lowland habitats visited on this survey one might expect at most to encounter about 95 species. Thus in just two weeks we recorded over 50% of the lowland rainforest avifauna of New Britain at this one site. By New Britain standards (generally species poor relative to mainland sites), this is a site with a diverse avifauna.

The systematics of many taxa found in the Bismarck Archipelago and New Guinea are still problematic. The near-complete absence of modern biochemical systematic studies of this avifauna leaves doubt as to the status of many unique island forms. Are they island endemic species or well-differentiated sub-species? Of the 53 species recorded during the survey, 26 are well-differentiated forms widely considered endemic species. Thus about half of the species recorded during the survey are endemic to New Britain or the Bismarck Archipelago and not known from the mainland of Papua New Guinea.

A number of species recorded are relatively poorly-known and considered scarce on New Britain. Six are considered near-threatened and one endangered by BirdLife International and the IUCN. These are predominantly lowland species that have had serious reductions in their native habitat due to extensive commercial logging throughout the New Britain lowlands. As more areas are logged, the remaining areas such as the one visited on this survey, become inordinately important in terms of conservation priority. Thus, this area probably represents what was once a typical, rich site for lowland New Britain. However, with the extensive habitat alteration all around it, the site has become exceptionally important as a final refuge for many of New Britain's endemic and threatened species. If recolonization of disturbed forests is to occur, it is critical that islands of intact habitat and endemic communities remain in order to serve as the

source of colonists and regeneration of logged forest. This area's natural value as a diverse and healthy lowland rainforest has been magnified by the destruction of lowland forests around it.

Mammals

Currently, 52 mammal species (Bonaccorso 1998 & Flannery 1995) apart from domesticated and feral commensals (pigs, dogs & cats) are recorded from New Britain island. These include 4 marsupial, 10 rodent and 38 bat species of which 7 (13%) are endemic (3 rats & 4 bats) to the Bismarck Archipelago and occur on New Britain island. Of the 52 mammal species 13% are considered threatened or vulnerable (Bonaccorso 1998 & Flannery 1995) and an additional 8% are data deficient. Therefore, about one-fifth of the probable mammal species on the island of New Britain are in need of some form of conservation or research measure.

During this two-week survey we captured a total of eight mammal species: four flying foxes, three insectivorous bats and one rat. Only one site, at 310 m elevation, was sampled using 800 Sherman live-trap-nights, 28,000 net-meter-hours, and 20 harp-trap-nights. Rodent density was extremely low, and the only species captured, *Melomys platyops*, is considered secure and lives in dense understory near streams—logging would affect this species (Flannery 1995). Two of the flying foxes captured, *Dobsonia praedatrix* and *Melanycteris melanops* are endemic to the Bismarck Islands. *D. praedatrix* is listed as near threatened, and roosts singly or in small groups in foliage (Bonaccorso 1998). *M. melanops* prefers disturbed areas and is considered secure despite its endemic status. *Nyctimene albiventer* is secure, but prefers undisturbed habitats and would thus be affected by habitat alteration. All three microbats are considered secure, but roost in caves, which makes them vulnerable to hunting.

New Guinea mammals are faced with direct threats such as hunting and indirect threats such as habitat degradation due to logging and shifting cultivation. Cave roosting bats are exceptionally vulnerable to hunting and may need special protective measures. Intensive commercial logging currently operating in Baining and Pomio poses a serious threat to the biological conservation not only of New Britain, but the entire region of the Bismarck Archipelago.

Conservation Enterprise Development Opportunities
at Selected Villages in East Pomio, Wide Bay
East New Britain, Papua New Guinea

Trip Report to
Wide Bay, East New Britain
October 4-18, 1999



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Executive Summary

Logging continues to be the major immediate critical threat to biodiversity conservation in the area visited. Quick cash from logging concession royalties together with infrastructure projects like roads, trade store, school, and church buildings provide a stark development contrast to those communities who have not embraced logging and continue to rely on their gardens for irregular and relatively miniscule cash income. With a couple of motor vehicles thrown in to sweeten deals with landowner clans, logging companies clearly have the upper hand in the battle for the hearts and minds of villagers caught between the question of sticking to the status quo or pursuing "development".

Local trade limitation. The village economy is not helped by the fact that village agricultural produce is severely limited from reaching their market by the very few and highly irregular visits of cargo ships. Provision of cargo transport is key and strategic in stimulating the local economy and a crucial step for villages to translate their everyday labor to cash income. Projects that are meant to diversify or enhance local agricultural production will go to naught if the cargo transport problem is not addressed decisively. Surplus garden produce will continue to be abandoned and allowed to rot where they drop.

Stand against logging. Admirably, the village committee of Klampun together with their Local Level Government representative has taken a firm position against logging. At the same time, they have committed to demonstrate that "development" can be pursued in harmony with conservation. A village committee program of action that started with the building of a community guesthouse has already gained widespread local attention.

Critical comparison. The Klampun village development initiative is now ranged against "development" that is being brought in by the logging companies. Other landowning clans who are confronted with a decision of whether to allow logging in their area or not are closely following developments at Klampun. The pressure is indeed great for Klampun to demonstrate palpable concrete benefits from its initiatives, be they immediate or potential.

Community development work complemented by enterprise intervention. At this stage, enterprise development as a tool for conservation can only be effectively wielded in conjunction with an on-the-ground community development program stressing on awareness, values formation and community participation in decision making. The CI-ENBSEK partnership is therefore a strong strategic and complementary union that continues to be valid under the situation.

The enterprise component. This report will concentrate on outlining the trip findings and recommendation with regards the intervention necessary to locally demonstrate the validity of the Klampun conservation initiative.

Outline of a proposed 3-point general enterprise strategy

The livelihood and enterprise strategy for the Wide Bay villages should have the outcome of stimulating the participation of a substantial number of villages.

1. **Farm to market access.** Strategically resolve the cargo shipping problem towards a more regular collection and delivery of garden produce to Rabaul and other possible markets. Follow-up a possible market in Lae. Take further the idea of joint marketing with other communities under the umbrella of ENBSEK and other East New Britain province NGOs.



2. *Self-sufficiency in grains and protein.* Initiate substitution of imported food staples (like rice and tinned fish) with local produce through a follow-up project on post harvest requirements. This can be done through the acquisition of a portable rice milling machine and/or the re-introduction of traditional mortar and pestle technology. Local fish processing should be further looked into. Processed fish products can take the form of smoked, salted or dried fish.
3. *Promoting high value commodity for the export market.* Push for the consolidation of vanilla growing efforts with other communities in East New Britain who have already organized their own marketing association to export the commodity. Follow-up on the McCormick deal.

Strengthen and encourage the Klampun village committee

Key to the successful implementation of the 3-point general enterprise strategy is the strengthening of the core village community committee at Klampun. It is important that benefits are actually gained immediately and that the village committee members achieve a succession of achievements and accomplishments towards their objectives.

On the enterprise component side, one way of doing this is to actively support their guesthouse project by promoting it among prospective users for their planning, training and seminars. Specific target "markets" that were identified during the village workshop are the local church organizations in the province, NGOs in the province, and local government staff and officers of the province. Though small, the inflow of visitors can add to the stimulation of the local economy.

Visitors also stimulate community discussions with stories of where they come from, what they do and how they view things. This stimulates critical and creative thinking within the community. The example of having a "guest speaker" make a presentation under the mango tree that was started during this visit should continue and become an institution.

Field Methodology

Focused group discussions and workshops were the main field methodologies used in arriving at this trip's findings and recommendations. Key informant interviews and field observation were utilized to re-check the results of group discussions and workshops.

Limitations:

Time was limited to sources of information at the village level. While there was a Local Level Government record book on village demographics and activities, this is of very recent introduction.

Specific Findings and Recommendations:

1. *The transport challenge.*

The delivery of goods and services to and from Wide Bay is severely hampered by lack of regular and reliable transportation. This is particularly acute for trade goods coming in and copra and cocoa going out. It takes at least 3 weeks which can stretch to 3 months for cargo ships to deliver and pick up goods. Trade store owners need to extend a long credit line to villagers as cash income only comes with the docking of cargo ships that collect their copra and cacao. As a result trade store owners either have to close down or mark-up their prices to cover the extended credit period. Similarly, local copra and cacao consolidators are required by circumstances to have extended financial capital to wait out the period in between the docking of ships. This situation does not provide an environment for strategic development of the local economy.

As such, any enterprise intervention will be greatly limited by the existing transport access to the local urban market and transshipment point, in this case Rabaul.

There is reportedly some political interest involved in the business of shipping in the area. One local politician is said to have an interest in limiting trade activities around the geographical area of Jacquinet Bay.

Specific Recommendations:

- 1.1. Gather information as to the contractual obligations of the shipping company under its public transport franchise with the government. Efforts should be made to compel the company to abide by the terms of its franchise. This option can be taken if the reason for the irregular service is political in nature.
- 1.2. However, the problem may be the economy of scale or simply coordination with the shipping company. The company may be fed up with putting out to sea on half-filled cargo holds. It may be a good idea to have a dialogue with the company and make arrangements for the pick-up of goods. ENBSEK is in a good position to facilitate this kind of meeting. The project can facilitate the process by making sure that information on product volume is available and when they will be ready for pick-up. Telephone communications arrangement should be discussed with Peter Vomme at Guma.



- 1.3. It may also help to mobilize the Local Level Government through the village committee, to lobby the provincial and/or the national government to intercede on behalf of their constituency in sorting out the Jacquinot Bay political angle.
- 1.4. A long-term option may be to study the possibility of operating a Wide Bay community owned boat. However, everyone agreed in the workshop at Klampun and Toemtop that indeed this is a long shot option.

2. Rice production and post-harvest facility

At the time of the visit, there was reportedly a total of two tons of unhusked rice lying around the different village households. The government campaign for villagers to plant rice, with assistance from the Japanese organization OISCA based in Kokopo, was successful. Unfortunately there was no follow-up on post-harvest arrangements and no appropriate technology was introduced. Villagers report of rice already growing again from sacks.

Rice is a staple grain import not only by the villages in Wide Bay but by the country as a whole. Self-sufficiency in rice production can drastically reduce the cash outflow from villages.

A partnership with OISCA for rice production and post production technology needs to be pursued. The Vunabosco Agri-technical School in Kokopo is broadly interested in sending its students for practicum in the field. It may be possible to fabricate a portable rice milling machine under an OISCA Vunabosco partnership. This needs to be explored further.

3. Vanilla production, post harvest facility and marketing

Cultivation of vanilla, together with rice, was introduced and being encouraged as an export commodity by the government's Department of Industry. A marketing organization has reportedly been formed to capture more value for the local farmers. ENBSEK Chairman Karalus has good links with this organization as well as with the government agency concerned. In Wide Bay, the cultivation of vanilla is not being expanded, again because of poor follow up. Vanilla was observed to be planted in the village gardens but the locals do not know how to make them flower. The farmer's organization reportedly have people who can pass on the skills to Wide Bay villages.

In the meantime, Conservation International in Washington DC reportedly has a relationship with the McCormick spice company. Specifically, McCormick is said to be interested in vanilla.

Recommendation:

- 3.1. Pursue further the link with the ENB association of vanilla farmers and explore possible areas of cooperation, e.g. training in cultivation and harvesting as well as in marketing.
- 3.2. A partnership can be made where CI-PNG can provide the resources for the conduct of the training while the Department of Industry and/or the farmers association provide the resource persons.
- 3.3. Pursue the McCormick link in the U.S. for marketing arrangements.

4. Klampun Guesthouse

The Klampun community guesthouse was proposed by two village members who had the opportunity to visit an ecolodges in VDT's Kamiali project in Lae and Kau WMA in Madang. The idea was deliberated and adopted by the village community. The 15 person capacity guesthouse



together with a multi-purpose dining hall with kitchen was designed and completed within six weeks. Each village member contributed equity in the form of labor and materials. The purchase cost of beddings, linen, mosquito nets, kitchen utensils, silverware, glasses and plates were shared among the village community members as well. For operations, a group of women was organized as cooks and servers. A security unit was created as well to keep night watch for visitors.

The guesthouse is the current core project of the village community. They will need to get a steady flow of users and guests. Amazingly, the committee have thoroughly thought about the potential market for their project. They are government units conducting meetings and training as well as church and NGO organizations. Visiting patrol officers (field staff of different government agencies) as well as local government officers will also be booked at the village guesthouse. Foreign visitors will be but a welcome bonus.

In terms of costing and pricing, the committee also scanned the prices of similar establishments in the region and came up with a credible price for food, lodging and use of the meeting hall. While it was a process of guesswork, the costing and pricing exercise conducted during the on-site workshop came very, very close to their own.

In short, the village committee is fully dedicated to make the project work and would appreciate pointers in the way they do things.

Recommendations:

- 4.1. To fully support the marketing efforts of the community by promoting the project as a venue for meetings, seminars and retreats among the network of government and non-government organizations of ENBSEK in the province. Specifically, this would mean providing prospective visitors with written information on transport costs/ arrangements, guesthouse price, and possible activities while in the area. Booking arrangements courtesy of ENBSEK can be made for the moment.
- 4.2. To integrate a few community activities that provides a local touch for visitors. Examples are:
 - 4.2.1. A cultural exchange night where both visitors and villagers get to exchange songs, dances, and stories around a bonfire.
 - 4.2.2. A visit to an ongoing village festival or rites such as an initiation ceremony.
 - 4.2.3. Going out fishing for the day's lunch or dinner.
 - 4.2.4. A soccer challenge. Home team versus visitors at the Guma soccer field.
 - 4.2.5. Trying out copra and/or cocoa production.
 - 4.2.6. Betel nut chewing.

5. Individual enterprises for the village market: T-shirt printing, bakery, handmade soap making

At Klampun and Toemtop villages, there are individuals and households that have particular skills in T-shirt printing, baking bread, and soap-making. Clothes, biscuits and soap are among the imported items that occupy the shelves of trade stores. These skills certainly have a good local market that not only earns income for the individuals and households but encourages the flowering of local business initiatives as well.

During the village workshops, these products were used as case studies in costing and pricing as well as in testing business ideas.



Recommendation: To encourage the concerned individuals to go ahead with their enterprise.

5. Technical capacity building and appropriate technology transfer

One glaring observation that the Regional Enterprise Manager (REM) observed on two visits in ENB is the dominance, even in the remote villages, of imported manufactured tools and machines over improvised village tools. Power grass cutters, wheelbarrows, and outboard motor boats among others. It was no surprise then that the village response to the post-harvest requirements for rice was to wait for government intervention in terms of a rice mill facility.

When the REM demonstrated pounding rice using a mortar and pestle from a discarded World War II explosive shell (which villages use as bells), one of the older members of the village committee said that they knew how to do that. What was revealing was the response of the younger men and women. "Why didn't you teach us before?"

Recommendation: For community organizers and project officers of ENBSEK and other allied NGOs to find out and catalyze discussions on the merits of traditional knowledge before applying imported technologies. It can happen that a combination of traditional and imported solutions may be the best for a given situation.

6. Networking and partnerships

The annual review meeting held by ENBSEK was impressively attended by representatives from various government agencies and other NGOs. There was a consensus to avoid overlapping and repeating initiatives. A strong sentiment to utilize each other's expertise seem to be the dominant voice during the meeting.

At Vunabosco Agri-technical School in Kokopo, the curriculum director is keen on working together with villages. Specifically, they can gear parts of their curriculum to apply to the agricultural needs of the villages. They can also send out their students for practicum in the villages. One of the discussion points of the REM with Vunabosco is the need to equip those they train not only with production skills but also with business skills. The idea was received very well.

Recommendation: To enter into partnerships with appropriate NGOs and government agencies for training. Specifically with Vunabosco, to explore ways by which they can join in on how imported staple food can be effectively substituted with local produce.

7. Working with government, LLG opportunity

The Local Level Government mechanism at the village level is a newly introduced institution. Because of this, there is a great opportunity to influence its development towards community development and conservation. By being conscious about this at the Klampun and Toemtop levels, the project can effectively leverage resources as well as policy that is consistent with the objectives of the program.

Annex 1

Trip Itinerary

- October 4, 1999 start of trip
Monday air travel Cebu City, Philippines to Manila, Philippines
air travel Manila, Philippines to Port Moresby, PNG
overnight in the air
- October 5, 1999 arrive Port Moresby, PNG
Tuesday briefing at CI PNG office
air travel Port Moresby to Rabaul, East New Britain
arrive Kokopo and check-in at Taklam Guest House
overnight in Kokopo
- October 6, 1999 meeting with ENBSEK
Wednesday meeting with Elizabeth Kaupun, Wide Bay program coordinator
overnight in Kokopo
- October 7, 1999 attendance as observer at ENBSEK program review at Kokopo
Thursday overnight in Kokopo
- October 8, 1999 air travel from Kokopo to Cape Orford
Friday canoe transfer from Cape Orford to Klampun village
workshop/discussions with Klampun village committee
overnight at Klampun
- October 9, 1999 continue workshop/discussions with Klampun village committee
Saturday break for brief attendance to Setwei village initiation rites
continue workshop/discussions with Klampun village committee
overnight at Klampun
- October 10, 1999 attend community religious service at Guma village
Sunday conduct community meeting under the mango tree at Guma
continue workshop/discussions with Klampun village committee
overnight at Klampun
- October 11, 1999 guest speaker on environment at Guma Primary School
Monday continue workshop/discussions with Klampun village committee
overnight at Klampun
- October 12, 1999 canoe transfer from Klampun village to Sampun village
Tuesday guest speaker on environment at Sampun Primary School
hike from Sampun village to Toemtop village
overnight at Toemtop
- October 13, 1999 workshop/discussions with Toemtop village members
Wednesday overnight at Toemtop
- October 14, 1999 continue workshop/discussions with Toemtop village members
Thursday overnight at Toemtop



201

Attachment PNG-3

October 15, 1999 hike from Toemtop village to Sampun
Friday Canoe transfer from Sampun to Cape Orford
 air travel from Cape Orford to Kokopo
 debrief and meeting with Chairman of ENBSEK
 exploratory meeting with Vunabosco @ Kokopo
 overnight in Kokopo

October 16, 1999 air travel from Kokopo to Port Moresby
Saturday check in at Ambers Inn
 overnight in Port Moresby

October 17, 1999 rest at Ambers Inn
Sunday overnight in Port Moresby

October 18, 1999 debrief with Gai Kula, CI-PNG Country Director
Monday exit meeting with Maureen Ewai, ENB coordinator
 brief meeting with Milne Bay coordinator
 air travel Port Moresby, PNG to Manila, Philippines
 overnight stopover in Manila

October 19, 1999 air travel from Manila, Philippines to Cebu, City Philippines
Tuesday end of trip



Annex 2

List of Key Contacts

Karalus Wargat, Chairman, ENBSEK
Vunapope

Fr. Carlos Ma. Villegas, SDB
Vunabosco Agro-Technical School
P.O. Box 287 Kokopo
East New Britain Province
Email: vnbosco@online.net.pg

Peter Vomme, Senior Headmaster
Guma Primary School
Guma Catholic Mission
P.O. Box 649 Rabaul
East New Britain Province
Telephone: c/o 9819399 (residence of Guma parish priest)

Fr. Raip
Catholic Priest
Diocese of Rabaul
East New Britain Province



Annex 3

Results of the Klampun Enterprise Short Listing Exercise

Products/ Services	Frequency In a year	Materials Available	Skills Available	Jobs Potential	Market Access	Price	Score	Overall Rank
1. Guesthouse	?	5	3	5	3	5?	21+	5
2. T-shirt printing	4	5	5	1	5	5	21	6
3. Vanilla	2	5	3+	5	3	5	21	6
4. Rice	3	5	3+	5	3	5	21	6
5. Poultry	12	5	5	5	5	5	25	4
6. Butterfly	XXX	5	5	1	5	5	21	6
7. Betel nut	12	5	5	5	5	5	37	1
8. Fishing	8	5	4	2	5	5	30	3
9. Soap making	12	5	5	1	5	5	33	2

Scale: 1 lowest/fewest to 5 highest/many

Annex 4

Results of Toemtop Village Enterprise Short-Listing Exercise

Products/ Services	Frequenc y In a year	Material s Availabl e	Skills Availabl e	Jobs Potentia l	Marke t Acces s	Price	Scor e	Overall Rank
1. Copra	qtrly	2	5	3	5	4	19	
2. Cocoa	3x	1	5	2	5	5	18	
3. Betel nut	1x	1.5	5	4	1	1	12.5	
4. Chili	?	1+	1	1	1+	1	5+	
5. Vanilla	?	1+	1+	3+	5?	5	15+	
6. Rice	2x	1.5+	5-	5	5	5	21.5	
7. Pigs	2x and special occasion s	5	5	5	3	5	23	
8. Chicken	2x and special occasion s	5	5	5	2	4	21	
9. Oranges	2x	5	5	5	4	4	23	
10. Coffee	3x	3	5	5	1	4	18	
11. Soap making	12x	4	1	3	5	4	17	
12. Bakery	12x	5	5	3	5	5	23	
13. Sewing	4x	5	2+	3	4	5	19+	

Anticipated Livelihood Cash Income Calendar with Months of Traditional Spending Overlay, Toemtop Village

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1. Copra			X			X			X			X
2. Cocoa				X			X			X		
3. Betel nut								X	X			
4. Vanilla												
5. Rice	X								X			
6. Pigs	X											X
7. Chicken				X								X
8. Oranges			X	X					X	X		
9. Coffee					X	X	X					
10. Soap making	X	X	X	X	X	X	X	X	X	X	X	X
11. Bakery	X	X	X	X	X	X	X	X	X	X	X	X
12. Sewing		X		X								
Actual Months of Spending		X									X	X