

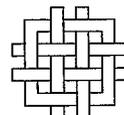
Biodiversity Conservation Network

1 9 9 6 A N N U A L R E P O R T

Stories from the Field

and

Lessons Learned



The Biodiversity Conservation Network is administered by the Biodiversity Support Program (BSP), which is implemented by a consortium of World Wildlife Fund, The Nature Conservancy, and World Resources Institute. BCN is funded by the United States-Asia Environmental Partnership (US-AEP) which is led by the United States Agency for International Development (USAID).

Main Office: c/o WWF • 1250 24th Street NW • Washington, DC 20037

Tel: 202-861-8348 • Fax: 202-861-8324 • Internet: bcn@wwfus.org

Regional Office: 151 B. Gonzales Street • Loyola Heights • Quezon City 1108, Philippines

Tel: 63-2-924-5905 • Fax: 63-2-924-5928 • Internet: gbala@mozcom.com

Dedicated to the memory and vision of

Mary 'Molly' Bower Kux

1928 - 1996



On October 10, 1996 the Biodiversity Support Program lost a visionary, supporter, colleague, and friend. She conceived of the BCN and set high standards for building scientific assessment into the projects. Her tireless dedication to creating new programs to understand the ecological, social, and economic bases for conservation made her a leader in the field. We will miss her insights and friendship.

Overview

The Problem

Biodiversity represents the very foundation of human existence. Yet by our heedless actions we are eroding this biological capital at an alarming rate. Even today, despite the destruction that we have inflicted on the environment and its natural bounty, its resilience is taken for granted. But the more we learn of the workings of the natural world, the clearer it becomes that there is a limit to the disruption that the environment can endure.

Beside the profound ethical and aesthetic implications, it is clear that the loss of biodiversity has serious economic and social costs. The genes, species, ecosystems and human knowledge which are being lost represent a living library of options available for adapting to local and global change. Biodiversity is part of our daily lives and livelihood and constitutes the resources upon which families, communities, nations and future generations depend.

—1995 *Global Biodiversity Assessment*, UNEP

The BCN Program

Conservation efforts that ignore the economic needs of local communities are unlikely to succeed. The Biodiversity Conservation Network (BCN), a component of the Biodiversity Support Program (BSP), is an innovative USAID-funded program working in the Asia/Pacific Region to provide grants for community-based enterprises that directly depend on biodiversity conservation. BCN is testing the hypothesis that if local communities receive sufficient benefits from a biodiversity-linked enterprise, then they will act to conserve the resources it depends on.

The BCN granting process was carefully designed to provide the foundation for planning and implementing multifaceted projects. BCN-funded projects integrate enterprise development with community organization and policy efforts needed to achieve conservation. Key to the program's ultimate success is the collection of social, economic and biological data to measure the effectiveness of these enterprise-oriented, community-based approaches to conservation. In 1996, BCN awarded the remaining

five Implementation Grants, bringing the total number of projects to twenty. To date, BCN has granted \$11.5 million in Implementation and Planning support. BCN funds are supplemented by grantee contributions of \$5.3 million, 32% of the total \$16.8 million in project funds.

Challenges in Promoting Enterprise-Based Conservation . . .

BCN's first goal is to promote enterprise-based approaches to conservation. In the United States which has well developed infrastructure, a population that is experienced with a cash economy, and established markets, approximately one out of every seven newly formed businesses survives beyond five years. By contrast, BCN and its partners are sailing in uncharted waters, developing new businesses in remote areas with limited infrastructure and with people who are, in many cases, entering into a cash economy for the first time. These businesses must not only be financially self-sustainable, but ecologically and socially sustainable as well. These are serious challenges and we cannot expect that all projects will make it.

. . . and Successes in Evaluating This Approach

BCN's second goal is to evaluate the effectiveness of these enterprise-oriented approaches to conservation. Thus, despite the difficulties in implementing the projects, learning from the experiences of these projects along the way becomes BCN's measure of success. In the following pages, our community partners tell their own stories—their triumphs and challenges. It is clear from these stories that the BCN program is well in on its way to collecting the information needed to meet this second goal of determining under what conditions these enterprises can lead to conservation.

Executive Summary

BCN's Conservation Impact

The challenges facing each community implementing a project with BCN support are enormous. Yet in 1996, only three years since BCN's inception, preliminary monitoring results indicate that in 18 out of 20 projects, threats to local biodiversity are being reduced. Biodiversity monitoring and adaptive (responsive) management practices by local communities currently extend over 221,000 hectares with plans to expand to a total of 2.2 million hectares—an area larger than the state of New Jersey.

Even more exciting is evidence that impacts of these biodiversity based projects are rippling beyond the project sites and are having a catalytic effect on community and national awareness of the benefits of conserving biodiversity. BCN-funded projects are stimulating wide-ranging transformations in conservation efforts and policies. Highlights include:

- Creation of the first Cooperatively Managed Marine Conservation Area in the Solomon Islands. Its rules governing the use of the marine resources around the Arnavon Islands were approved and gazetted by the Isabel Provincial Assembly and are now part of the provincial by-laws.
- Passage of new legislation in Nepal permitting communities to keep 30 to 50% of tourist tax revenues from visitors to local protected areas.
- Requests for assistance from communities in Jumla, Nepal to the BCN-funded Humla Project to help them set up their own essential oil distilling operations, thus replicating the project on their own.
- Use of biological monitoring information to stop the building of a proposed road through the center of the Ikalahan Reserve in Central Luzon in the Philippines.
- Development of draft legislation in Fiji regulating prospecting for pharmaceutically active compounds from native flora and fauna by commercial companies.



H. Cautley/BCN

Evaluating the BCN Approach: Stories and Lessons

In 1996 we also made significant progress towards our goal of collecting the data needed to analyze the effectiveness of enterprises on the conservation of biodiversity. An outside team from John Mellor Associates, including business, social science, and biological experts, spent four months examining every aspect of BCN. Their summary evaluation found BCN "on track" and stated that progress to date warranted further consideration of funding from USAID. In light of the critical importance of monitoring to evaluate the projects, however, they recommended that monitoring at project sites needed to be simplified in order to be effectively implemented.

Practicing what we preach, the BCN staff promptly responded by conducting a series of nine monitoring and evaluation workshops in India, Indonesia, the Philippines, and the Solomon Islands. In the coming year, BSP and BCN will also publish *Measures of Success*—a user-friendly guide to designing, managing, and monitoring community-oriented conservation projects, based in large part on staff experience in establishing monitoring and evaluation programs at BCN sites.

As a result of these efforts, the 20 projects are now generating a wealth of insights into the conditions under which enterprise-oriented approaches to conservation work. Perhaps just as importantly, we are beginning to understand the constraints to success. In Section 2 of this report, our partners tell their own stories. The very selection of the stories they tell is part of BCN's learning process about our partners' perceptions of their projects' challenges and successes.

Over time, this information will provide the basis for drawing lessons about the conditions under which enterprise-oriented approaches can help achieve biodiversity conservation. Section 3 presents some of the early lessons that we have learned regarding establishing and managing an experimental or "hypothesis-testing" grants program.

Future Plans

While annual reports from BCN's first two years described the process of managing the grant program, this 1996 report begins to document the impacts of this program.

Based on the monitoring work done to date, BCN grantees and staff are now well positioned to begin substantive analysis of the impacts of these biodiversity-based enterprises on conservation. In 1997, BCN staff and grantee partners will continue to focus on the viability of the businesses, the quality of the monitoring programs, and disseminating the lessons learned to the conservation community, policy makers and general public.

BCN funding to the first four Implementation Grants will end this year. Most of these projects are well positioned to fulfill their objectives, but will need further technical and financial assistance on monitoring issues for the next few years. BCN staff will assist these grantees to obtain additional funding.

Finally, a word of thanks and appreciation to all the community members, organization teams, staff of the BCN, and other BSP staff. Everyone involved with the BCN has continued to work tirelessly to address our two goals of site-specific conservation and evaluating the effectiveness of these enterprise-oriented approaches to conservation. Despite many set-backs, groups continue to stay focused on the overall objectives of their projects. We feel certain that this level of commitment and work will ultimately lead to the success of the BCN in the years to come.



H. Cooley/BCN

Table of Contents

1. Overview of the Biodiversity Conservation Network	1
1.1 BCN Goals	1
1.2 BCN Core Hypothesis.....	1
1.3 BCN Program Highlights—1996.....	1
2. Stories From the Field	5
2.1 Content of the Following Pages.....	5
2.2 Lessons Learned From These Stories	6
1. Essential Oils from the Alpine Areas of Humla.....	8
2. Ecotourism in the Forests/Grasslands of Royal Chitwan National Park.....	10
3. Tasar Silk and Honey in the Mountains of Garhwal.....	12
4. Ecotourism in the Mountains of Sikkim	14
5. NTFPs in the Forests of the Western Ghats	16
6. Eco-Tourism in the Rain Forest of Western Java.....	18
7. Community Logging in the Rain Forest of West Kalimantan.....	20
8. NTFPs in the Rain Forest of West Kalimantan.....	22
9. Rafting, Honey, and Butterflies in the Rain Forest of Sulawesi	24
10. Butterflies in the Rain Forest of Irian Jaya	26
11. Dive Tourism off the Reefs of the Padaido Islands, Irian Jaya	28
12. Abaca Fiber and Rattan from the Forests of Mindanao.....	30
13. Rattan and Resin from the Tropical Forests of Palawan	32
14. Jelly and Other NTFPs from the Forests of the Kalahan Reserve.....	34
15. Scientific and Eco-Tourism in the Rain Forests of Crater Mountain	36
16. Scientific and Adventure Tourism in the Forests of Lakekamu Basin	38
17. Eco-Timber from the Forests of New Britain.....	40
18. Fish from the Amavon Island Marine Reserve.....	42
19. Oil Nuts and Tourism in the Forests of Makira Island	44
20. Biodiversity Prospecting in the Coral Reefs of Fiji	46
3. Lessons Learned About Hypothesis Testing Grant Programs	49
3.1 Program Design and Project Selection.....	49
3.2 Testing the Hypothesis	51
3.3 Structuring the Overall Program	52
3.4 Process Lessons.....	52
4. Financial Analysis	55
4.1 Financial Summary.....	55
4.2 Analysis Of BCN Grantee Budgets.....	56
Appendix A: Summary of BCN Implementation Grants	57
Appendix B: BCN Midterm Evaluation—Executive Summary	61
Appendix C: Conservation Impact Indicators for the BCN Program	67
Appendix D: BCN Staff Organization	69

1. Overview of the Biodiversity Conservation Network

1.1 BCN Goals

The BCN program was established to fulfill two main programmatic goals:

1. Support enterprise-oriented approaches to biodiversity conservation at a number of sites across the Asia/Pacific region, and
2. Evaluate the effectiveness of these enterprise-oriented approaches to community-based conservation of biodiversity and provide lessons and results to BCN's clients. These clients include communities and groups implementing projects, USAID and US-AEP missions and offices, members of the Biodiversity Support Program (BSP) consortium (World Wildlife Fund, The Nature Conservancy, and World Resources Institute), and the broader conservation and development community.

1.2 BCN Core Hypothesis

The Biodiversity Conservation Network's core hypothesis is that if enterprise-oriented approaches to community-based conservation are going to be effective, they must: 1) have a direct link to biodiversity, 2) generate benefits, and 3) involve a community of stakeholders.

More specifically, these three *elements* of the core hypothesis are:

1. **Linkage between the enterprises and biodiversity:** The enterprises must directly depend on the *in-situ* biological resources of the region. BCN thus seeks to develop enterprises whose financial viability is directly dependent on sustainable use of local biological resources.
2. **Generation of short and long-term benefits:** The enterprises must generate benefits (economic, social, and/or environmental) for a community of stakeholders both in the short run and, with a high probability, in the long run, after BCN funding ends.
3. **Community/Stakeholder involvement:** The enterprises must involve members of the local community,

and often others, who are stakeholders in the enterprises and biodiversity of the area.

In effect, the hypothesis is that if local communities receive sufficient benefits from an enterprise that depends on biodiversity, then they will act to counter internal and external threats to that biodiversity.

1.3 BCN Program Highlights—1996

The BCN program consists of five components (Figure 1). This year's highlights are presented accordingly. While annual reports from BCN's first two years described the *process* of managing the grant program, this 1996 report begins to document the *impacts* of this program. In particular, this year we have increased activities in the analysis and communication components.

A. Develop Program Concept and Structure

The first program component involves developing the BCN concept and establishing effective institutional structures and administrative systems. Most of the conceptual development work was completed in the first two years of the BCN program. Highlights for the year include:

- **BCN Mid-Term Evaluation Completed.** In FY96, an outside group, John Mellor Associates (JMA), did a formal evaluation of the BCN program. The evaluation found that BCN was "on track" in all aspects of the program. JMA lauded BCN's client focus and BCN's ability to rapidly change its operations to meet the evolving situations in the countries in which it works. The evaluation team recommended simplification of grantee monitoring systems and development of additional contacts with private sector firms. (See Appendix B for the Evaluation Executive Summary.)
- **BCN Staff Decentralized.** BCN staff now number 12 with 8 of those based in the field (Manila, Jakarta, and New Delhi). Staff additions in the last year include the new Regional Representative, Ganesan "Bala" Balachander, and an enterprise expert, Flora Leocadio. Bala was formerly the manager of the BCN-funded project in the Western Ghats, Karnataka State, India

(TERI/UMB). Flora was formerly the Executive Director of the Upland marketing Program of the NGO Philippine Business for Social Progress. (See Organization Chart in Appendix D.)

B. Select Portfolio of Projects

The second component of BCN activities involves working with groups to develop high quality projects and proposals, selecting a portfolio of projects, and monitoring grants to ensure continuing quality. In FY96, the BCN completed the Implementation Grant award process. Highlights include:

- **Twenty Projects are in Place.** All 20 long-term projects in the portfolio have started operations under their BCN grants. The status of the projects in the words of the individual grantees is captured in the Stories from the Field in Section 2.
- **Small Grant on Cyanide Fishing Documents Threats.** BCN awarded a Small Grant to the International Marine Alliance (IMA) to research the impacts of cyanide fishing for the live-fish restaurant and ornamental fish trade. This grant has highlighted the extent of coral reef destruction in the Asia-Pacific region.

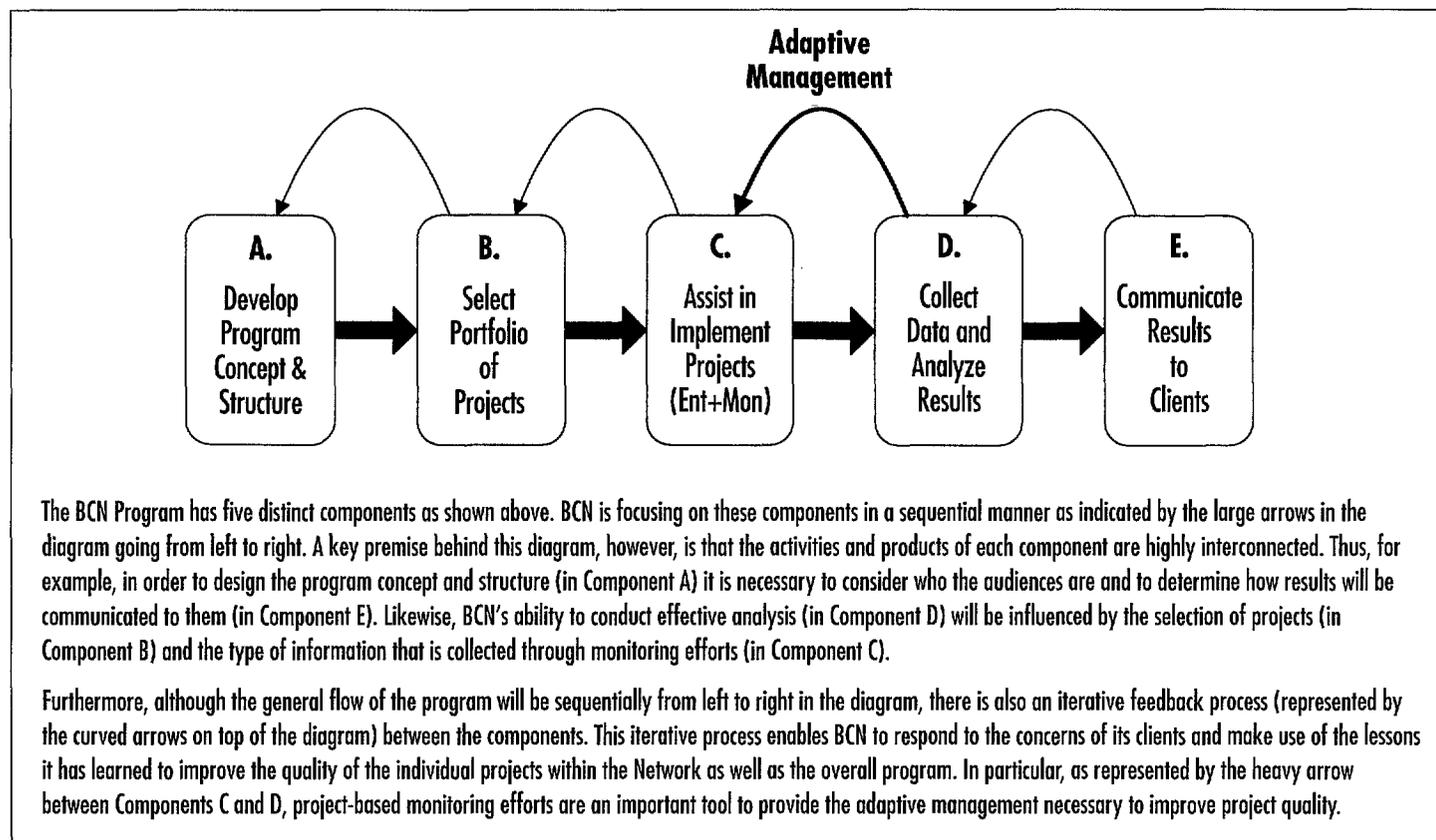
IMA is becoming a leader in technical assistance, working with governments in the region to set up laboratory facilities to detect the problem of cyanide use at source and to train coastal communities in alternative livelihood practices.

- **Small Grant for Ecotourism Strategy has Potential for Leveraging Impact.** BCN awarded a small grant to Wildlife Preservation Trust International (WPTI) to assist The Nature Conservancy and the Government of Central Sulawesi, Indonesia to design a tourism strategy for the Lore Lindu National Park region. Based in part on this work, the WPTI team was asked to join an Asian Development Bank mission that is currently designing a \$75 million economic development, environmental conservation, and health project for Sulawesi.

C. Assist in Implementing Projects (Enterprises and Monitoring)

The third component of BCN activities involves helping groups to implement the enterprises and monitoring plans that are the core of their projects. The information that grantees collect will hopefully be used by partners to

Figure 1. Overview of the BCN Program Components



modify and improve project implementation and also enable BCN to evaluate its core hypothesis. In FY96, BCN staff spent substantial time working toward these objectives. Highlights include:

- **23 Enterprises at 15 Projects are Generating Cash Flow.** Twenty-three enterprises are selling products or services. All of these continue to depend on subsidies from the grant funds awarded to the lead agency to improve the capacity of the enterprise and NGO staff. Although the average cash flow per year across the twenty three businesses is quite low (less than \$15,000 per year) the maximum (the WWF-I project selling birdwing butterflies in Indonesia) is projected at \$100,000 per year. For details on the successes and challenges confronting these projects, please see the project updates in Section 2.
- **Reduction of Threats to Biodiversity at 18 Project Sites.** Eighteen BCN projects have documented one or more reductions in the threats to the biodiversity of their projects sites. These vary from the decision by a foreign logging company to leave the island of Makira (Solomon Islands) to a regional government's decision to place a road further from Lore Lindu national park (Indonesia) to reduced incidences of poaching in Royal Chitwan National Park (Nepal). Details are reported in the table in Appendix A.
- **Monitoring Programs have Started at All of the BCN's Projects.** All 20 projects within the overall portfolio are now collecting biological and socio-economic monitoring data which will be used for assessing conservation impact.
- **Quality of Monitoring Improving Through On-going, On-site Workshops.** In FY 1995, BCN held initial monitoring workshops for all grantees. As part of its networking efforts and to improve the quality of grantee monitoring programs, BCN staff organized and held follow-up monitoring sessions at BCN Grantee sites in India (2), Indonesia (4), Philippines (2), and the Solomon Islands. As a result, monitoring has improved.

D. Collect Data and Analyze Results

The fourth component of BCN activities involves analyzing the results in conjunction with both grantees and other groups involved in similar efforts. Highlights include:

- **In-Depth Enterprise Cost Analyses Completed at Four Projects.** Detailed cost analyses helps grantees focus on those aspects of their operations which can most easily undermine a businesses' viability. Cost

analyses have been completed at four projects. As an example, the cost analyses of individual jam products at the Kalahan Educational Foundation (KEF) revealed that the jam business of KEF has a good profit potential although some individual products such as the top-selling guava jelly need to have their prices increased. Also, at the Natripal/WWF site on Palawan, an analysis of the costs associated with the harvesting and sale of almaciga (resin), rattan, or honey also indicated good potential for profits. All analyses were done by BCN staff working in close collaboration with BCN grantees.

- **Impact Indicators Developed with USAID Global Bureau.** USAID and its implementing partners are developing a series of indicators to track the impacts of its conservation investments. BCN Staff assisted USAID's Global Bureau in identifying appropriate indicators for the BCN Program. These indicators are tracked through technical reports, site visits, and meetings with BCN grantees. A list of the conservation impact indicators which are currently being tracked is in Appendix C. The BCN Program met all of its targeted goals for 1996 and is using the results to guide the development of its 1997 workplan.

E. Communicate Results to Clients

The fifth and final component of BCN activities involves communicating the results of the BCN program to various clients.¹ This information is being used to generate impacts that reach beyond local project sites and that are stimulating community and national awareness of the benefits of conserving biodiversity. BCN-funded projects are stimulating wide-ranging transformations in conservation efforts and policies in both the Asia/Pacific Region and the United States. Highlights include:

- **Recycling of Tourism Tax Revenues for Local Communities Approved in Nepal.** Legislation which allows for recycling of 30 to 50% of tourism tax dollars generated by national parks to local communities was approved by the Nepali Parliament in February, 1996. This legislation was drafted by the King Mahendra Trust Project using BCN funds. In the area of Royal Chitwan National Park where 40 million Nepali rupees (\$730,000) were collected in 1995 from park entrance fees and hotel concession taxes, the new legislation will result in the availability of 12 to 20 million

¹BCN uses the term "client" as opposed to "audience" to denote its commitments to: 1) find out what information these groups need, 2) provide this information to them in a proactive as opposed to passive manner, and 3) interact with them on a sustained basis to improve the utility of the information over time.

rupees (\$220,000-\$360,000) for local community development. Use of the funds will be determined by a stakeholders group which was also formed under the auspices of the BCN-supported project.

- **Essential Oil Enterprise Replicated in Nepal.** Communities in Jumla, Nepal have requested assistance from the Humla Project to set up their own essential oil distilling operations, thus replicating the BCN-funded project on their own. In 1997, the project anticipates being able to process 50 tons of jatamansi from Humla and an additional 40 tons from Jumla.
- **Draft Legislation for Bioprospecting Written in Fiji.** In anticipation of a bioprospecting project in Fiji funded by BCN, the Fijian Department of Environment drafted legislation for public review. BCN staff and several of its grantees worked with experts from BSP's consortia and others to provide the Fijian Government with constructive comments.
- **Certificate of Ancestral Domain Awarded in Palawan, Philippines.** Two indigenous Tagbanua communities in Palawan Philippines supported by BCN funding were awarded Certificates of Ancestral Domain Claim on February 28, 1996. The award is the culmination of a long process of mapping, delineation, and legal activism on the part of NATRIPAL (Nagkakaisang mga Tribu ng Palawan), WWF/Philippines and their other partners. The process continues with NATRIPAL's efforts to obtain certificates for other sites in Palawan and to gain control over key forest products within the areas that are currently under "concessions" managed by outsiders. The process is described by Eufemia Pinto in a recent edition of "Cultural Survival Quarterly" dedicated to "Voices from the Commons."
- **Grantee's Management Plan Now Part of Provincial By-Laws in Solomon Islands.** The rules and regulations developed by the communities governing the use of the marine resources around the Arnavon Islands, Solomon Islands were approved and gazetted by the Isabel Provincial Assembly and are now part of the provincial by-laws. The rules and regulations, which are enforced by the communities themselves, have led to a decrease in the harvesting of a variety of marine organisms including hawksbill turtle, trochus, and many species of *bech-de-mer*.
- **Monitoring Information Used to Stop Road Building in Central Luzon, Philippines.** A proposed road through the center of the Ikalahan Reserve has been at least temporarily thwarted due to the efforts of the BCN-funded Kalahan Education Foundation (KEF)

team. KEF used information collected as part of its biological monitoring program to support its claim that the road should not be built.

- **Model BCN Project Poster Developed and Displayed at the US National Zoo.** During September, 1996 a baby Asian rhinoceros was born at the National Zoo in Washington DC. Her mother had been a gift from the Government of Nepal to the US in 1988. In tribute to the mother rhino's origins in Royal Chitwan National Park, the baby was named "Chitwan." Chitwan instantly became a celebrity, attracting large crowds of visitors and TV cameras and newspaper reporters to the zoo. Staff from BCN and World Wildlife Fund US (WWFUS) had recently completed a poster (the first in a series) describing the conservation and development activities that it was supporting in and around Royal Chitwan National Park through the work of the King Mahendra Trust for Nature Conservation and WWFUS. BCN and WWFUS approached the zoo staff who quickly agreed to display the poster near the rhino exhibit to educate the three million people who visit the National Zoo each year on the link between the baby rhino and its mother's original habitat.
- **Several Major Communication Opportunities Feature BCN's Work.** Major communication opportunities in the past year included Eric Dinerstein of WWF's Conservation Science program discussing the King Mahendra Trust for Nature Conservation and WWFUS project on CNN (February, 1996) and BCN Director Hank Cauley describing the BCN and its goals on Canadian national radio and in interviews published by leading Nepalese newspapers.
- **BCN's Regional Office in Manila Assists USAID Missions and Others.** BCN staff based in the region have provided presentations and technical assistance to a variety of groups beyond BCN grants including: 1) presentation on BCN program to US Government Interagency coordinating committee on environment, Manila, July 1996; 2) representation of BCN at the Government of the Philippines Department of Environment and Natural Resources consultative meeting on biodiversity, Subic, Philippines, June 1996; 3) participation in the evaluation of the NRM II project in the Philippines, September, 1996; and 4) development of indicators for the new natural resource management project in Indonesia, September, 1996.

2. Stories From the Field

The implementation grant projects in the BCN portfolio are all less than three years old. Some projects have only been on the ground for one year. It is too early to draw definitive conclusions regarding the effectiveness of enterprise oriented approaches to community based conservation. However, our partners have already generated a fascinating wealth of information about the conditions under which these enterprise oriented approaches can work—and perhaps even more importantly, what some of the challenges are constraining these approaches.

2.1 Content of the Following Pages

The stories from each of the 20 BCN-funded implementation grants are presented below. Each of these stories is organized into four sections: Project Overview, 1996 Accomplishments, Success Stories and Challenges. The project overview sections were written by the BCN staff. The remaining sections were written by representatives of the project teams.

Project Overview

We provide a brief description of the project that focuses on why the site is important from a biodiversity perspective, the major threats to this biodiversity, how the project is seeking to address these threats, and the major potential policy impacts that the project hopes to have.

1996 Accomplishments

We asked project team members to provide an overview of the project's accomplishments during the past year. These accomplishments include both process and impact-oriented achievements.

Success Stories

Here each team tells one or more "stories from the field" describing successes that its project has had over the past year. Groups perceive their "successes" in a wide range of



R. Connor/SIDT

ways. Some groups describe success in terms of enterprise development and enhancement of community incomes. For example, the Tasar Silk Project in India [#3] describes the excitement that the villagers felt upon harvesting their first crop of oak leaves. Others describe successes in terms of directly improving environmental conditions—the Ecotourism Project in Nepal [#2] tells how the habitat that they have developed and managed provides food and shelter for rhinos and other species.

Still others describe their successes in terms of changing policies. For example, the Fish Harvesting Project in the Solomon Islands [#18] relates how a local regulation of turtle hunting is becoming the model for national legislation. And, for some of the projects, success is seen in terms of the direct reduction of threats to biodiversity conservation—the Oil Nuts Project in the Solomon Islands [#19] tells how a large logging firm decided to leave the island following community outcry sparked by project awareness workshops.

Challenges

In this section, we asked the team to describe one or more challenges that the project encountered over the past year. The range of challenges that these stories describe varies considerably. For some groups, the major challenge seems to be enterprise production such as the difficulties of establishing a base of operations for the Rafting Project in Sulawesi [#9]. For others it is finding access to markets such as the Essential Oil Project in Nepal [#1]. Another challenge involves overcoming community organization problems such as the long-standing disputes between clan members in the Scientific Tourism Project in Crater

Mountain [#15]. In still other cases, challenges lie in dealing with powerful outside stakeholders such as the corporate logging firms poised to take over project sites in the Eco-Timber Project in PNG [#17] or in managing relations with authorities such as the need to get government permits in the Butterfly Projects in Sulawesi [#9] and Irian Jaya [#10]. And, for a few projects, the challenges are related to either logistics such as the difficulty in maintaining supply lines to the Scientific Tourism Project in Lakekamu Basin [#16], or natural disasters like the tidal wave that swamped the Dive-Tourism Project in the Padoid Island [#11] and the viral outbreak that plagued the cocoons of the Tasar Silk Project in the Garhwal district of India [#3].

2.2 Lessons Learned From These Stories

Challenges in Promoting Conservation . . .

BCN's first goal is to promote enterprise-oriented approaches to biodiversity conservation. The stories presented in this section represent the experience of diverse projects at different stages of maturity. Some of the projects have made major strides towards developing viable enterprises that are creating incentives for communities to meet the threats to biodiversity at the project site. Others, however, are still grappling with basic issues of project design and community organization. At this point, it seems difficult to say how many of the BCN-funded projects, at the end of their three year project life, will have developed fully self-sustaining enterprises or will have been able to completely deal with the threats facing the biodiversity at their project sites. The challenges facing them, in terms of the general lack of capacity for business, access to markets, logistics and ability to set up monitoring systems are enormous.

. . . and Successes in Evaluating this Approach

While it is difficult at this stage to be able to rigorously evaluate the success of the BCN in terms of meeting its first goal, it is clear from the stories that the program is well on its way to collecting the information required to meet its second goal of evaluating the effectiveness of these enterprise-oriented approaches to conservation. We are learning a great deal about the specific conditions under which these approaches can be effective—especially in conjunction with other conservation strategies. Although it is still too early to draw definitive conclusions, it is possible to capture recurrent themes and

insights from the stories and BCN staff's experience to date. Major themes that have emerged include:

- **Community-based enterprises are difficult to implement.** A number of projects are facing significant challenges in terms of the general lack of capacity for business management, access to markets, logistics and ability to set up monitoring systems. This is not surprising. In the United States, which has a population that is experienced with a cash economy, a well developed transport and communications infrastructure, and established markets, only one out of every seven newly formed businesses survives beyond five years. And these are businesses that merely have to worry about turning a profit in financial terms. By contrast, BCN and its partners are working in remote areas of the developing world with people who are often entering into a cash economy for the first time. These areas generally only have rudimentary infrastructure and markets do not yet exist for their products and services. Furthermore, we expect these businesses not only to be financially self-sustaining, but also to be both ecologically and socially sustainable! Given these daunting odds, the degree of success that many of these projects have had to date obviously reflects the hard work and dedication that these project teams have brought to their work.
- **Project teams are good sources of advice and leadership on conservation issues for other national groups.** In the Sikkim project, the team is increasingly sought out as a key contributor to sustainable tourism development efforts in the state. The Nepali Government will use the Chitwan area as one of two pilot areas for rolling out the new legislation for recycling of some tourist tax revenues to local user groups. Community members from the Arnavon area of the Solomon Islands are considering forming an emissary group to go to neighboring communities to give advice on starting similar community-based conservation projects. At these and other projects, the teams are having a multiplier effect on the investments made to date.
- **The process of establishing community-based monitoring systems can generate enthusiasm for conservation at the community level.** In the Rabual area of Papua New Guinea, the community's discussion about the biological monitoring and evaluation plan led to "lateral thinking" about the value of the forest and the need to conserve it. At the Kalahan Education Foundation project in the Philippines, construction of a "food web" diagram by community members led to insights about broader conservation needs. In West Kalimantan, Indonesia, an assessment of the depleted rattan and



N. Sridhar/BCN

bamboo resources led some local people to begin enrichment planting of those biological resources. These and similar realizations are important steps in the process of having communities begin to adaptively manage their resources to address threats, achieve conservation, and provide a sustainable source of income.

- ***Empowered stakeholder groups will reduce threats before enterprise benefits are evident.*** A key determinant of success involves forming representative stakeholder groups with explicit governance structures. The local or national government often needs to be a key player within this structure. In Fiji, the communities in the project area have taken several measures to conserve marine resources such as discontinuing the issuance of fishing licenses, placing size limits to catches, and banning the killing of turtles and the use of gill nets. In Mindanao, Philippines, project communities have refused access to a concessionaire seeking to harvest rattan. Along the Meliya River in West Kalimantan, the communities have at least temporarily ceased all hand-logging activities. In Makira province, Solomon Islands, community members have rejected overtures from logging companies leading to one major company deciding to leave the island. These examples are some of the most satisfying—and unexpected—impacts of the BCN program to date.

- ***Strong leadership is consistently the most important ingredient for progress.*** In Humla Nepal, Tsewang Lama, a former member of parliament, has spearheaded community discussions on the project. Dr Sudarshan of the NGO, Vivekananda Girijana Kalyana Kendra, has integrated the BCN-funded project in the Western Ghats to wider development efforts with the Soliga people. In the Arnavons area of the Solomon Islands, the elected management committee comprised of two individuals from each of three different communities has established a management plan for the considerable marine resources of the area. And the Kalahan Education Foundation is in the process of passing the mantle of leadership from Pastor Delbert Rice to the Ikalahn people. This leadership can be either an individual or a group. Either way, these leaders consistently integrate BCN-funded activities in to a larger development context, remain focused on communicating with their constituencies, and move to adopt new policies and practices when the situation warrants it.

- ***Don't underestimate the impact of "mother-nature."*** Early, heavy snowfall significantly reduced the quantity of jatamansi collected in Humla, Nepal. Mites have decimated the honey-bee population in the Western Ghats, India. A tidal wave after an earthquake wiped out whole villages in Biak, Indonesia. Chronic illness reduced the effectiveness of field staff in the Lakekamu Basin, Papua New Guinea. The above and others are just some of the challenges which mother-nature has thrown up in the path of project teams.

1. Essential Oils from the Alpine Areas of Humla

- Location:** Chuwa and Humla
Karnali Watersheds,
Humla District, Nepal
- Partners:** Appropriate Technology International (ATI)
Asian Network for Small-scale Agricultural Bioresources (ANSAB)
The Humla Conservation and Development Association (HCDA)
- Project Title:** Integrated Community Based Ecosystem for Humla, Nepal through Local Enterprise Development
- BCN Funding:** \$549,995
- Partner Contribution:** \$143,252
- Grant Period:** January 15, 1995–January 31, 1998



Project Overview

The Humla region of northwestern Nepal lies between two distinct botanical regions, the Western and Eastern Himalayas. This location, and the area's relative isolation, create a region of high floral diversity, including many valuable medicinal and aromatic or essential oil bearing plants. This complex ecosystem is threatened by overharvesting of these plants caused by increasing national and international demand for products from them, over grazing, and fuel wood and fodder collection.

To counter these threats, project partners and local people have established an enterprise based on producing essential oils such as jatamansi which is used by perfume and cosmetic manufacturers. Local people harvest the jatamansi root from nearby alpine meadows using sustainable techniques, process it into oil on-site, and operate and maintain the processing equipment. By selling a processed product, enterprise participants are receiving more money than they did by selling plants in raw, bulk form. The project partners are hoping this additional

Local people harvest the jatamansi root from nearby alpine meadows using sustainable techniques, process it into oil on-site, and operate and maintain the processing equipment.

income will reduce the amount of raw plants local people sell to outside traders and provide incentives to maintain the supply of plants in the future. In addition, partners will be working with villagers so that they gain more control over the resources that they collect from government-owned lands.

This project has the potential to broaden the Humla District Forest Office's acceptance of community-based management of local natural resources. Although practiced in many parts of Nepal, this approach to forestry management had not yet been implemented in Humla prior to the start of the project. As a result of project efforts to develop two community forests, the Forest Office has, however, moved these two and twelve others through the designation system. The project also places a strong emphasis on working with women's groups, and on establishing mechanisms to allow communities to keep larger portions of the taxes levied on non-timber forest products.

1996 Accomplishments

This year two distillation units (Rodikot and Kurilla) were up and running in Humla, distilling oils from three NTFPs—Jatamansi, Juniper, and Sagunawaal. Technical issues have been largely solved, enterprise workers are comfortable with distillation operations, and community members are realizing the benefits of value added processing and the importance of sustainable harvesting of NTFPs.

Sales of oil have also picked up after initial problems in locating quality buyers. As of August, Humla Oil Pvt. Ltd. had sold its entire stock of oil from the preceding year, 235 kg of jatamansi oil generating \$22,300 in sales. Humla Oil Pvt. Ltd. also negotiated its first distributor agreement with Phoenix Aromas & Essential Oils of New York. Phoenix is a distributor of essential oils in the United States with over 25 years experience in the industry. A relationship with Phoenix was initiated in May and has resulted in the signing of a two-year exclusive distribution agreement giving Phoenix the right to represent Humla Oil's products in the United States. The tie up with Phoenix is expected to place Humla Oil's products in higher value markets. Phoenix is shouldering the costs of product promotion including industry mailings and advertising.



H. Cautley/ICN

Finally, implementation of the biodiversity monitoring system is underway. The project will collect the biological baseline information from September to November, 1996. Baseline information for socioeconomic monitoring has been collected using a sample household survey.

Success Stories

While it is much too early to make "biodiversity conservation conclusions," anecdotal information is encouraging. For example, villagers have stopped burning some of the pastures so as not to disturb growth of NTFPs and collectors are eager to get information on what is a sustainable harvesting level from the test plot experiments.

Furthermore, communities in the project area are actively participating in the process of handing over community forest and pasture land from the government to community groups. In Nepal, this transition represents the greatest degree of local control that can be awarded over areas formally belonging to the Government. In Humla, the land being handed over constitutes virtually all of the areas where NTFPs are collected and thus represents an unprecedented advance for local communities' ability to gain control over their natural resource base. Community members are working closely with HCDA and ANSAB to develop group constitutions and management plans that are needed for the formal awarding process to proceed. Two hand overs have taken place so far this year, with three more expected before the close of 1996.

Challenges

Accessing Indian buyers (the largest market for jatamansi oil) and negotiating sales continues to be problematic for Humla Oil Pvt. Ltd., a newly established company without the long standing trade links that Indian buyers rely upon. Humla Oil wasted valuable time the first year trying to negotiate a brokering agreement with an Indian firm. This fell through when they were not willing to promote jatamansi oil at a reasonable floor price. To date, a suitable partner to act as distributor for Humla Oil in India has not been identified. This was originally thought to be the best way to enter the Indian market as Humla Oil's understanding of Indian products and markets is limited.

2. Ecotourism in the Forests/Grasslands of Royal Chitwan National Park

Location: Royal Chitwan National Park, Terai Area, Nepal



Partners: King Mahendra Trust for Nature Conservation (KMTNC)
World Wildlife Fund (WWF-US)

Project Title: Promoting Local Guardianship of Endangered Species and Wildlife Habitats in Royal Chitwan National Park, Nepal

BCN Funding: \$636,607

Partner

Contribution: \$220,000

Grant Period: March 1, 1994–February 28, 1997

Project Overview

Royal Chitwan National Park (RCNP) is one of Nepal's major international tourist destinations. Each year thousands of trekkers and tourists visit the park to observe, often on elephant-back, endangered rhinoceros, tigers, deer, and monkeys. Unfortunately, this increase in the number of tourists and lodges in and around the park has been so rapid that tourism itself now represents a threat to the park's environmental integrity. In addition, communities living in the park's buffer zone, have not benefited directly from the tourism revenues.

To address these problems, KMTNC, with BCN support, led an effort to draft and pass national legislation establishing a mechanism by which 30 to 50 percent of revenue earned on tourism taxes will be shared with local communities. Village-based user groups will decide how the money earned from these taxes can be used to the communities' greatest benefit. KMTNC expects that the tourism revenue will serve as an incentive for local community members to reduce the external threats on the park and conserve its diverse biological resources.

In addition, KMTNC and its partners are using BCN funds to create woodlots in the parks' bufferzone. These woodlots will reduce long-term pressure to harvest fuelwood from the park and at the same time, extend the park's habitat, providing more territory for fauna including especially rhinos. Establishment and care of these woodlots are the responsibility of local village user groups, who will eventually derive the greatest benefit from them.

1996 Accomplishments

Perhaps the most exciting development has come in the policy arena in which national legislation was passed in February recycling tourism revenues to local communities.

Another major set of activities focused on increasing the size of the buffer zone plantations. 140 hectares were planted in Kumrose and about 50 hectares were planted in Bagmara. These plantations have already produced substantial products—thinning operations produced 1,048,564 kg of woody biomass from Kumrose and 51,766 kg of woody biomass from Bagmara. The plantations have also provided critical habitat to animals—many species have been sighted in the plantations and a female rhino gave birth to a calf in the Kumrose plantation. Finally, the plantations have provided excellent wildlife watching opportunities to tourists. A *machan* (wildlife viewing platform) was constructed in the Bagmara buffer zone in which tourists can stay.

Other project activities included a seven-day Green Camp that was held for school students to develop environmental awareness, a study tour to a community-based conservation project in Annapurna that was conducted for stakeholders, and a tourism impact study that was completed. Finally, bird and rhino monitoring and a vegetation study are ongoing.

Success Stories

The Bagmara community forest now occupies 400 ha, including planted forest and a natural regeneration area formed by fencing off land from the grazing impacts of livestock. Bagmara was opened for tourism in October, 1995 and generated NRs. 856,511 by the end of May 1996. The newly constructed machan has also started earning additional money and it is expected that US \$8000 per year will be earned solely from the machan. A cost-benefit analysis of the machan has shown that the cost of construction will not only be covered, but that another machan could be constructed from the earnings with some balance in hand within a period of three years.

The income from tourism has been a contributing factor in biodiversity conservation. The Baghmara Users Committee used a certain portion of its income in the habitat management program. They constructed a mud-filled dam in addition to clearing two patches of land to create aquatic and grassland habitats for wildlife. The Committee also decided to give first priority to conservation programs and allocate money from its income each year for these programs. Besides these, other future programs such as introducing improved breeds of livestock and biogas plants will also provide support to biodiversity conservation by reducing the high demands for fodder and firewood that are major threats to the area's biodiversity. The Baghmara community forest will provide benefits to 584 households.

Tourists who visit Baghmara still have to purchase entry tickets to RCNP. Rerouting tourists from the RCNP to the buffer zone decreases tourist pressure on the park while avoiding loss of revenue from the park. This will provide ecological as well as economical advantages. Finally, the project has become popular as a model for other projects. Due to its success, the Nepal Conservation

and Research Training Center at the site is establishing its reputation as a regional training center, using the BCN monitoring program, regeneration area, and plantations as learning vehicles to teach conservation to people from other countries.

The plantations have also provided critical habitat to animals — a female rhino gave birth to a calf in the Kumrose plantation.

Challenges

The project has encountered some challenges, many of which are related to concerns that various stakeholders have over the allocation of resources. For example, some people in Baghmara challenged fencing off the plantation from grazing, arguing that fencing most of the barren land for community plantation will increase crop depredation. Likewise, park personnel are worried that tourism in Baghmara may reduce the revenue that the park receives. Some members of the Users Group are opposed to the thinning operation. And finally, there is friction among members of the women's environmental group of Kumrose.

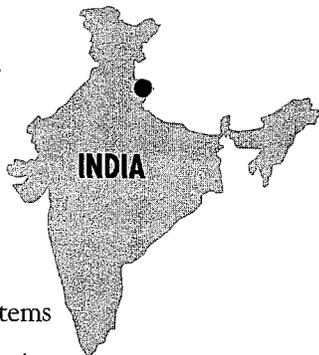


H. Cawley/BCN

3. Tasar Silk and Honey in the Mountains of Garhwal

Location: Garhwal, Uttar Pradesh, India

Partners: Appropriate Technology International (ATI)
EDA Rural Systems
Kumaun University
Community Enterprises



Project Title: Biodiversity Conservation Through Small Producers' Enhanced Commercial Utilization of Natural Resources in the Garhwal Himalayas of India

BCN Funding: \$571,201

Partner

Contribution: \$803,397

Grant Period: September 1, 1995–August 31, 1998

Project Overview

The mountainous Garhwal district, which contains some of India's holiest pilgrimage sites, is rich in botanical diversity. It is also home to the endangered snow leopard, black bear, bharal deer, and musk deer. The principal threats to the region's biodiversity are unsustainable levels of fuel-wood and fodder collection, grazing, and harvesting of non-timber forest products. To counter these threats, the project is working to establish community-based oak tasar silk and honey production enterprises in three watersheds in the Chamoli District of Garhwal.

The tasar silkworms (*Antheraea proylei*) use oak leaves from village and state owned forests as their food source. The silk enterprise will be divided into a centrally run grainage that will produce silkworm seed eggs for sale to community members, household run rearing enterprises that will use oak leaves to rear the silkworms, and a centrally operated silk reeling and marketing enterprise that will take the cocoons and process them to form silk thread that will be sold to cloth manufacturers.

The honey enterprise will involve community-based honey production initially for local sale and subsequently to religious pilgrims visiting the area and possibly for urban and international sale. Bee hives will be placed near people's houses with the bees foraging for nectar in natural forests, alpine meadows, and agricultural lands. These enterprises will strengthen local community institutions including forest management committees (*van panchayats*) and women's groups.

1996 Accomplishments

The project made major strides in hiring and training staff, developing and instituting biological and socio-economic monitoring plans, holding village level meetings to organize implementation activities, and establishing the silk and honey enterprises.

To date, thirty-one villagers have received training in silkworm rearing practices. Silkworm rearing was undertaken by twenty producers in March, 1996 at Chawkie Rearing Center in the Akash Kamini Valley. The first cocoon crop yielded a harvest of approximately 20,000 cocoons. Nine producers were involved in the second crop that yielded 44,000 cocoons. All cocoons are being kept to be used in future rearings, hence no reeling activities have taken place. One hundred locally manufactured bee boxes have been sold to villagers. Sixteen villagers have attended a three month training in bee keeping and honey production.

Success Stories

When villagers in Akash Kamini valley harvested their first ever tasar crop from oak leaves, it was like "seeing is believing." Villagers, particularly women, began to see a value addition to their time and efforts—which otherwise go unvalued and unaccounted—when they received the return for their produce. Beginning with a zero skill base a year before, today the project has developed basic or intermediate level skills in 24 families. Silkworm rearing provides work for both women and men. Promoting the concept of "tasar as a family enterprise" will hopefully result in a "family stake" towards the enterprise activities and sustainable harvest of oak leaves. Initially, the project started enterprise activity with one larger group, but now villagers have opted for smaller cohesive groups to undertake the activities. The villagers feel that producer organizations of a few like minded families will facilitate sustainable use of oak leaves and better distribution of tasks among themselves.



N. Sahasly/BCN

The bee box honey production system was demonstrated to the villagers, resulting in further demands for bee boxes by the villagers to be covered in installment payments. The group of sixteen trainees (five women and eleven men) after completion of their four month bee-keeping course, spread the needed technical know-how for *Apis cerana* bees and awareness of flora conservation in and around the villages. Their knowledge was further upgraded with training sessions from outside bee experts.

Finally, under the guidance of senior botanists, the project is collecting biological information from the field and the community. Having observed the fact that the oak forest nearby is a source of food to silkworms, villagers are realizing the greater importance of oak trees, regeneration of oak seedlings and are observing the sprouting and maturity behavior of oak leaves. Villagers are becoming aware of (and debating) the problems associated with regeneration of *Quercus semecarpifolia*. This awareness will help promote a "community system" of conservation.

Challenges

This was the year of unexpected torrential rains which caused many hardships to the producers of honey as well as tasar cocoons. The much envisaged expansion of tasar and honey was constrained by limited supplies of parent tasar

eggs and *Apis cerana* bee colonies. A viral disease affected the second rearing of silkworms, reducing anticipated production from 150,000—200,000 to only 44,000 cocoons.

Further, since tasar and bee box systems are not traditional technologies, the local skill base is developing slowly. Developing in-house basic facilities like a cocoon preservation center, grainage for eggs, and a honey processing plant are also constrained by an inconsistent electricity supply. Perhaps the greatest challenge is procuring timely help from the gov-

ernment. Systematic appropriation of the rights of village based *Van Panchayat* institutions by the government is making the village communities less effective in regulating the free riders and law breakers.

When villagers in Akash Kamini valley harvested their first ever tasar crop from oak leaves, it was like "seeing is believing."

4. Ecotourism in the Mountains of Sikkim

Location: West Sikkim, India

Partners: The Mountain Institute (TMI)

G.B. Pant
Institute of
Himalayan
Environment and
Development
(GBPIHED)

Travel Agents Association of Sikkim
(TAAS)

The Green Circle

Project Title: Sikkim Biodiversity and Ecotourism

BCN Funding: \$449,465

Partner

Contribution: \$291,498

Grant Period: September 1, 1995–August 31, 1998

Project Overview

The Himalayan state of Sikkim contains the world's third highest mountain peak (Khangchendzonga: 8,545 m), revered as the protective deity of Sikkim and renowned for its rhododendrons and other flowering species. Sikkim, which was only recently opened to tourism, is one of the two most biodiverse areas in India. Threats to Sikkim's biodiversity include agricultural land conversion, road construction, over collection of NTFPs, and fuel wood collection. A hydroelectric project is also underway.

To counter these threats and build on the opportunity to provide benefits to local communities, the project team is working with a local association of trekking businesses (TAAS) to strengthen community-based ecotourism opportunities at three sites around Khangchendzonga National Park. These sites include the Yuksom-Dzongri Trekking Trail and the settlements of Lethang and Cho-jo around Kecheopalri Lake. This project is particularly timely as the state government is eager

to promote tourism through the development of policies that minimize the problems that neighboring states have experienced as a result of the rapid development of the tourism sector.

1996 Accomplishments

In its first year of implementation, the project has established itself as a significant presence in Sikkim. The project is increasingly recognized and sought as a key contributor to sustainable tourism development efforts in the state, both in terms of field activities and policy development.

The project has assisted stakeholders in developing and endorsing a Code of Conduct for Ecotourism which will also serve as a marketing tool. It has also given enterprise and conservation training to over 200 people in seven professions associated with nature-based tourism, assisted stakeholders in carrying out several locally-identified conservation activities linked to nature-based tourism, and influenced several policy decisions in public-sector tourism development. Throughout, the emphasis has been to develop local capacity to design and manage project activities.

Success Stories

In the project, training of key stakeholders in mountain-based tourism is seen as a critical activity in linking biodiversity conservation and income-generation from tourism. In March, project staff and volunteers from TAAS and the Sikkim Mountaineering Institute held a two-day training course for trek porters and pack animal operators in Yuksam, the start of the major trek. Over 80 local people attended the session.

In June, project staff were called for a meeting with the Government of Sikkim (GoS) Department of Tourism to discuss a letter received from visitors to the state. While trekking in the Yuksam-Dzongri area, a group of Indian tourists had asked a porter to cut wood for a campfire, but the porter refused. When asked why, the porter replied that it was not in his interest nor in the interests of long-term conservation of the area to cut vegetation and that a recent training course, run by a tourism project, in which he had participated had stressed this point. In response the trekkers wrote a letter to the Chief Minister of Sikkim suggesting that if people wanted an

The trekkers wrote a letter to the Chief Minister of Sikkim suggesting that if people wanted an example of responsible trekking, Sikkim was the place to visit.

example of responsible trekking, Sikkim was the place to visit.

Within Sikkim, the incident generated considerable interest in GoS circles where we have often discussed the importance of training in a strategy for sustainable tourism development in the state. The GoS's immediate response was to offer financial support and personnel for a trek cooks' training in July, which was taken up by the project.

Challenges

In a state where central and state governments have traditionally been the source of development and conservation support, complementary efforts based in the private sector are new and very different ways of conducting business. The challenge during the first year was to bring public and private sector stakeholders together in a way that would foster constructive dialogue and lead to results. At the same time it was important to empower stakeholders, especially local communities at the project sites, to take action themselves instead of depending entirely on government.

Through the use of a workshop with small discussion groups, we facilitated dialogue between private and public sectors, and assisted stakeholders in producing a Code of Conduct for Ecotourism. The forum and Code enabled TAAS to successfully lobby GoS for extra kerosene supplies to reduce the use of fuelwood on treks.

At the primary project site, Yuksam, participatory appraisal and planning focusing on ecotourism catalyzed a portion of the population to carry out conservation activities, such as clean-ups and tree-planting, connected with site enhancement. Participants in training courses have paid fees to attend, an idea that initially met with resistance, but was gradually accepted as courses gained a reputation for quality and for meeting a need in the tourism sector. The challenge in coming years will be to build upon these efforts, and increase participation in both public and private sectors.



N. Salasky/BCN

5. NTFPs in the Forests of the Western Ghats



- Location:** Biligiri Rangan Temple Sanctuary, Karnataka, India
- Partners:** University of Massachusetts/Boston (UMB)
Vivekananda Girijana Kalyana Kendra (VGKK)
Tata Energy Research Institute (TERI)
- Project Title:** An Integrated Approach Towards the Management of Tropical Forests for Extraction of Non-Timber Forest Products
- BCN Funding:** \$610,404
- Partner Contribution:** \$75,652
- Grant Period:** December 15, 1994–December 31, 1997

Project Overview

The Western Ghats are one of the most biologically diverse areas in South Asia. The Biligiri Rangan Hills, where the project team is working, contains elephants, gaurs, sambars, wild pigs, sloth bears, barking deer, and over 900 flowering plants. This richness led to the area being declared a Wildlife Sanctuary in 1972. The biodiversity of the Sanctuary is threatened, however, by over-harvesting of forest products by local people from the tribal Soliga communities and outsiders.

To meet these threats, VGKK, a local NGO that has been working with the Soliga communities since 1981, is establishing several new enterprises which rely on the sustainable management and local processing of four different forest products: amla fruits, herbs, wild honey, and medicinal plant preparations. Community

members harvest products and receive money from both collecting non-timber forest products (on a per unit harvested basis) and processing them (on a wage basis). Profits from the enterprises will go to community-wide projects such as schools, health clinics, and other development activities. Potential non-cash benefits include maintenance of the Soligas' forest-based lifestyle and the health benefits from the use of locally collected medicinal plants. Women will be involved extensively in operating the enterprises since most of the products being collected have traditionally been collected by women as well as men.

The project also plans to help local people regain the control they once had over the forest by helping them restructure the cooperative societies so that forest product harvesters can realize better prices for their efforts. The success of VGKK's efforts in the Western Ghats will help to build the case, in India and elsewhere, for the local management of natural resources.

1996 Accomplishments/Successes

Our project in Biligiri Rangan Temple (BRT) Sanctuary in southwest India is aimed at extracting, processing, and marketing non-timber forest products on a sustainable basis. The indigenous people of the BRT Sanctuary, the Soligas, extract a wide variety of non-timber forest products from the sanctuary, but sell the products at low prices without value addition.

Over the past year, our project made substantial progress towards our goal of enhancing the economic value of the products extracted by establishing Soliga owned enterprises that process and market the non-timber forest products. Two enterprise units, a herbal medicinal plant unit, and a food processing unit were initiated a year ago. Products from both of these units, herbal medicines and food products such as honey (from wild honeybees), pickles, and jams are being processed and marketed. Soligas are also being trained in bookkeeping activities so that they can directly participate in the microenterprises. Since the Soligas are actively involved in all phases of the project, it is hoped that they will thus have incentives to practice sustainable harvesting.

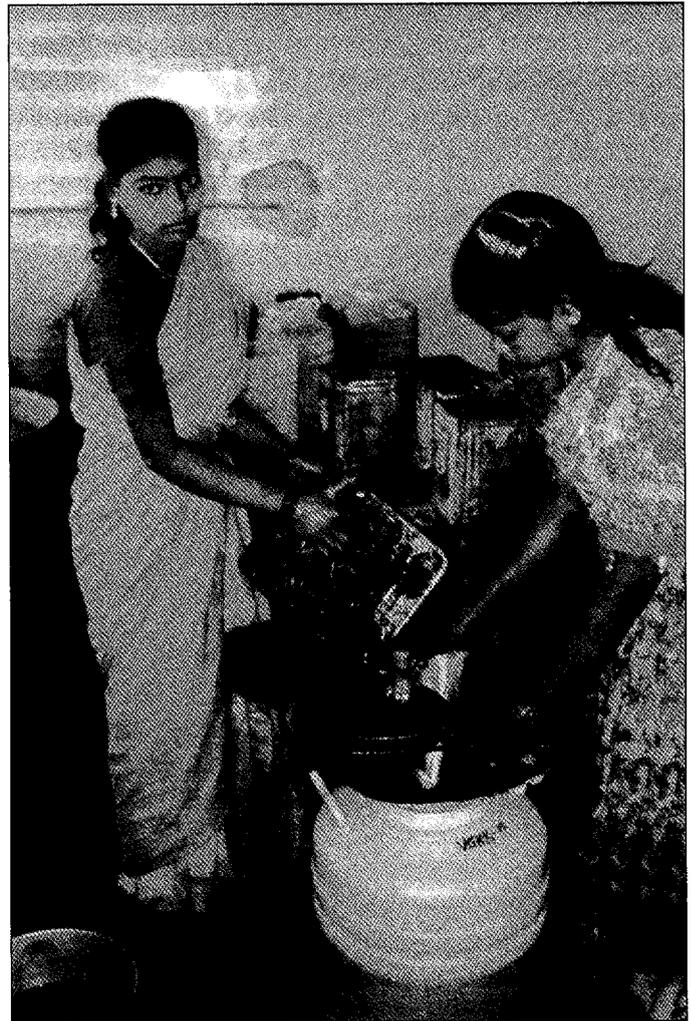
Our project has also made substantial progress in setting up monitoring activities. The biological monitoring component of the project has set up a monitoring plan that keeps track of the patterns of production and extraction in

Our project made substantial progress towards our goal of enhancing the economic value of the products extracted by establishing Soliga owned enterprises that process and market the non-timber forest products.

time and the impact of extraction on regeneration of extracted species. The socioeconomic component of the project has been designed to ensure community participation in the project, and economic sustainability. This component has also monitored the impact of the enterprise on the income of the Soligas, the flow of economic benefits to the Soligas, and the overall effect of the enterprise on the extraction patterns and conservation of biodiversity.

Challenges

The major challenges have been community participation in the management of the enterprises, centralization of the enterprise, and linking entrepreneurial activities with the conservation of biodiversity. The first challenge has been met by communicating more effectively with the community and having the managing board of the enterprise consist of elected rather than appointed members. The challenge of centralization is being met in two ways. Households are being encouraged to keep bee boxes to collect honey from wild bees and market the honey directly. Training in bee management is being provided. Steps are also being undertaken to restructure the cooperative societies that market non-timber forest products so that the extractors can realize better prices. The challenge of the linkage between enterprise and conservation of biodiversity is being met at a slower pace than anticipated. Community participation in management and actual profits from centralized and decentralized activities will be the keys to this linkage.



S. Ramakrishna

6. Eco-Tourism in the Rain Forest of Western Java

Location:

Gunung Halimun National Park,
West Java, Indonesia



Partners:

Biological Science
Club (BScC)

Gunung Halimun National Park (PHPA)

McDonald's Indonesia Family
Restaurants

Wildlife Preservation Trust International

Center for Biodiversity and Conservation
Studies, University of Indonesia

Project Title: Development of Local Enterprises in and
around Gunung Halimun National Park,
West Java

BCN Funding: \$448,430

Partner

Contribution: \$35,250

Grant Period: December 1, 1995–November 30, 1998

Project Overview

Gunung Halimun National Park (GHNP), established in 1992 by the Government of Indonesia, contains the largest tract of remaining primary lowland forest in Java. GHNP is home to 23 mammal species, at least two of which, the Javan gibbon and the grizzled langur, are endemic and endangered. The Park also supports more than 200 bird species, of which 18 are endemic, and over 500 plant species. Indigenous Kasepuhan and other Sudanese communities live in and around the park and depend heavily on its natural resources. The park protects an important watershed for Java. GHNP's resources, however, are threatened by small-holder and plantation agriculture, infrastructure development, small-scale gold mining, and unsustainable fuel wood and non-timber forest product harvesting.

It has been amazing to witness how the local people's skills have been improved, resulting in much better quality handicraft products being created.

To counter these threats, BScC is working with local communities to develop an ecotourism enterprise and conservation awareness program geared to attracting more domestic and international visitors from nearby Jakarta. The project also offers the opportunity to work with the Directorate General of Forest Protection and Nature Conservation (PHPA) on allowable access and use of resources in protected areas. GHNP's proximity to Jakarta is providing project partners and local communities the opportunity to tap into a large and growing market of domestic and international ecotourists, and at the same time targeting a significant segment of western Javanese society for conservation awareness and education. McDonald's Corporation's active involvement in the project represents a unique opportunity to get private sector support and resources behind a conservation effort in Indonesia.

1996 Accomplishments

The tourism guest houses are nearing completion—those located in the north and south entries of Gunung Halimun Park are scheduled to be completed in November, 1996 and the one in the eastern section by January, 1997. The project has also been increasing its marketing activities. The project decided that its first priority was to publish promotion materials such as leaflets, posters, and trekking maps. Those materials are now under preparation and are scheduled to be published in November, 1996.

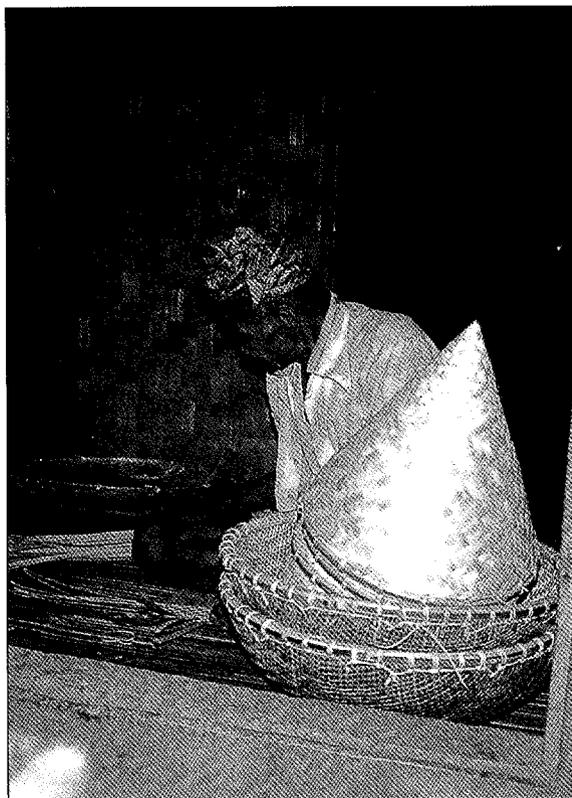
There has also been progress in project monitoring activities. Since both methodology and implementation of the activities needed to be simplified, an updated monitoring plan was created. The first three months following the June 7 and 8, 1996 Monitoring Workshop included the collection of baseline data for the biological, enterprise and, in particular, socio-economic monitoring dimensions.

Finally, planning is underway for a Regional Workshop with local Government Agencies, Universities, Plantations, and other stakeholders that will be held in January 1997 in cooperation with the Park Administration.

Success Stories

Handicrafts purchased by visitors are important as remembrances brought from destinations they visit. In addition, handicrafts can also play a significant role in building a positive, distinctive image for travel destinations, especially when they appear in unique and beautiful forms. In Halimun, local communities surrounding the Park have produced a number of unique handicrafts made chiefly from bamboo and rattan materials, such as basket, rattan handbags, hats, and traditional household tools. Handicrafts thus far have been produced chiefly to meet the demands particularly from local buyers. These businesses are definitely small scale, and cannot, for the medium term at least, become the main source of household income.

Nevertheless, it is clear to see that this activity can be a good source of income if the local people's perhaps underutilized skills can be established (among new handicraft workers) and improved upon (among those already producing handicrafts). As part of project efforts for strengthening local capacity to produce marketable handicraft products, the project provided local people with two weeks training by experienced bamboo and rattan artists from Tasik Malaya (Paperts). Many varieties of new designs were taught, along with a better system for product management. The results from the training have been fantastic. It has been amazing to witness how the local people's skills have been improved, resulting in much better quality handicraft products being created. In the coming months, we will build upon this particular project success, and plan for taking the next steps in marketing these handicrafts.



B. Contes/BICN

Challenges

A major challenge faced by the project in the current year was local community capacity to meet the project objectives in enterprise development. The low standard of education possessed by the majority of local community members required outside assistance (particularly from project staffs) to a greater degree than was initially anticipated. Because of this circumstance, more technical assistance, guidance as well as attention had to be given by Field Managers in all three project activity sites. Considering this situation, Field Managers most likely will be assigned as temporary enterprise managers until the community members have enough ability to run the business themselves. An opportunity to have some volunteers join the consortium in this work would be very useful for the project.

Training also had to be conducted at a slower rate than anticipated. As a result of our observations, we now feel that many trainings should be repeated with follow-ups in order to ensure that the new ideas, concepts, and practices become cemented in the participants.

7. Community Logging in the Rain Forest of West Kalimantan

Location:
West Kalimantan,
Indonesia



Partners: Harvard
University Laboratory of
Tropical Forest Ecology (LTFE)

Government of Indonesia, Ministry of
Forestry (GoI-MoF)

Local Community Groups

Project Title: Developing Community Forest
Management in Buffer Zones for the
Conservation of Biodiversity in Gunung
Palung National Park

BCN Funding: \$547,560

Partner

Contribution: \$76,604

Grant Period: November 15, 1995–November 30, 1998

Project Overview

Gunung Palung National Park (GPNP), a 90,000 ha national park in West Kalimantan, Indonesia, contains a complete gradient of tropical rain forest habitats ranging from mangrove forest through swamp and lowland forest up to montane and cloud forest on the top of Mt. Palung. The park also contains a full complement of vertebrates including proboscis monkeys, which are endemic to Borneo, and the largest population of orangutans on the island. The forests surrounding the park are rapidly becoming degraded. Major threats include corporate mechanized logging, conversion to agricultural uses, and legal and illegal hand logging by local villagers.

To counter these threats, the project will set up a small community managed and operated logging enterprise in a 5000 ha buffer zone area bordering GPNP. In the new enterprise, villagers will not only

receive better wages for their work, but will also share in the value-added to the wood through a locally owned sawmill. The LTFE project, the first of its kind in Indonesia, also has enormous potential to affect policies regarding community resource management and forestry practices throughout the country.

1996 Accomplishments

The year has been marked by the slow process of working out cooperative arrangements for implementing the project with the Indonesian Ministry of Forestry. However, in retrospect this slow pace is not surprising. Contractual relationships between Harvard and BCN/WWF were not finalized until March of 1996. We are also painfully breaking new ground in so many areas of inter-institutional collaboration in the project both within the Ministry of Forestry, and between local communities, government agencies, and ourselves. This process is made all the more complex as we do not fit the usual model of collaborating bilateral development agencies.

The several months in Jakarta did lead to developing excellent market outlets for sawnwood from the project, both for the greenwood international market and local Jakarta-based wood products. This is a major achievement, as we needed to identify agents who we could trust to market products and were genuinely interested in the success of the project.

During this process of getting permits in the cities, we have also tried to develop activities in the field. From January through May, Hikma Lisa, our socioeconomic specialist, worked with local Gunung Palung National Park management staff (KSDA) to signpost the borders of the proposed Community Forest Area and the Park and to

initiate patrols of nearby Park borders.

Simultaneously, Lisa has been developing the socioeconomic database, ready to initiate baseline monitoring. However, in June, we pulled back from these field activities because as negotiations over the MOU and detailed Project Plan of Operation heated up, we thought it wiser to maintain a low profile (a position we currently maintain. Ronnie Cherry, our Field Manager, commenced work in June, and moved to West Kalimantan in late July. Within a few days, Ronnie was initiated into both fieldwork and the confusing, and at times rancorous, meetings with local government agencies. Community members remain committed to the project, but we have been prevented from

Major threats include corporate mechanized logging, conversion to agricultural uses, and legal and illegal hand logging by local villagers.

engaging them in the project until the MOU and Plan of Operation are done, which is frustrating for all of us.

Success Stories

Thanks to our long history of good working relations with hand loggers in the site, their own keen desire for the project to be implemented, and the work coordinating park and community forest signposting activities, logging came to a complete halt along the Meliya river system by late 1995. Ironically, at a July meeting in Jakarta, the government Parks expert for Gunung Palung then presented his opinion that project location should be changed because illegal logging is not a problem there! Apparently, it seemed inconceivable that local people would organize themselves to begin managing and protecting forest resources because the conservation based enterprise linkage makes sense to them.

To illustrate the serendipity of enterprise-based conservation: the Indonesian passenger across from me on an August flight from Jakarta to Pontianak strikes up a conversation with me by asking me where I am from. For amusement, I reply that I am from Sukadana, the small town and district on the west of Gunung Palung National Park, where the project is to be based. Catching my drift, he jokes that he is from America, and it turns out that he spends a lot of time in the US where his son is going to college. We talk some more and it turns out that he is from Sukadana and is now a wealthy businessman! Further, because of his strong commitment to his poor roots and his love for the enchanting small village where he grew up, he just obtained a license to build a paper pulp mill to provide employment. I gave him a quick discourse on conservation biology, and the likely horrific effects of this pulp mill for the National Park, and of course



Note: This photo shows the threat—mechanized logging—not the project itself.

described the option that our proposed sustainable forestry project might provide. This led to my presenting the project to him and his staff that night in Pontianak in a long seminar and discussion which resulted in his sincere commitment to back the project.

Challenges

Coordinating national, provincial and district government agencies in the face of staff turnover and a complex project in both its rationale and implementation remains our greatest challenge. We are frequently caught in the vice of tensions between these hierarchical levels of government, each of which can feel left out. While central authorities admonished us to avoid giving presentations to or updating provincial authorities, this then led to recriminations by local authorities. We need to develop better means of disseminating information among these agencies on a faster time frame. This is part of a broader problem of identifying a good set of relationships.

8. NTFPs in the Rain Forest of West Kalimantan

Location:
West Kalimantan,
Indonesia

Partners:

Yayasan
Dian Tama (YDT)

P.D. Dian Niaga

Appropriate Technology International
(ATI)

Social Forestry Development Project
(SFDP-GTZ)

Project Title: Development of Small-Scale Forest-Based Enterprises within the Participatory Forest Management Area (PFMA) Model in Kalimantan, Indonesia.

BCN Funding: \$466,249

Partner

Contribution: \$177,044

Grant Period: January 1, 1996–December 31, 1998

Project Overview

The forests of Kalimantan support enormous biological diversity and numerous rare or endemic species, including orangutans, flying lemurs, tarsiers, and hornbills. The Participatory Forest Management Area (PFMA) where YDT is working covers a broad range of natural and human habitats. Unsustainable hunting of endangered species and use of forest resources, however, represent significant threats to the region's biological diversity.

YDT and its collaborators intend to work within the framework of the Social Forestry Development Project (SFDP), a unique community-based forest concession begun in West Kalimantan in 1990 and supported by GTZ. In collaboration with the Indonesia Department of Forestry, the ten-year SFDP seeks to further develop national and local policies to support the sustainable extraction, utilization and commercialization of non-timber forest products. One of the ultimate goals of the

SFDP is to address the primary threats to the region by establishing more clearly defined resource rights and identifying alternative income sources. The BCN-funded enterprises, which are part of this larger strategy, will be based upon the harvest, processing, and sale of several NTFPs. YDT and its partners plan to build upon their past experience and established market linkages to process damar, a resin used in paints and other industrial products, and to sell semi-processed rattan and bamboo to a manufacturer and marketer of handbags.

1996 Accomplishments

In the first year of the YDT implemented BCN project, activities have focused on building the capacity of human resources as a foundation for effective small scale forest-based enterprise development in the PFMA. Human resource development has been focused primarily in the PFMA communities, however, through cooperation with BCN, the human resources of YDT have experienced considerable benefit as well. Highlights include:

- Technology transfer on damar tapping and collection through a study visit by Dian Tama and SFDP staff to a damar production site in Lampung, Sumatra and a training on damar tapping for PFMA communities.
- Preparation of forest-based bamboo and rattan weaving enterprises through the formation of enterprise groups and a series of trainings for skills development and enterprise management.
- Preparation for factory production of bamboo and rattan bags through a month-long training with a well-known Filipino designer.
- Skills development in the PFMA for biological monitoring through a training on natural resource inventory as well as growth and yield monitoring.
- A trial run of the Yayasan Dian Tama developed social-economic monitoring method and questionnaire in the PFMA.

Success Stories

In the village of Terusan, rattan was formerly utilized only to weave baskets for private use and was regularly destroyed in the opening of new swiddens. Local people are now, however, planting bamboo and rattan plants. This is a very positive step as it demonstrates the will of the local people to think forward, particularly as the rattan planted now can only be harvested seven years from now.

Challenges

Among the PFMA forest communities, time off from school during the dry season is commonly spent tapping, processing and selling rubber in order to earn enough money to pay for the upcoming school semester. When the rubber tapping season was to begin, the dry season became a very wet one and tapping became impossible.

In the meantime, Dian Tama had been requesting damar samples for over one year, an offer which had no takers. That is, until rain fell during the rubber tapping season and families in villages throughout the PFMA spent the rainy days collecting damar and delivering it to local traders in Bantai village where the Dian Tama field office is located. Dian Tama staff who were in Bantai at the time report meeting people walking from the forest collection sites to Bantai with as much as 30 kilograms of damar on their heads and meeting them again on the way back to their villages with basic supplies and school uniforms in their baskets. In the words of Dian Tama's director, "A year of fishing without a catch can become a flood of fish overnight."

The primary challenge faced by Dian Tama in the implementation of this project concerns 1) the relationship between organizations active in the PFMA which calls for unprecedented coordination and cooperation, and 2) the related need for procedures and regulations to facilitate and monitor enterprise



N. Sahasly/PCN

development and trading within the PFMA. In Dian Tama's experience, the implementation of this project is serving to act as a catalyst such that these procedures and regulations be developed and the very young organization responsible for the coordination and implementation of

such regulations in the PFMA readies itself to deal with the needs of cooperating organizations, such as Dian Tama and locally active traders. Right now Dian Tama is in the midst of obtaining the necessary permission to extract and trade damar from the PFMA. However, as the process is still a long one in these early stages of damar trading, Dian Tama is faced with the difficult situation of developing contacts with potential buyers for a large amount of damar which does not yet have the permission to leave the Bantai storage unit.

Local people are now, however, planting bamboo and rattan plants. This is a very positive step as it demonstrates the will of the local people to think forward, particularly as the rattan planted now can only be harvested seven years from now.

9. Rafting, Honey, and Butterflies in the Rain Forest of Sulawesi

Location:
Lore Lindu
National Park,
Central Sulawesi,
Indonesia



Partners: The Nature Conservancy
(TNC)
Lore Lindu National Park (PHPA)
CARE-Indonesia
University of Guelph

Project Title: Wildlife and Nature-Based Tourism
Enterprises in Lore Lindu National Park,
Central Sulawesi, Indonesia

BCN Funding: \$584,892

**Partner
Contribution:** \$714,767

Grant Period: August 1, 1995–July 31, 1998

Project Overview

Lore Lindu National Park (LLNP) in Central Sulawesi is a UNESCO Man and Biosphere Reserve and was nominated as a World Heritage Site by the Government of Indonesia for its biological, cultural, and archaeological importance. The area contains some of the largest unbroken tracts of forest within Sulawesi and is home to 73 percent of the island's species of land birds as well as several endemic and endangered birds and mammals. In addition to its biodiversity value, the area provides natural resources to help meet the basic needs of people living in and around the park. The Parks' resources are threatened by encroachment, infrastructure development, and illegal harvesting of rattan and other forest resources.

To meet these threats, the project team will take the lessons learned during the planning phase and focus on

four elements: 1) Developing rafting-tourism, butterfly ranching and farming, and honey production enterprises, 2) Drafting a 25-year resource management plan with the Directorate General of Forest Protection and Nature Conservation (PHPA), 3) Developing, with CARE/Indonesia, a broader community development program, and 4) Ascertaining the impact of the above activities from social, biological, and economic perspectives. A critical component of TNC's monitoring program will be to assess the impact of the ongoing, widespread rattan collection in LLNP. In addition to developing ecologically sound enterprises and introducing conservation awareness programs, TNC also works with the Government of Indonesia on policy issues. The LLNP project in particular will allow TNC to work closely with PHPA on allowable access and use of protected areas.

1996 Accomplishments

In the **Butterfly Enterprise** take up of technology has been remarkably fast—eleven farmers are now actively breeding four species of butterfly. Although initially interest is shown by male members of the family, it is often women who take over the main role in rearing larvae. Numbers are only limited by lack of a market—due to difficulties in processing permits, only one export shipment has been made, and membership is being limited until this problem is resolved.

In contrast, the **Honey Enterprise** is attracting a lot of interest in villages, particularly in Kamarora and Rahmat where there is great interest in bee-keeping. There is good local demand for honey, especially if it is guaranteed pure and fresh. Initial approaches to honey-hunters in the

Napu Valley have been moderately successful and will be built on in the near future. A socioeconomic and ecological survey has been carried out in the Park and four adjacent villages. One of the hive bees utilized has been recognized as a new species, *Apis nigrocincta* (Susilowati and Otis, in press).

Rafting Enterprise development continues with the training of two local guides in rafting, and in English language. A local company (PT Toranggo Buya Wisairta) has been established to hold relevant provincial permits which have been granted. Owing to logistical problems, there have been only test rafting trips to date, but two are planned before the year's end.

One farmer has quickly become an expert butterfly farmer. He has used proceeds from both sales to buy a bicycle.

Success Stories

One farmer has quickly become an expert butterfly farmer, partly due to competition with other villagers, and partly due to his own pleasure in the skills involved. Apart from the potential market of live pupae exports, Pak Putujiwa has also been selling dead specimens of *Papilio* butterflies to a local dealer. He has used proceeds from both sales to buy a bicycle—in his words, this is a successful new enterprise and he wanted to buy something worthwhile people can see.

Beekeepers appear to be demonstrating their bravado in catching up new colonies of wild bees—they do this bare-chested! Actually their reason is that the *Apis cerana* bee is quite docile, and will only sting badly if squeezed against their chests by clothes. Masks and gloves are now being distributed so that swollen hands and faces are a thing of the past. Returns to one Honey Hunter were doubled when project staff transported him and 100 liters of his product to Palu for sale—it is hoped that Martinus will now act to seed formation of honey hunter co-operative groups in the Napu Valley.

Challenges

Butterfly Enterprise—the major challenge is to overcome government resistance to export of live butterflies; this is being attempted through lobbying and workshops with PHPA staff who are concerned that export of live pupae will allow breeding stocks to be maintained outside Indonesia.

Although there are worries over loss of markets, the main issue concerns loss of genetic material—the issue of genetic property rights.

The main problem facing the Honey Enterprise reflects a breakdown in project management due to communication difficulties between the field and managers in the United States and Ujung Pandang and the major illness of one of the key local consultants. To overcome this, the

project has been restructured to be managed through the TNC Palu Field Office, with consultants being retained to provide technical advice and inputs in technical aspects like honey quality control and ecological monitoring.

The main problem facing the Rafting Enterprise concerns the physical isolation of the Bada Valley—a rafting trip involves a major, expensive, expedition from the current base in Rantepao, Toraja, which is not attractive to passing tourists. Specialist tour operators are being contacted and there are several bookings for 1997. Establishing a local base for operations has been further hampered by the bankruptcy of one of the local partner companies, which must be resolved.



D. Heckman/PT, Toranago, Bada, Wistara

10. Butterflies in the Rain Forest of Irian Jaya

Location:
Arfak Mountain
Nature Reserve,
Irian Jaya, Indonesia



Partners: World Wide
Fund for Nature-Indonesia Programme
(WWF-IP)
Yayasan Bina Lestari Bumi Cenderawasih
(YBLBC)
University of Cenderawasih

Project Title: Butterfly Farming Enterprise
Development in the Arfak Mountains

BCN Funding: \$179,632

Partner

Contribution: \$115,760

Grant Period: April 1, 1995-March 30, 1998

Project Overview

The Arfak Mountains Nature Reserve (AMNR) protects lowland rain forest and montane moss forests in the Bird's Head region of Irian Jaya in eastern Indonesia. These forests support such rare and endemic species as tree kangaroos, bandicoots, Bird of Paradise, Vogelkop Bowerbird, and numerous birdwing butterflies. Human activities, however, threaten the biodiversity of the reserve. Agriculture, the collection of gaharu wood for fuel and construction, and poaching of some protected species by the Hatam, who live in and around the Reserve, pose the greatest threats.

Working with the Hatam and other Irianese living in the vicinity of the reserve, WWF-IP and YBLBC are developing an enterprise based upon the sale of butterflies raised in the reserves' bufferzone. The earnings from butterfly sales represent a potential alternative to some of the environmentally destructive practices undertaken by the Hatam. Environmental education and participatory biological and socioeconomic monitoring complement enterprise

development. The development of a viable, community-based butterfly farming enterprise, and the demonstration that such efforts are in fact ecologically sustainable, may help encourage GOI authorities to streamline the current time-consuming and difficult CITES permitting process for exporting butterfly specimens. Project partners and local communities also will explore the possibility of expanding the sale of butterflies to domestic markets.

1996 Accomplishments

One major accomplishment was that Australian CITES authorities granted YBLBC permission for the import of Birdwing Butterflies into Australia. YBLBC also received CITES permits for the sale of display cases to domestic and foreign visitors in May 1996. WWF/YBLBC held stands at Expo '96 in Jayapura, at the Manokwari Expo '96 and at Exhibition Lingkungan Hidup, Jakarta.

On the production side, thirty farmers participated in a training course in butterfly handling techniques in preparation for export. Ten farmers were trained in markisa (passion fruit) syrup production. YBLBC staff attended training courses in production techniques, stock recording, community development, project planning and monitoring. Administration and accounts training are continuing. Group leaders hold annual meetings and motivators hold monthly meetings facilitated by YBLBC. Staff made field trips in February, March, June and August.

Success Stories

While butterfly sales are still the main source of farmers' income, over the past year the organization of butterfly farming groups has acted as a catalyst for other income opportunities. In the past, several attempts have been made to introduce new agricultural produce and techniques to Arfak villages. Those crops that were successful in the market would then be planted by other areas. Villages with ready access to the Manokwari market, however, would benefit considerably more than those in remote areas.

Farmers have now organized themselves into groups along the lines of the butterfly farming groups. To reduce competition and distribute benefits, these agricultural groups agree to specialize their produce, dividing responsibility for carrots, potatoes, onions, garlic, cabbage, cauliflower, kidney beans, green beans, farmed fish and

Agriculture remains an important part of the culture, while the project enables farmers to earn cash income without encroaching upon the forest.

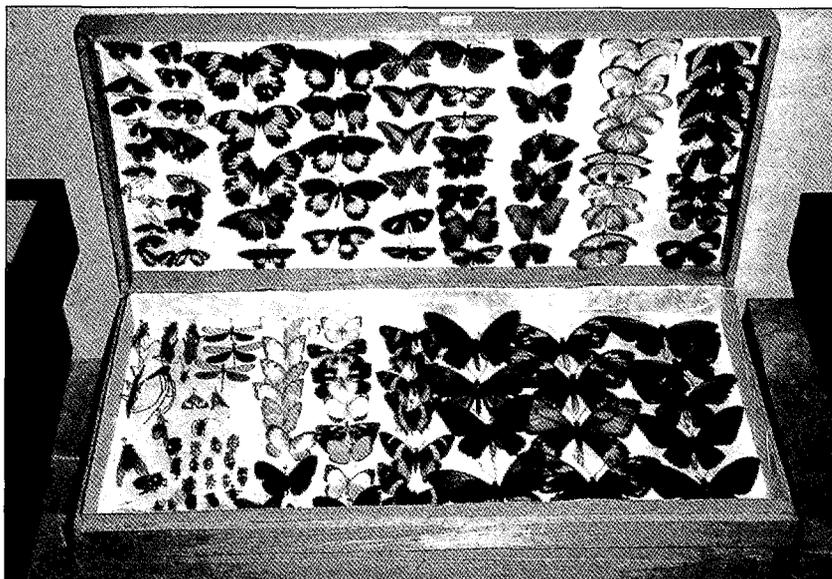
markisa syrup. A good selection of these Arfak products were available at the Manokwari Exhibition in October 1996, and farmers also make sales through the Manokwari office on a daily basis. Traditional and relatively new skills and ideas were combined to enhance income opportunities. New seeds were purchased with income from butterfly farming, which generated trust that support and assistance from YBLBC/WWF would be forthcoming. Agriculture remains an important part of the culture, while the project enables farmers to earn cash income without encroaching upon the forest. The communities themselves have motivated these developments.

Challenges

In June we were informed by the government that we were no longer permitted to export live pupae. Although pupae exports formed a very small part of income, they are important for the conservation aspect of the project as seen by many people in Western countries. Working with the Palu project in Sulawesi, who have the same problem,

responses and representations were solicited from customers and experts. A report and presentation was prepared for a meeting with PHPA, to take place 8 October, 1996 to request a reversal of this policy.

(Ed. note: The policy has recently been reversed allowing exports).



B. Gaudel/BCN

11. Dive Tourism off the Reefs of the Padaido Islands, Irian Jaya

Location:
Padaido Islands,
Irian Jaya, Indonesia

Partners: Rumsram
Foundation
Hualopu Foundation
IDRC
Canadian University Service
Organization (CUSO)

Project Title: Sustainable Community-Based Marine
Conservation in Irian Jaya, Indonesia

BCN Funding: \$295,843

Partner

Contribution: \$97,769

Grant Period: July 1, 1996–December 31, 1998

Project Overview

Eastern Indonesia has some of the highest marine diversity in the world. The Padaido Islands, Irian Jaya are the site of some of the world's most intact and biologically diverse coral reef systems, harboring 95 coral species and 155 fish species, and other marine resources which offer both non-cash and commercial value to the area's inhabitants. Many of the coral reefs found in and around the Padaido Islands near Biak, however, are threatened by unsustainable levels of resource exploitation and destructive fishing techniques including especially the use of cyanide and explosives.

Yayasan Rumsram (based in Biak, Irian Jaya) and Yayasan Hualopu (based in Ambon, Maluku) are addressing these threats by working with local communities to establish a community-based marine ecotourism venture in the Padaido Islands and, at the same time, introducing alternative, sustainable methods of harvesting the marine resources in the

area. Rumsram has already built one homestay on the Padaido Islands and has, with assistance from UNDP, established a functioning community-based savings mechanism. The project is also creating a community owned and operated dive tourism agency that will offer shares to local community members. Currently, most of the tourism in the area is larger scale tourism that excludes participation of local communities. The travel agency will initially be owned by Rumsram and the cooperatives in the three target villages. The stakeholders will be represented by a Board of Directors. It is expected that the benefits from the dive tourism packages, combined with necessary training in business management and alternative harvesting techniques, will create local incentives for long-term resource management and exploitation.

1996 Accomplishments

Rumsram has been active in the field, working with the Padaido community. They have met with the villagers regarding revitalization of their marketing co-operative. A women's saving group has been strengthened through recruitment of new members. There is as a consequence now more money available in their saving account. The community has been informed about the eco-tourism project and the community people are enthusiastic in their support.

Activities related to fisheries involve introduction of environmentally appropriate fishing gear such as FADs and gillnets. Several groups of fishermen have been convinced to stop using bombs. Meetings have been held to consider the zonation of local waters for various uses.

The first boat the community had for transporting tourists was wrecked in the tidal wave (see Challenges below). Rumsram has built a larger new boat for use in the project. The upgrading of the existing tourist cottage in Dawi Island is underway. A well and bathroom have been added to the facility. Additional units are now under construction by community members, who are copying this existing facility. Rumsram has also been gathering baseline data for the monitoring of socio-economic indicators. The biological monitoring plan will be reviewed and revised in November.

The project book-keeper received training in financial management over a period of two weeks. Also, a series of meetings have been held to finalize management plans.

Early in the history of the project (February 17, 1996) a strong earthquake and tidal wave wiped out many of the homes of villagers and the local co-operative's shops.

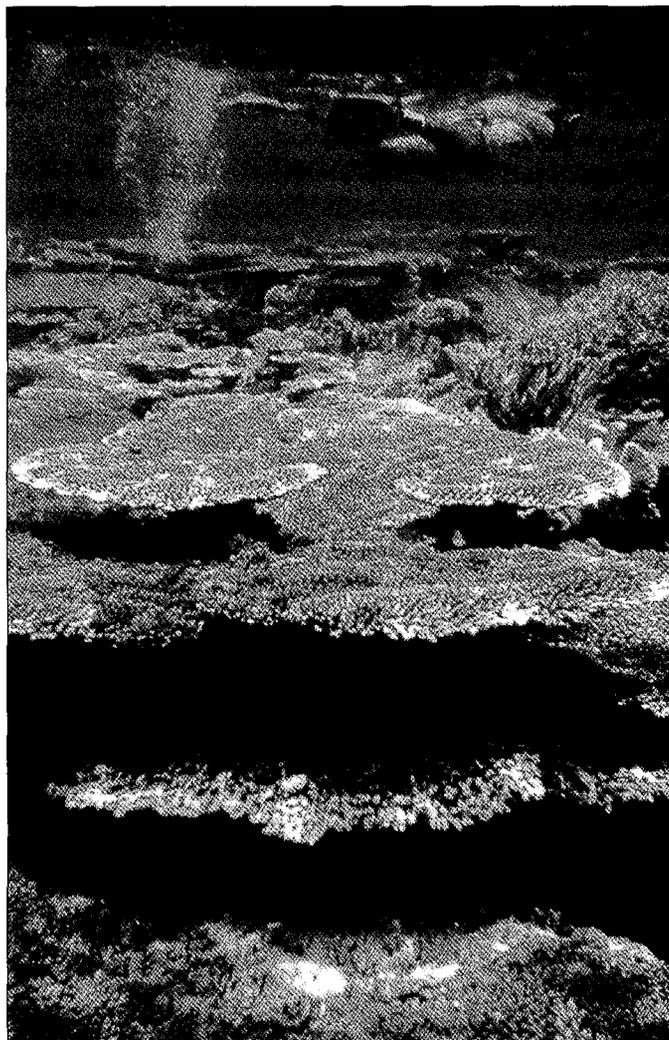
Strong working relationships are one positive outcome of the disaster.

Success Stories

On Passi Island there is a fisherman who is known as the "Bomb Raja (king)" because in the past he has been a leader in the use of highly destructive bombs for catching reef fish. Today he has a new name—"Raja FAD." FAD stands for Fish Aggregating Device, a floating platform which attracts fish and allows the harvesting of pelagic fish without the destruction of the reef habitat. How did this change of heart come about? It was not because the Raja became an environmentalist. However, with the help of the project team, he was shown that his income and future security were improved through the substitution of FAD fishing for bomb fishing.

Challenges

The project has met and overcome a very serious challenge. Early in the history of the project (February 17, 1996) a strong earthquake and tidal wave wiped out many of the homes of villagers and the local co-operative's shops and damaged the tourist accommodation being used by the project. Computers and project files were also swept away. Since then, the project staff and their village partners have struggled to put the project and its infrastructure back together. A major problem was the overwhelming feelings of despair and hopelessness felt by the affected communities. Rumsram fund-raised for a rehabilitation fund and was able to assist in the purchase of new fishing gear and agricultural tools. This activity was an important entry point for the project's work in the communities. Strong working relationships are one positive outcome of the disaster.



R. Mangalme/RSP

12. Abaca Fiber and Rattan from the Forests of Mindanao

Location: Bendum, Pantaron Forest, Bukidnon, Mindanao, Philippines

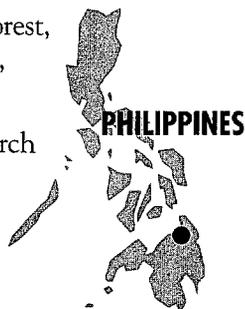
Partners: Environmental Research Division, Manila Observatory (ERD)
Southeast Asia Sustainable Forest Management Network

Project Title: Bendum, Pantaron Forest Management Project, Bukidnon, Mindanao

BCN Funding: \$426,798

Partner Contribution: \$340,408

Grant Period: May 1, 1995–April 30, 1998



Project Overview

One of the few remaining habitats for the highly endangered Philippine eagle, Mindanao's Pantaron Range is also one of the nation's most critically important watersheds, giving rise to several major rivers, including the Pulangi, the Philippines' second largest river. The Pantaron Forest Management Project is adjacent to one of the ten sites the World Bank has identified as biodiversity priorities for the Philippines. Threats to the forest include conversion and overharvesting of resources.

ERD and its partners seek to counter these threats by working with a community of indigenous people, the Bukidnon, to improve their quality of life by marketing several non-timber forest products and obtaining more secure recognition of their ancestral lands. The project is assisting the community in marketing abaca fiber while making preparations to market rattan. These preparations include obtaining a rattan cutting license for the community, promoting sustainable rattan harvest practices, and developing the financial skills of community members.

This forest management project represents an attempt to formalize community-controlled rattan concessions, which

will be an important step toward the sustainable use of this and other forest products. ERD is also laying the groundwork necessary for the indigenous people of the area to obtain a certificate of ancestral domain claim (CADC), the most binding form of recognition provided to indigenous communities by the Philippine government.

While ERD's activities focus on the project site in Bendum, it is also seeking to coordinate its efforts with other NGOs active in northern Mindanao to assist indigenous peoples to conserve the entire Pantaron Range. An innovative aspect of ERD's activities is its plan to document linkages between resource management and water availability. ERD believes that establishing this connection will encourage Philippine policy makers to provide more effective support for biologically diverse upland areas.

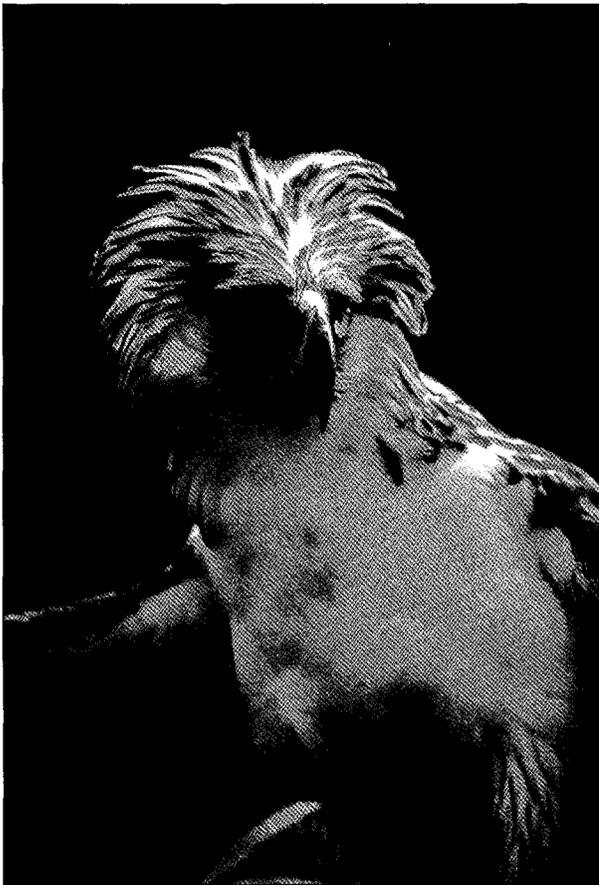
1996 Accomplishments

The major BCN-funded activities at Bendum and Malaybalay included: 1) planting (17 sites) and monitoring abaca (6 community trials plus ERD monitoring) for eventual production and weaving of high quality fiber, 2) skills training and production of prototype handicrafts, 3) developing market links in St. Peter (neighboring village) and identifying potential traders from the community, 4) selecting local forest guards and translating training materials, 5) biological monitoring (training of community members as team leaders, community mapping of rattan resources), and 6) socioeconomic monitoring including looking at resource ownership, land use, classifications, oral histories and kinship mapping which contributes to Certificate of Ancestral Domain Claim (CADC) (non-BCN funding used), ongoing monitoring of family groups' status and community dynamics, and development of cultural economic indicators.

Expansion of activities continued into Tawantawan and Mahayag, neighboring localities: community mapping, cultural perceptions of rattan, the forest, and water, socioeconomic surveys and interviews. A decision was reached to work for a joint CADC with Bendum. ERD submitted technical maps and cultural data for CADC. Negotiations for the rattan license for Bendum were postponed but the community refused the licensed concessionaire, Tronovel International, access to the rattan resources. Forest, health, and water committees are active, attracting additional members including women and deep forest dwellers.

Success Stories

Two incidents indicate strengthening of Lumad (indigenous) leadership. First, there was concern on the part of the forest committee over the pressure from Dumagat (lowlanders) in St. Peter to obtain wood from Bendum to build their houses. Much of the monitoring has been related to this pressure. The committee decided to use the fallen logs for houses and construction within the community and have continued to refuse to allow the movement of logs outside the community of Bendum. Second, when the Mayor of Malaybalay came to Bendum with a medical team, the growth of the Tribal Council was tested. The members of the council took the lead in bringing up issues, deciding what not to discuss and obtaining support from the Mayor for their various activities.



WWPR, Kennedy/Free Ltd.

Challenges

The major challenge along the Pantaron range is keeping at bay the powerful forces that either threaten the physical security of the people or degrade the forest resource base that is the locus of spiritual as well as economic value. While some minor incidents occurred, there is now a situation of relative peace. This peace allows for intense negotiations over resource rights and access, as well as roles and forms of decision-making, within the indigenous Lumad community and among the Lumads, Dumagats (migrants) and government officials. Keeping the process peaceful is critical to the success of all efforts.

In terms of the BCN project, a major challenge is to provide sufficient social and economic benefits from low impact and culturally empowering activities to balance the temptation to sell, rent or otherwise alienate land for intensive agriculture but not promote activities that are so profitable that they attract too much attention from outsiders. These challenges can only be met by a holistic and strategic approach that focuses on a longer term goal of negotiating cultural and economic integrity within a clearly delineated territory. Road building may soon pose a threat as well, while serious health problems and debt are continually present in the community.

a major challenge is to provide sufficient social and economic benefits . . . but not promote activities that are so profitable that they attract too much attention from outsiders.

13. Rattan and Resin from the Tropical Forests of Palawan

Location: Palawan Island, Philippines

Partners: World Wildlife Fund-Philippines (WWF-P)
Nagkakaisang mga Tribu ng Palawan (NATRIPAL)
Tanggapang Panligal ng Katutubong Pilipino (PANLIPI)
Tribal Filipino Apostolate

Project Title: Community-based Conservation and Enterprise Program for Indigenous Communities in Palawan, Philippines

BCN Funding: \$627,698

Partner Contribution: \$92,034

Grant Period: January 15, 1995–January 14, 1998



Project Overview

The island of Palawan is often described as the last environmental frontier in the Philippines, as it contains some of the country's largest remaining areas of primary rain forest and some of its more intact and diverse coral reef systems. Palawan has an abundance of unique flora and fauna, including numerous endemic species, and accounts for a significant portion of the entire biological resources of the Philippines. Palawan is also home to a large number of indigenous peoples whose territories, natural resources, and cultures face growing threats from legal and illegal destructive logging and fishing practices, mining activities, and the rapid encroachment of immigrants from neighboring islands.

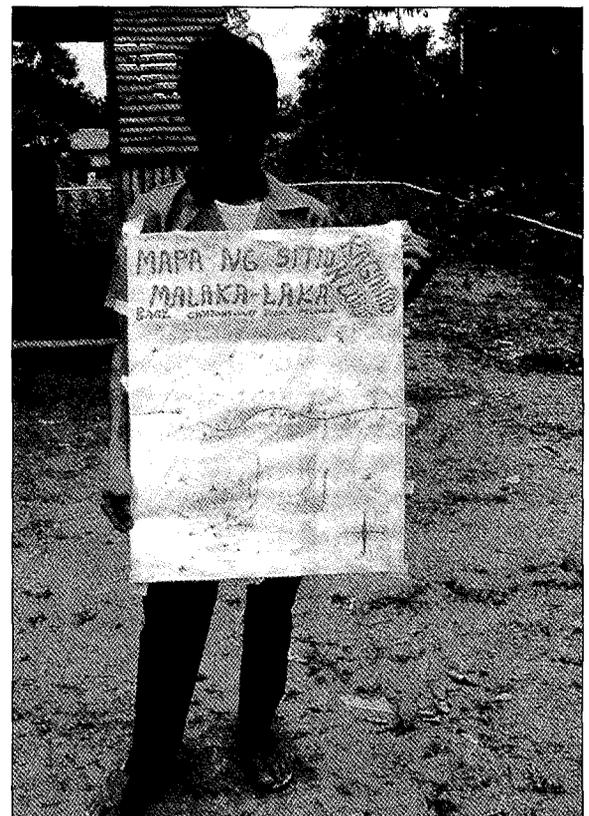
To counter these threats, the project team is developing new non-timber forest product (NTFP) enterprises and alternatives to the traditional marketing system. The project's short-term focus will be on rattan, almaciga resin, and honey, but over time it will also explore the potential for marketing other NTFPs. NATRIPAL, an association of

53 groups of indigenous peoples representing a majority of the indigenous communities in Palawan, hopes to simultaneously reduce the pressure on the natural resource base and improve local peoples' well-being through these projects.

The success of a community-based conservation and enterprise program like the one on Palawan will help to establish the credibility of local resource management in general. To further this effort, WWF-Philippines and NATRIPAL are working to obtain the most binding certification of ancestral land rights for two pilot project sites currently available in the Philippines—the recently promulgated Certificate of Ancestral Domain Claim (CADC). Partners are also helping project partners to establish a credit program and marketing unit that will assist indigenous cultural communities in the pilot sites to obtain greater, more sustainable benefits from the sale of NTFPs.

1996 Accomplishments

The major accomplishment of the project was that two Certificates of Ancestral Domain Claims (CADCs) were awarded by the Department of Environment and Natural Resources (DENR) to the indigenous people of Palawan in



N. Salasky/BCN



N. Salasby/BCN

February, 1996. The CADCs were awarded to the *Tagbanua* community in barangay Cabayugan (5,000 hectares) and the *Tagbanua* and *Batak* community in sitio Kayasan (7,500 hectares).

The project has produced GIS-generated base maps of Kayasan, Cabayugan and Campung Ulay depicting rivers and creeks, elevation, land use and non-timber forest product (NTFP) concessions which overlap with the CADCs.

Success Stories

The biological resource inventory team has been working with the indigenous people of Kayasan since 1995 in conducting the inventory. Despite the many problems and delays encountered by the inventory team, the GIS Officer of NATRIPAL (United Tribes of Palawan) is touched by the support of the community members. Community members are keen on pushing through and seeing the

The major accomplishment of the project was that two Certificates of Ancestral Domain Claims (CADCs) were awarded to the indigenous people of Palawan in February 1996.

inventory to its completion, realizing the community's need for the information and how they can use it in preparing and implementing their Ancestral Domain Management Plan.

NATRIPAL has also become aware of their need for integrated projects in support of their existing projects. NATRIPAL has realized that non-timber forest products (NTFPs) are not enough to support their economic and subsistence needs. They are now sourcing out funds and developing other projects in support of the NTFP enterprises being funded by BCN.

Challenges

The biggest challenge faced by the project is to make the CADCs mean more than just a piece of paper. Two of the four project sites have been awarded the certificates. But the project could not launch the NTFP enterprises because NTFP concessions have not been turned over to the indigenous communities. The CADC mandate provides that the existing concessions will be allowed to operate until the concession expires. In the meantime the extraction of resources from the concession areas is accelerating, to maximize profits from the concessions while the concessionaires still have time.

The processing of the other two CADCs in Campung Ulay and Punta Baja is difficult.

The different stakeholders have different interests on the sites. The indigenous peoples seek tenure on their ancestral land while the local government and migrants support agricultural development, which in several cases means the conversion of forests to agricultural land. The application for the CADC in the Municipality of Rizal, Palawan was started in 1994, and so far the boundaries of the CADC still continue to shift.

14. Jelly and Other NTFPs from the Forests of the Kalahan Reserve

Location: Kalahan Reserve, Nueva Vizcaya, Luzon, Philippines

Partners: Kalahan Education Foundation (KEF)

Nueva Vizcaya State Institute of Technology (NVSIT)

University of the Philippines, Los Baños

Upland NGO Assistance Community

Project Title: Forest Farms Development Project

BCN Funding: \$321,190

Partner

Contribution: \$94,936

Grant Period: March 1, 1994–February 28, 1997



Project Overview

The primary and secondary forests in the Kalahan Reserve, in Nueva Vizcaya, Luzon, support diverse plant and animal species as well as approximately 550 Ikalahan families that live within the reserve. The resources of the reserve, which covers 14,730 hectares of ancestral land, are managed by the indigenous people under an agreement with the Philippine Government. Compared to other localities, these resources are well managed. Nevertheless, there are still threats from road building, expropriation of land by commercial developers, and overharvesting of certain nontimber forest products.

To meet these threats, KEF, a local NGO formed by the Ikalahan Tribe, is implementing an integrated program of community forest management and NTFP extraction. Enterprise activities include the production of jams and jellies from forest fruits, extraction of essential oils, collection and cultivation of flowers and mushrooms, and the manufacture of furniture. In addition,

local communities are undertaking timber stand improvement in a small percentage of the secondary growth forest. KEF is thus diversifying the community's economic base by adding value to the resources and developing alternative marketing channels for these products. The project site is formally recognized by the government of the Philippines, and the project is an important step in building the case for the local management of these resources. KEF and the Ikalahan people are also developing monitoring and evaluation systems to document the status of the biological resource within the reserve and then assess the impact of the proposed economic activities on these resources over time.

1996 Accomplishments

The new Hibiscus jelly is selling very well. The new labels and news stories about our Mountain Fresh products have both helped to increase sales. This forces the processing staff to work two shifts during the fruiting season to ensure adequate raw materials to meet next year's demand. They now work two shifts and have successfully established a system for harvesters to schedule deliveries so that the Center is not inundated suddenly with so much fruit that they cannot process it quickly. The number of involved families and the extent of their involvement have both increased.

The orchid specialist has finally begun producing, young orchids to turnover to other staff members to raise. He has lost some time and seeds in the experimental process, but has finally overcome contamination problems that are only natural for a new program. The biodiversity analysis of the local fauna is moving very rapidly. The analysis of the impact on other flora is proceeding. So far the impact still seems benign—population structures for some of the other tree species also have been done with interesting results.

The new Hibiscus jelly is selling very well. The new labels and news stories about our Mountain Fresh products have both helped to increase sales.

Success Stories

About 30 Ikalahan leaders: men, women, youth and senior citizens gathered recently for a day and a half to analyze the "food web" in their community. None of them, even their facilitators had ever done such a thing before, but they were all interested in seeing what the result would be. While the incessant rain clattered on the iron roof, the four groups filled huge sheets of paper with a network of lines showing "what-eats-what." Some started with the fly-frog-king-

fisher-hawk-eagle-human type system, but no matter where they started, each group eventually had to include all of the multitudes of plants, animals, and insects in their charts and realized that there were still more things involved than they had recognized.

When they finished that assignment, they charted where the waste from every part of their system goes. There is no such thing as "garbage" in a forest, they discovered, because everything is food for something. By this time they had gotten so interested that they had no trouble adding purely symbiotic relationships to their charts. The charts were then so cluttered with lines that they set them aside to answer the question "What are your problems with the environment?" One of the first problems was the lack of water in their springs. Their charts exposed several species of wild figs that are known to improve the watershed. Then someone noticed that several species of bats regularly pollinate and plant those figs through their feces. Then another exclaimed, "If we protect those bats, they will plant the forest full of fig trees and we will soon have a better water supply!" He had made the jump from merely seeing a single problem to tracing its roots through the environment and finding a natural solution.

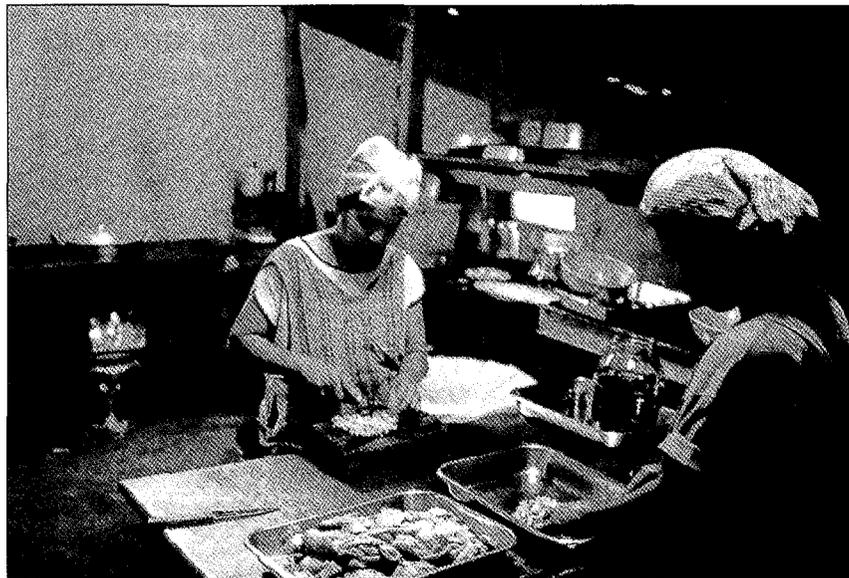
"I thought we came here to hear a lecture," Bugtong said at the end of the workshop, "But, we did all the lecturing and we learned more than usual." This has been the experience of the participants in all of the several such workshops that have been held. The breakthrough in their understanding has given a tremendous boost to protecting the BIO-DIVERSITY and more important, a boost to their QUALITY OF LIFE.

Challenges

The inventory of faunal species within the Kalahan Reserve was interesting from the beginning, but became exciting when it was discovered that the Tarictic Hornbill, two woodpeckers, and two parrot species that were common within the Kalahan Reserve were on the IUCN's list of endangered species. Most live within or near the Sanctuary which was established a few years ago. Excited, the Ikalahan then invited three ornithologists to help them continue the identification work. During a three-day

workshop, the ornithologists, foresters, and local leaders developed a list of more than 110 species of which 31 are on the endangered lists. The listing of the native flora is no less interesting.

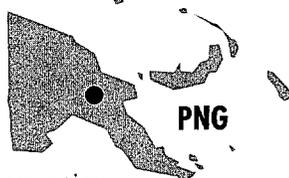
The challenge is now to continue improving the environment so that these species can continue to thrive. Plans have been developed and the congressman and mayor are helping although four other political leaders are unwisely pushing an ill-conceived plan to build an unnecessary highway through the middle of the Sanctuary. The people are using public information and political counter-pressure to fight off this serious threat.



N. Salasky/BCN

15. Scientific and Eco-Tourism in the Rain Forests of Crater Mountain

Location: Crater Mountain
Wildlife
Management
Area, PNG



Partners: Research and Conservation
Foundation of PNG (RCF)
Wildlife Conservation Society (WCS)

Project Title: Crater Mountain Wildlife Management
Area: A Model for Testing the Linkage of
Community-Based Enterprises with
Conservation of Biodiversity

BCN Funding: \$498,107

**Partner
Contribution:** \$76,950

Grant Period: August 1, 1995–July 31, 1998

Project Overview

The enormous Crater Mountain Wildlife Management Area (WMA) covers 2600 square kilometers, an area about the size of the state of Rhode Island.

The site spans a wide range of elevations (150–2100 meters) that contains a full range of the biotic diversity of PNG. Primary forest blankets the lower elevations, while alpine scrub and grasslands are found at higher ones. The site contains over 220 bird species, 49 of which are endemic, and 84 mammal species, 15 of which are endemic to PNG. Although the WMA currently has a low population density, a number of threats are looming in the near future including industrial logging, mining, and oil drilling.

To counter these threats, the project is establishing locally-owned and operated research and ecotourism enterprises in the WMA. These innovative community owned and operated enterprises are

establishing support structures for natural and social scientists interested in studying the natural ecosystems and cultural diversity in the WMA. These enterprises provide lodging and guide services to domestic and international visitors interested in experiencing the natural wonders of the WMA.

The project team members are working with community members to develop biological and socioeconomic monitoring systems. The team is also working with landowners to develop a land-use management plan which provides for biodiversity conservation and enterprise sustainability. Finally, they hope to demonstrate to government officials and other land-owners in PNG that community managed lands can generate profits in a sustainable fashion.

1996 Accomplishments

Within the boundaries of the CMWMA, the project's community and business development staff in the field continue to work with members of 21 landowning clans on ecoenterprise development. Over the last year, approximately 300 visitors including scientists, students and natural history travelers visited the research station, guest-house and bushhouses which the communities in the WMA offer.

Community leaders have participated in tourism planning workshops, national study tours and ongoing village extension courses to build local capacity in small business development. Because literacy levels are extremely low, support classes are offered in English, literacy and basic math. With field staff assistance, communities have discussed and tested business management structures, worked

with an architect to design traditional facilities and trail systems to better accommodate the scientific traveler, determined rates and produced marketing brochures for their products. A market study was conducted to assist them in product planning. A successful model for international and domestic sale of traditional handicrafts developed in one WMA village has been transferred to the others to eventually be marketed under the Crater Mountain label.

Management committees with elected leaders from each clan meet monthly in each village to act on issues related to management of the multiple-use Wildlife Management Area.

With management staff assistance, they review the WMA rules, act on violations and impose fines related to use of natural resources as associated with the eco-enterprises in

The enormous Crater Mountain Wildlife Management Area (WMA) covers 2600 square kilometers, an area about the size of the state of Rhode Island.

place. The committees also review requests for tourism and research activity in the WMA and review the development of these enterprises to assess compatibility with proposed biodiversity protection. Once a year, representatives from all 21 clans meet in the Annual WMA Meeting to discuss eco-enterprises development and to standardize rules and procedures for the entire conservation area.

Success Stories

In a traditional culture where tribal rivalries and fighting have been in place for centuries, the Crater Mountain WMA has had unprecedented success in bringing together representatives from 21 clans representing two language groups to discuss and draft legislation to manage the second largest WMA in PNG. In 1996, the WMA annual meeting gained national attention with representatives from the Department of Environment & Conservation, the Tourism Promotion Authority and the University of PNG addressing the convention of clan delegates. This has boosted the pride and appreciation of Crater Mountain communities in the unique natural resources and associated enterprises they possess. Although yet in a very early state of development, this fledgling structure has provided valuable lessons for viable management structures in privately-owned protected areas in PNG.

An associated landmark in national leadership has been the increased involvement and capacity of the national project staff who work as trainers with the Crater Mountain communities, and who have taken a lead in this

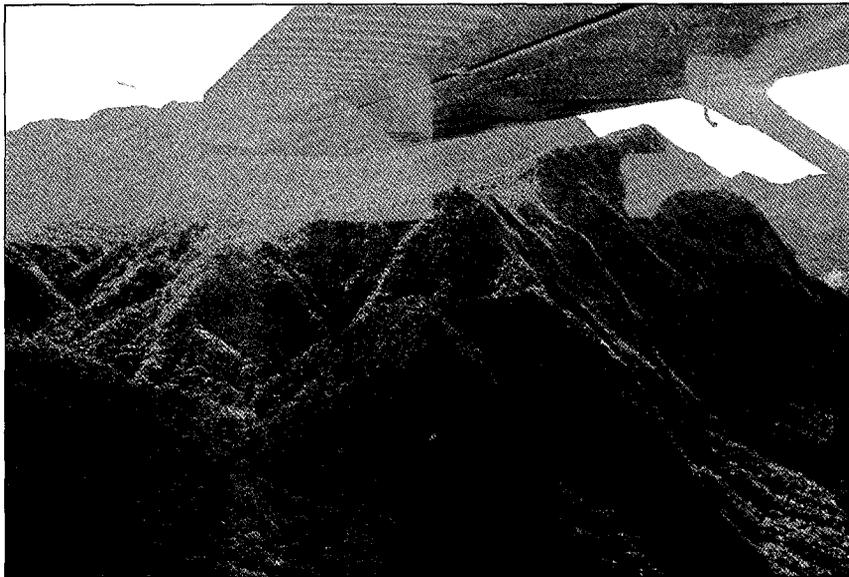
extremely challenging conservation initiative. Based on their innovations in the project, the Senior Project Officer, John Ericho, and his staff including Business Development Coordinator, Stanley Kundal and Field Research Coordinator, Robert Bino are recognized as important leaders in integration of conservation and development in PNG.

Challenges

Our greatest challenge in the development of the Crater Mountain Wildlife Management Area continues to be the community's low level of literacy and experience with the

modern cash economy as well as the historical presence of inter-clan conflict and suspicion of one another. The average level of formal education is grade one, most residents have never traveled beyond the boundaries of the WMA and have only recently begun to personally manage small sums of cash. Fear of traditional sorcery and loyalty to clan affiliations underlies social

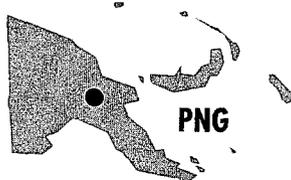
behavior. Resident field extension staff with excellent communication skills have been essential to meet this challenge. They provide slow-paced, ongoing training conducive to traditional village lifestyles. Their constant presence provides the communities with an invaluable source of information to answer queries to dispel misconceptions about the outside world and the cash economy beyond the WMA boundaries, and they may serve as an unrelated third party to very carefully mediate clan conflict or misunderstanding.



N. Satake/BCN

16. Scientific and Adventure Tourism in the Forests of Lakekamu Basin

Location: Lakekamu-Kunimaipa Basin, Papua New Guinea



Partners: Conservation International (CI)
Foundation of the Peoples of the South Pacific (FSP)
Wau Ecology Institute (WEI)

Project Title: Landowner-based Conservation, Fostered by Science and Adventure Tourism in Lakekamu Basin, Papua New Guinea

BCN Funding: \$355,487

Partner

Contribution: \$152,575

Grant Period: August 1, 1995–July 31, 1998

Project Overview

The 2500 square kilometer Lakekamu-Kunimaipa Basin (the "Basin") contains the largest expanse of unbroken humid forest in the southern watershed of peninsular PNG. The Basin contains two areas deemed "of very high priority" for biodiversity conservation by the PNG Conservation Needs Assessment. The site contains healthy populations of many globally vulnerable species of birds, mammals, and other taxa. Although the Basin currently has a low human population density, a number of threats are looming in the near future, particularly industrial logging, creation of oil palm plantations, and mining.

To counter these threats, CI and local communities are working to set-up landowner-owned and operated scientific field research and adventure tourism enterprises in the Basin. The research tourism enterprises are establishing and providing

support for a tropical forest field station that eventually will include a central lodge, a mapped trail system, and a series of blinds for observing wildlife. Community members are also providing food, portering, and guide services to researchers. The adventure tourism enterprises being planned will establish and provide support for a walking trek that will include a rustic lodge near the airstrip and series of seven overnight rest huts along, in part, the historic Bulldog trail. Community members will also provide guide, naturalist, and support services. In both enterprises, community members will benefit from user fees paid by the visitors.

A central project component is monitoring the biological and socioeconomic impacts of project enterprises and other activities. It is expected that these enterprises, which depend upon the continued maintenance of large tracts of undisturbed forest, will provide a substantial incentive for conservation of the area's biological diversity, and will demonstrate to policy makers at the national level that community management of ecotourism is an alternative to logging and mining.

1996 Accomplishments

During the past year, the Lakekamu Basin Integrated Conservation and Development project expanded its staff and increased the capacity of field personnel and local stakeholders to implement the enterprise elements of the project. In April, FSP-PNG hired Thomas Paka as its Port Moresby based Project Coordinator. FSP and CI also contracted with a post-graduate student at UPNG to organize and analyze the socioeconomic data collected earlier by Community Outreach Officer Cosmas Makamet. Meanwhile, CI hired Gaikovina "Gai" Kula, former First Assistant Secretary for Nature Conservation at the PNG Department of Environment and Conservation, as its PNG Program Director, thus strengthening CI's ability to manage its projects throughout PNG.

In late June, three Lakekamu Basin personnel went on a study tour of a BCN-funded joint Solomon Islands Development Trust/Maruia Society/CI project on the island of Makira, Solomon Islands, where the project staff benefited greatly from observing a more established Melanesian Integrated Conservation and Development Project (ICAD). On their return to PNG, they joined four Lakekamu Basin landowner representatives at a workshop designed to increase the ability of stakeholders,

The adventure tourism enterprises being planned will establish and provide support for a walking trek that will include a rustic lodge near the airstrip and series of seven overnight rest huts.

NGOs and tour operators to design, implement and manage successful ecotourism enterprises in PNG.

Success Stories

The four Lakekamu Basin landowner representatives who traveled in July to Madang had no idea what to expect from the workshop on Strategic Planning for Community Based Ecotourism Product Development in PNG. They had been hearing about ecotourism and its potential benefits for many months, but remained unsure of what it would entail and unconvinced that this sort of development was in their communities' best interests. Once at the workshop, Matai Kai, Clement Peter, Roehanny Yenip and Jacky Miwa joined other landowners, NGO representatives from similar ICAD projects elsewhere in PNG, tour operators and ecotourism professionals for a week of intensive, hands-on training, discussion and planning.

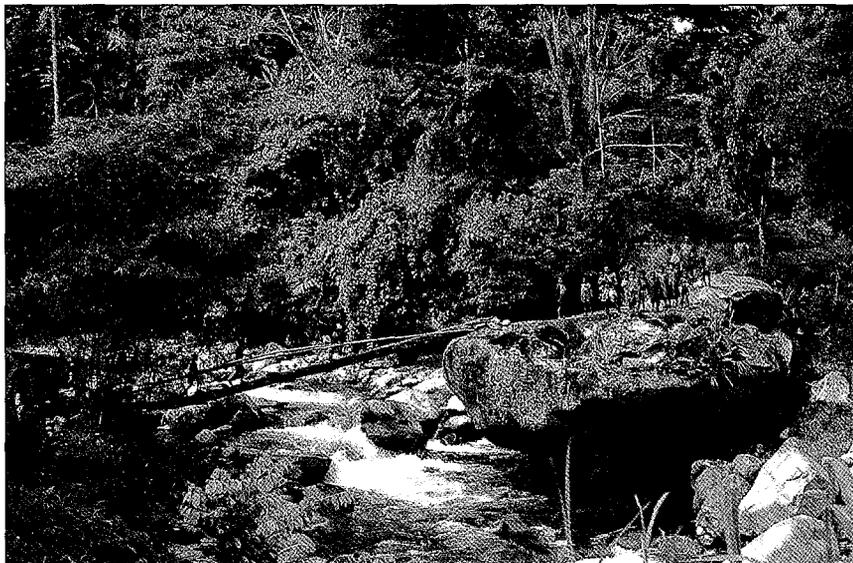
Many of the concepts were difficult for someone with no business background to understand, but with help from a professional tour operator who spoke fluent Neo-Melanesian Pidgin, participants began to comprehend the complexities and difficulties of producing a successful ecotourism enterprise. The Lakekamu Basin representatives and field staff from FSP formulated a business plan that best suited their communities and the Basin environment. Afterwards, secure in a clearer understanding of ecotourism development, each of the landowners pledged to return to the Lakekamu Basin and work for the creation of ecotourism enterprises in their respective communities.



N. Sahafky/BCN

Challenges

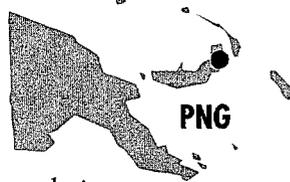
The Lakekamu Basin project's most immediate challenge this year has been completing construction of the permanent field station at the Ivimka research site. Progress on this integral part of the project has been hampered by chronic illness among field personnel and the long supply lines to Wau and Lae. These two problems have been addressed by emphasizing prevention of malaria and other tropical diseases, while adequately and quickly treating them when they do occur, and by procuring larger amounts of medicines and replacement parts for integral pieces of equipment. As a result of these measures, construction of the field station should be completed by the end of 1996. The longer-term challenge is to continue to build the capacity of FSP field staff and local landowners to successfully implement the ICAD program.



C. Berg/CI

17. Eco-Timber from the Forests of New Britain

Location: East New Britain and Other Sites, Papua New Guinea



Partners: Pacific Heritage Foundation (PHF)
East New Britain Sotel Eksen Committee
Individual and Community Rights Advocacy Forum (ICRAF)
Forest Research Institute

Project Title: Community-Based Eco-Forestry Projects

BCN Funding: \$451,738

Partner

Contribution: \$559,825

Grant Period: October 1, 1995–September 30, 1998

Project Overview

The forests of the islands in Eastern Papua New Guinea (PNG), including New Britain and New Ireland, home to a number of rare and endemic plant and animal species, now face some of the most intense commercial logging operations in the region, if not the world. Large foreign logging companies have been able to persuade local landowners to sell the rights to their timber for a fraction of its true market value. PNG stands at an extremely critical juncture regarding its forestry policy, as factions within the forestry department seek to remove most existing environmental controls regarding the forestry sector. The country must develop sustainable alternatives to large-scale commercial logging that can also meet community development needs.

To counter this threat, PHF and its partners are expanding ongoing efforts to offer local communities an alternative to these commercial logging operations in the East and West New Britain, New Ireland, and Sepik Provinces of PNG. PHF's primary objectives for the Implementation Grant are to: 1) reduce the decline of forest resources by

supporting community-owned small-scale saw milling enterprises as alternatives to large-scale industrial logging, 2) establish a central processing and marketing unit to generate high returns to communities and ensure long-term economic viability, and 3) increase capacities for extension, technical, social, and legal services. The project also will explore other smaller enterprises including the harvest of Galip nuts and other non-timber forest products. Finally, in conjunction with several collaborators, the project will support extensive social and biological monitoring activities.

Community-based ecoforestry has enormous potential as a tool for sustainable use of natural resources. This project will help to demonstrate the sustainability of such small-scale timber operations, and comes at a crucial time for the development of PNG's national forestry policy.

1996 Accomplishments

Community-based portable sawmill projects have been established in Mu, Illi and Murunga villages within the Project area, and a further sawmill project will be established at Merai village within the next month. In particular the project at Mu has been an outstanding success, and the project leader, Martin Katole, has been appointed as the Foundation's District Officer with the responsibility of overseeing all the projects in the area. Some of the tangible results at Mu include the construction and stocking of a village store, and the construction of a village guest house. Previously there would not have been the capital, nor probably the enthusiasm, for either of these projects.

The Biological Expedition conducted in 1995 with the assistance of the Christensen Research Institute and the National Museum, not only provided a substantial amount of base data but encouraged some lateral thinking amongst the landowners as to other values of their forest resources. We are now networked with a diverse group of scientists and students, and there will be a series of field updates over the coming year.

Whilst we eventually lost the battle against the establishment of the mine, our integrity and objectives were firmly re-established in the minds of the villagers.

Success Stories

PHF led a number of awareness and education campaigns in the Bainings area in 1995 to allow villagers to be able to make informed decisions about a potential gold mine on their land. The strength of the mining lobby was underestimated and they were very active in placing their



activists within communities and fomenting attacks against the PHF programs. These reached a peak when they attempted to prove that the prices being paid for sawn timber from the projects was below market. The miners hired a truck and took a load of this timber to various traders in Rabaul. We discovered later that the traders either refused to purchase the ungraded timber, or offered prices well below those that PHF were paying.

Whilst we eventually lost the battle against the establishment of the mine, our integrity and objectives were firmly re-established in the minds of the villagers. We also believe that the mine battle will resume once production commences and the more obvious environmental problems surface.

Challenges

The Wide Bay area where we are working with the BCN grant, is listed in the new National Forest Plan for commercial logging in 1998. We have a race on our hands for the establishment of more projects and the upgrading of existing ones if we are to be able to convince the villagers that these are better alternatives to export logging. This situation is made more fragile as we approach the next National Elections in July 1997. Every sitting member has to raise approximately \$1 million for campaign funds to have any hope of winning a seat, and the loggers are the most likely source of this level of funds. Many sitting members, together with rafts of hopefuls, will be trying to promote export logging operations.

18. Fish from the Arnavon Island Marine Reserve

- Location:** Arnavon Islands Resource Management Area, Solomon Islands
- Partners:** The Nature Conservancy (TNC)
Ministry of Forests and Environmental Conservation (MFEC)
Arnavon Islands Management Committee
- Project Title:** Community Marine Conservation and Enterprise Development
- BCN Funding:** \$545,372
- Partner Contribution:** \$281,610
- Grant Period:** October 1, 1995–September 30, 1998



Project Overview

The Arnavon Islands, midway between the islands of Santa Isabel and Choiseul of the Solomon Islands, lie in the midst of an area rich in marine biodiversity. The Arnavon Islands are one of the most important rookeries in the western Pacific for the endangered hawksbill turtle. The area's marine environment also supports commercially valuable species such as beche-de-mer, trochus, black and gold lip pearl oysters, and giant clams.

Three villages—Kia, Posarae, and Waghena—form the Greater Arnavon Resource Management Area (GARMA). GARMA fishermen and turtle hunters make regular visits to the Arnavon Islands to harvest their resources. The area's cash economy has traditionally been oriented toward extractive commodities. Extractive activity in the GARMA has been carried out on an "open access" basis according to tenurial rights vested in villages. Collection rates increased dramatically in the 1980s in response to a sharp increase in prices for shellfish and other products. The result has been a series of "boom and bust" cycles for harvesting marine products.

To reverse this decline in invertebrate species, the project team established a representative management committee, hired a squad of six conservation officers (two from each community), established the Arnavon Islands Community Marine Conservation Area (CMCA), obtained legal designation for the area, developed a management plan for the CMCA, and are developing a sustainable deep-water finfish enterprise. By providing viable alternative marine enterprises, partners are hoping to reduce pressure on marine invertebrates. The CMCA marks the first time that a community of the Solomon Islands has created a sanctuary, as well as the country's first cooperatively managed marine conservation area. If successful, it will demonstrate the economic and ecological benefits of a community-based approach to development and resource conservation to other communities of the Solomon Islands and the national government.

1996 Accomplishments

The fisheries project is now in the construction phase and we hope to be fishing by November 1996. Kia already has an operating fisheries center developed by the European Community and it is serving as the model for the AMCA project. Two staff houses have been completed at Waghena, and construction has begun on their fisheries center. The third community, Posarae, has a provincial fisheries center, but it is small and will be expanded to meet the needs of the community there in the enterprise

project. All of the equipment has been ordered; the generators, ice machines, coolers, and fishing gear, and fishing vessels are under construction in Kia. There is a local center manager in place at Kia and Posarae and applications are now being taken in Waghena for the position there. Biological monitoring with sustainability of the fish stocks as the goal will be an integral part of the center managers' responsibilities. A workshop will be held in November to train several women from the three villages to conduct socio-economic monitoring to determine the effects of the fisheries project on the livelihoods of the local people.

This marks the first time that a community of the Solomon Islands has created a sanctuary, as well as the country's first cooperatively managed marine conservation area.

Success Stories

One story involves the continued productive cooperation of the members of the Management Committee. Management Committee meetings were held in

November 1995, and April and September 1996. Issues concerning the balance of conservation in the area and the desires of the communities were brought up, discussed, and voted on. The next meeting will take place in November 1996.

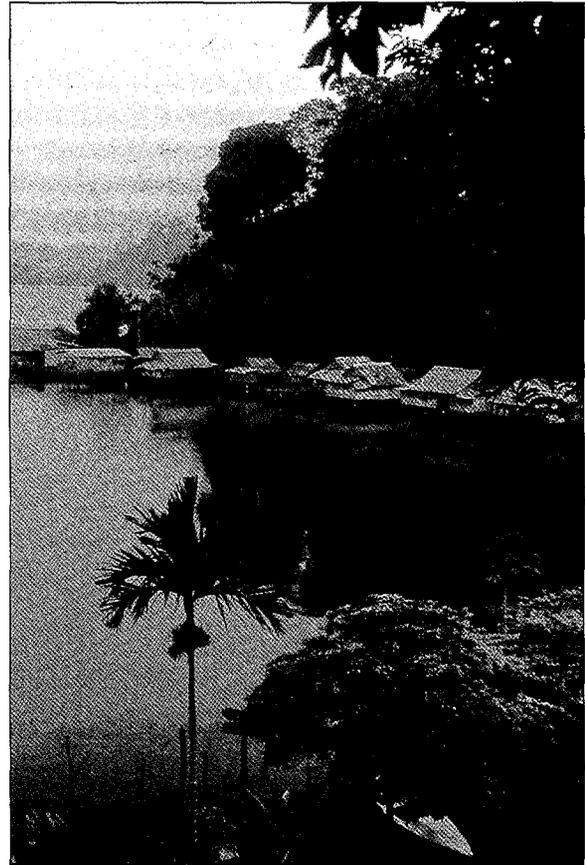
A second story concerns the Management Committee's unsolicited expression of a desire to raise funds themselves to help finance the day-to-day activities of the AMCA. This step is setting the tone for not only self-reliance in their conservation efforts, but is also demonstrating a firm belief that this is *their* project and not just another aid hand-out.

A third story is about the pending adoption of the AMCA regulation regarding sea turtle hunting into the Solomon Islands National Legislation. This is significant in that it responds to the question of "What is this project doing to help the Solomons as a nation?" Turtles are an endangered species and to preserve the biodiversity of a nation is to promote wealth of their natural resources.

Challenges

During the construction of the staff houses of the fisheries center in Waghena, there was a serious misconception regarding the "ownership" of the project. This, as with many problems that have come up, is attributable to lack of communication. The TNC Project Manager held a meeting recently with the Waghena Community, and the position of center manager was announced as open to members of the Waghena Community only. It was later learned that this seemingly minor detail went a long way in convincing the Waghena people that this, like the Conservation Area, is indeed their project.

In the early stages of the AMCA project, the greatest challenge was getting the elders and chiefs of the three very diverse communities to sit and work collectively and with cooperation and compromise. Now they are a strong team and even talk about forming a smaller emissary group within themselves to go to neighboring communities and give advice on starting similar community-based conservation projects there. The next few years to come will most likely hold the greatest challenges in the development of a successful fisheries project. The history of fisheries projects in the South Pacific is full of examples of failures, but this project has a few things going for it that no other project ever had: 1) strong cooperation between all partners involved and 2) a shining success in Kia to model the other two centers from. The challenges look tough, but the future of this project looks bright.



H. Cautley/BCN

19. Oil Nuts and Tourism in the Forests of Makira Island

- Location:** Makira Island,
Solomon Islands
- Partners:** Conservation
International (CI)
Maruia Society
Solomon Islands Development Trust
(SIDT)
- Project Title:** Conservation in Development Program
- BCN Funding:** \$347,574
- Partner
Contribution:** \$100,000
- Grant Period:** January 1, 1994–December 31, 1996
(Extending project at no extra cost.)



Project Overview

Conservation International is working with SIDT and the Maruia Society in Makira, Solomon Islands, an area of highly significant regional biodiversity and home to indigenous communities still engaged in relatively traditional resource use. Due to its separation from other islands during times of high sea levels, Makira has a high number of endemic floral and animal species. For example, 10 of its 76 bird species are endemic. The most pressing threats to the island's natural resources are international logging operations. Many Makira communities have already succumbed to the relatively large amounts of cash the logging companies offer people to high grade the timber on their land.

To meet these threats, the Conservation In Development (CID) program has established Makira's first conservation area. The CID team of SIDT and Maruia Society/Conservation International has been working with the Hauta and Warohito communities for the past four years to define the conservation area and to identify enterprises whose viability is linked to the need to conserve the area's biodiversity. The CID team has begun to develop small-scale ecotourism and the extraction of ngali nut oil for export among other enterprises.

1996 Accomplishments

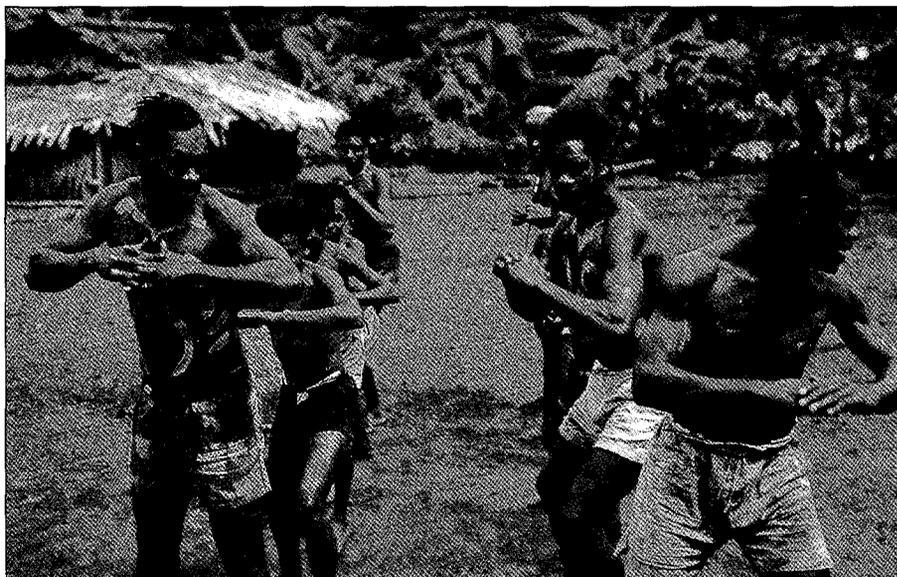
Weather Coast: Three Environmental Awareness Workshops were held at Suguasi (Warihito area), Hunama (Highlands) and Marunga (Weather Coast area) to make villagers aware of the environment impact on communities and wise decisions before accepting any large scale development. More than 600 people attended these workshops. More of such will be held within and outside the conservation area in the near future. The Social Survey has now been completed in 30 villages.

North Coast: Beekeeping has proved to be very successful at the north coast site. Three hives were installed at Togori, Tawani, and Tawaitara and were taken care of by the women's groups. The team worked with Forestry Officer Kira Kira to assess the operations. Further management training will be held early in 1997.

Warihito Area: The Ngali nut project is now operating on its own and is being run by the community press workers and guided by the project committee. The project plans to extract 500 liters of oil during this season. A nut buying strategy was drawn and extraction started in June. Up to now they have extracted 368 liters. The remaining liters will be completed and ready for export by the end of this year. Biological monitoring on *Canarium indicum* trees at Warohinou and Naharahau was also completed. This survey took place in June and July and was conducted by Dr. Julian Ash, BCN staff and SIDT-CID staff. The local communities were trained to carry out the rest of the program. To balance the needs and interest of the stakeholders in the conservation area, Women's Leadership and sewing training workshop was held at Warohinou for all the women's group leaders at both the North Coast and Warihito areas. 18 members representing 9 women's groups attended the workshop.

Highlands: To slow down the highland villages from clearing new forest for a garden along the ridges year after year, a Slope Agriculture Land Technic (SALT) system was introduced. Three women from the highlands went for a two week study tour in March to the Vanga Rural Training Centre. The trail program has already started and villagers showed great interest. Three Eco-tourism/Study tour trips were hosted at Hauta conservation area. The first included staff from Komaridi and Arnavon Marine Conservation project in May, the second one was arranged for CI-Lakekamu Basin (PNG) and East New Britain Social Action Committee in June, and the third was for One World Tour, Community Aid Abroad (Australia) in September. Evaluation showed that all three were very

successful. The Eco-tourism strategy was also drawn-up for 1997. Two conservation committees were set up at Hauta and Warihito. These committees will be responsible for maintaining the two conservation areas. A workshop was held for the members, but to be more effective in the long run, training is needed.



H. Cauty/BCN

Success Stories

A theater Action group was established to dramatize messages to villagers, by SIDT CID Village Demonstration Workers (VDW). This tool proved to be very effective. Pigeon Research programs have been completed at the highlands on July this year. Since October 1995 to September 1996, the team has conducted more than 90 village level workshops within and outside the Conservation area on Makira. The workshops were focused more on Environment issues and emphasis was more on the Conservation concept. These workshops were attended by more than 2,000 people both men and women. Some of the workshops were requested by the communities and others were held according to CID program's development stages. The workshops proved to be very successful—as a result a Malaysian logging company was pulled out from Makira Province. The women in development program is also coming up pretty well after the leadership and sewing training workshop. The women's group went back and organized themselves in their communities and have drawn work programs. The next training programs will include Sanitation, Kitchen improvement, Sup sup garden and cooking.

A theater Action group was established to dramatize messages to villagers, by SIDT CID Village Demonstration Workers (VDW).

Challenges

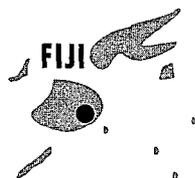
The program has gone through a lot of challenges during this period. Some were internal threats, which were also related to the outside world. The main one was on the enterprises which need to be seen as an alternative to logging in the conservation area. If there is no stable

and committed company to sell the 500 liters of ngali nut oil produced at Warohino, and the ecotourism in the highlands is not maintained, then this could be a turning point. This means that if these two enterprises are not functioning well or failed, then people will go for different development or even logging. For the communities to be fully engaged in these projects, the two enterprises should be reliable.

20. Biodiversity

Prospecting in the Coral Reefs of Fiji

- Location:** Uncunivanua Village, Fiji
- Partners:** University of the South Pacific (USP)
The Rainforest Alliance
SPACHEE
- Project Title:** Natural Product Development and Conservation in Fiji
- BCN Funding:** Currently being negotiated.
- Grant Period:** Currently being negotiated.



Project Overview

Fiji, like many of the islands of the South Pacific, is home to large numbers of rare and endemic species in its forest and marine areas. Fiji has one of the best developed coral reef systems in the Pacific. Fiji's biodiversity is especially threatened due to increasing harvesting pressures and deforestation which has decreased terrestrial habitats and increased siltation of coral reefs.

The University of the South Pacific (USP) and its partners are working to help community members enhance their economic returns from their marine and terrestrial resources by developing a biological prospecting agreement between local residents and pharmaceutical companies. Partners are working with the community members to: 1) develop an equitable prospecting agreement, 2) set up a procedure to collect and process samples, and 3) develop biological and social monitoring systems to ensure that the project is helping to conserve biodiversity while meeting the needs of the people.

Over the past several years, there has been a growing interest in the concept of "biodiversity prospecting," which involves setting up agreements between tropical countries and multi-national pharmaceutical companies.

In general, the company compensates the country for the intellectual property rights contained in its biodiversity in return for exclusive rights to screen the biodiversity for pharmaceutical compounds. If such screening leads to the development of a major drug, the agreements then also generally provide the host country with some share of the potential profits. The agreements completed to date—such as the one signed with INBio in Costa Rica—have generally been signed at the national level. The USP represents an opportunity for partners and BCN to contribute to this debate by focusing prospecting on community level links to conservation. In addition, as Fiji is a relatively small country and the project participants have close contacts with relevant government officials, the project has a good deal of potential to influence government policy regarding prospecting issues. Furthermore, given that USP plays a central role for students from throughout the Pacific Region, the policy implications will undoubtedly be carried to the other countries in the region as well.

1996 Accomplishments

Discussions aimed toward finalizing a bioprospecting contract with Smith Kline Beecham continued and was nearing completion when the company management closed down their natural products research division. An emergency search for a new enterprise partner has located the

Strathclyde Institute of Drug Research and the final draft of a bioprospecting agreement is under consideration. Discussions of these proposals with the government of Fiji has facilitated their development of a draft bioprospecting policy as required under the Convention on Biological Diversity.

Work in the project communities has involved a number of workshops and meetings using participatory methods to help communities prioritize their development needs and also discuss resource management concerns. This has led to several measures taken to conserve marine resources such as banning the issuance of fishing licenses, a ban on killing turtles and use of gill nets and size limits to catches. Biological and socioeconomic monitoring plans have also been developed.

Exercises are conducted in which members of the community map their village, do transects, make time lines of important events and identify perceived problems and discuss how to solve them.

Success Stories

Participatory rural assessment methods have been used in communities in the Verata area in Fiji to help villages prioritize development needs. Exercises are conducted in which members of the community map their village, do transects, make time lines of important events and identify perceived problems and discuss how to solve them. Common problems identified are a lack of land for expanding villages and unreliable water supplies. A unique feature of the workshop was the videotaping of the exercises which were then edited and shared with the communities.



Challenges

The overwhelming challenge in the last year was to quickly find a replacement bioprospecting partner when SmithKline Beecham Pharmaceutical company suddenly closed down their natural products drug discovery division in June. Fortunately, The Rainforest Alliance had set up an international reference group of people interested in bioprospecting. An SOS letter was sent to these people who suggested many possibilities. Most prospects either do not pay sample fees or were committed to a work program for 1996-1997. Fortunately the Strathclyde Institute for Drug Research is expanding its activities of supplying extracts to drug companies and hopefully will satisfy the enterprise requirement of the project.

3. Lessons Learned About Hypothesis Testing Grant Programs

BCN is unique among donors in the conservation and development world in that we not only provides funds to field practitioners, but also work with these partners to explicitly test a hypothesis regarding the effectiveness of enterprise-oriented approaches to community-based conservation. As a result of this dual grant-making/hypothesis-testing role, the BCN program has different requirements than other grants programs. In particular, we work proactively with our partners and have an imperative need for detailed monitoring and evaluation data to be collected at each project site.

We believe that this grant-making/hypothesis-testing approach is a powerful and cost-effective strategy not only for using grant funds to achieve conservation and development objectives, but also to determine what works and why. The BCN's analytical approach needs to be considered with regards to future grants programming by BSP, USAID, and other donors in the conservation and development field who are interested in testing hypotheses. In the following sections we thus present some of the lessons we've learned over the past three years for those of you who might be interested in approaching grant making in a similar fashion. We present these lessons in four categories:

1. Program Design and Project Selection
2. Testing the Hypothesis
3. Structuring the Overall Program, and
4. Process Lessons.

For each point, we present both a brief discussion of the idea and an illustrative example from BCN's experience — the things that have worked for us and the mistakes that we have made. This is a preliminary draft that we are presenting here in order to obtain feedback and encourage discussion amongst our partners. In the coming year, we will refine and expand this analysis into a more detailed document. We thus welcome your comments and responses.

3.1 Program Design and Project Selection

- ***Focus your program on a narrow range of stages and set of strategies for achieving conservation.***

Conservation of biological diversity is a complex and dynamic process that can take years to complete.² At any given project site, there is a broad continuum of stages that a project must pass through in order to achieve an adaptive management regime that ultimately promotes conservation. The specific stages that have to occur at any given site depend on local conditions. In general, however, these stages can be characterized as follows: 1) Promoting social organization, 2) Identifying problems and threats, 3) Continuing institutional organization, 4) Developing interventions to counter threats, 5) Monitoring the success of these interventions, and 6) Responding accordingly. Furthermore, within each of these stages, there are a number of strategies that might be employed to move the project through the stage. In designing a hypothesis testing grants program, you need to select the specific stage or stages that you will focus on as well as the specific strategies that you will consider. The "pace" of the project must be determined by the local people in response to local conditions. It is better to focus on a single stage and narrow set of strategies and do it well than to rush a community through multiple stages and types of strategies.

Examples: 1) Early on, BCN staff realized that owing to our three-year grant window, we could not fund projects that were in the initial stage of developing relationships with the community. Instead, we needed to seek out projects where implementing groups had a long history of relationships with the community and could thus focus on developing interventions to counter threats and monitoring the success of these interventions. 2) Within our efforts on the interventions stage, we are focusing on enterprise-oriented strategies for countering threats. We have deliberately chosen not to consider other strategies such as direct protection or environmental education.

²Although this section is written from the perspective of an organization with conservation goals, it can just as easily be applied to a group with economic development or other types of goals.

- **Maintain your focus, but enable your partners to consider other strategies.** In any given project location, there is generally a wide variety of different strategies that can be undertaken to move through a given stage. Furthermore, these strategies are not necessarily mutually exclusive—your partners may need to do both environmental education and direct protection. This creates a tension in an organization that is trying to both achieve conservation and test a hypothesis. On one hand, effective conservation at a given site often requires using many of these strategies. On the other hand, effective hypothesis testing requires that you focus on one or two strategies. As a result, while you should not abandon your focus, you should also encourage your partners to undertake the proper mix and sequence of strategies warranted by the conditions at their site.

Example: A commonly heard misperception about the BCN is that we encourage our partners to focus only on enterprise-oriented approaches to conservation and ignore other approaches such as direct protection, indirect economic development, or environmental education. In reality, while we do focus on enterprise-oriented strategies for countering threats (as above), we do recognize the need to consider other strategies and we encourage our partners to find ways in which to do so.

- **Develop analytical criteria for selecting a portfolio of projects as early as possible.** A hypothesis-testing grants program needs to select a portfolio of projects that will enable it to complete a rigorous analysis of the ideas in question. You can most effectively undertake this selection process by identifying the program goals, hypotheses to be tested, and sets of key dependent variables as early as possible. Loosely defining an “ideal” mix of projects will ultimately facilitate the process of requesting proposals, selecting projects, and performing analysis of the results.

Example: The relatively narrow focus of the BCN on enterprise-oriented strategies for conservation enabled us to bypass project proposals that did not have an enterprise linked to biodiversity at their core.

- **Be prepared to solicit proposals to fill gaps in your portfolio of projects.** A strictly “open-access” grant making process means that your portfolio will necessarily be drawn from the groups that choose to apply to you. In many cases, however, you may find that this pool of applicants is not broad enough to permit a full test of your hypothesis. You may thus need to proactively solicit proposals to fill gaps in your portfolio.

Examples: 1) In BCN's early stages, we received almost no proposals from South Asia including especially India. We thus had to spend time soliciting proposals from this region. 2) Despite proactive efforts, BCN received very few proposals from private-sector entrepreneurs. As a result, our test of the BCN hypothesis will necessarily be somewhat restricted in its scope.

- **Assist NGOs in project design.** Many of the proposals you will receive may have interesting ideas that may not have been fully developed or that only partially fit within your program's criteria. If you have allocated time and staff resources to work with the project teams, you can often revise the projects to meet both your needs and theirs. A “project mapping” or “conceptual model” approach to project design can be an effective tool for working with teams to develop projects to meet all parties' needs.

Example: The most consistent shortcoming across the nearly 500 proposals and concept papers reviewed by BCN staff was a breakdown between a project's stated goals and objectives and the set of interventions that were proposed to achieve them. BCN staff were able to work with projects that had already received Implementation Grants, but the program would have been greatly enhanced if we had the time and resources to work with prospective grantees prior to awarding the final grants.

- **Integrate monitoring plans with project design.** Project monitoring efforts will provide projects with both the information that they need to manage their projects and the bulk of the data that you will use to evaluate your hypotheses. A major constraint to monitoring, however, is that field-based staff implementing the project and monitoring plans may not always clearly understand what information is most needed or how to collect this information in an efficient manner. Integrating monitoring plans into the project conceptual model and workplan will help all project staff understand what data need to be collected.

Example: At a BCN monitoring workshop, one local NGO staff member said: “In the past, the foreigners used to come in and tell us what things to do without telling us why these things are important. Now we feel like we can develop an understanding of why we are taking all these steps.”

³See “Measures of Success” by Margoluis and Salafsky of BSP which is currently in press.

- **Take risks on projects with strong leadership and the potential for good working relationships.** In selecting projects, you should generally follow the criteria that you have developed. In some cases, however, it may be worth funding projects that do not fit all your criteria, particularly if



the projects have strong leaders with whom you think you can develop a good working relationship. Strong leadership is characterized by a) credibility within the community, b) willingness to adapt to a challenging situation, and c) long-term vision of how the community should change to ensure a higher quality of life. It can often outweigh initial inadequacies of design.

Example: Many of the BCN-funded projects that have provided the most interesting results are characterized by having strong and visionary leadership.

3.2 Testing the Hypothesis

- **Value “failure” as much as “success.”** For typical grant making programs, when projects or specific components of projects fail to meet their objectives, they can only be written off as losses. For a hypothesis testing program, however, these “failures” serve an important purpose—they become your controls. For ethical and moral reasons (similar to medical research with human subjects), it is not possible to initially select “deficient” projects to serve as experimental controls. However, when projects run into difficulties, you can learn as much from the challenges that they face as from the successes that they have.

Example: The “Challenges” section of the “Stories from the Field” in Section 2 dramatically illustrates how valuable this information can be.

- **Define areas in which projects in your “network” can collaborate with one another and with outside projects.** One of the best sources of technical assistance for the projects that you are supporting are the other projects in your “network.” You can effectively tap this knowledge by facilitating workshops and other

exchanges of information about focused topics. In addition, you can also work with other projects outside of your network that are involved in similar issues—these projects can also potentially be used to expand your “sample size.”

Example: BCN has focused its networking efforts on a narrow range of

topics including a) monitoring plan development and b) enterprise skill building. This intense focus has been quite successful in assisting projects and enhancing BCN’s understanding in both areas. In addition, we have been able to reach out to other groups working on similar issues.

- **Keep the larger development context of an area in perspective.** Often, aspects of the larger development context of the area, such as population densities and existing patterns of economic activity and prevailing agricultural practices, have serious implications for the success or failure of projects. These contexts should be clearly recognized in the project design, selection and evaluation.

Example: BCN’s adaptive management approach encourages partners to develop conceptual models that place their project in its ecological, social, economic, and political context.

- **Be open to change.** By definition, the process of adaptive management involves detecting and responding to changes in the biological, socioeconomic, and institutional context of the project. Allow your partners to be flexible.

Example: BCN’s adaptive management approach encourages partners to go through multiple iterations of their conceptual model to incorporate new information.

3.3 Structuring the Overall Program

- **Establish a field presence as soon as possible.** Getting your people in place in the locations where the projects will be working enables them to work with project partners on design and implementation and provides them with an enhanced understanding of local social and institutional contexts.

Example: Relations with grantees and project implementation dramatically improved upon placing program officers in Manila, Jakarta, and New Delhi.

- **Form a technical team with breadth and depth in key areas.** Good teams don't just happen by chance. A grant making team of generalists is insufficient for evaluating proposals and adding value at project sites. Instead, you might aim for a team where each member's specific area of expertise (social sciences, ecology, cost analysis) is augmented by his or her working knowledge of a number of other areas. This complimentary mix of skills can ensure synergy and maximize team impact.

Example: The BCN has attempted to develop a team of members who have a "T" shaped map of skills—depth in one or two areas and then a broad level familiarity in a number of other areas. This mix of skills has enabled BCN to provide a wide range of different types of technical assistance.

- **Use an outside Review Group to augment staff capacities for proposal review.** An outside Review Group that is sustained over the course of the grant-making organization's life provides multiple benefits including: 1) expertise on specific issues or places, 2) the credibility of an independent and unbiased review, 3) a sounding board that can comment on and give objective guidance regarding the overall design of the program, and 4) support in making difficult funding decisions. Note that in some instances, you may want to empower the Panel to make final decisions whereas in others, it may be more appropriate for them to serve in an advisory capacity.

Example: The BCN Peer Review Panel met 5 times over the course of two years—amazingly, 10 out of 12 members that attended the initial session were still in attendance two years later. Both BCN staff members and Peer Review Panels found the review process to be very valuable.

- **Avoid staff turnover wherever possible.** Losing your permanent staff has huge hidden costs. Staff knowledge of grantees and their ability to assist them is enhanced

by the long-term relationship which develops. These relationships are strengthened if individual staff members are assigned responsibility for working with specific grantees. However, the departure of such staff imposes tremendous hidden costs associated with the loss of the institutional knowledge about the project, especially if there has been no mechanism for capturing this knowledge.

Example: Institutionally, we lost a vast amount of knowledge about certain key grants when staff members moved on to other jobs. To some degree, this loss was ameliorated by detailed site visit reports that BCN staff are required to fill out.

3.4 Process Lessons

- **Simplify the proposal writing process.** National and local level NGOs and organizations often have great ideas for a conservation program. However, they are frequently thwarted from getting outside funding assistance due to often lengthy and complex proposal submission processes and their inexperience in writing proposals. Instead of issuing a standard call for complete proposals, it is probably more effective to solicit brief concept papers from potential applicants. Your field staff can then work with the candidate groups to further develop their proposal. This work not only reduces the quantity of information needed in a proposal, but is also of considerable assistance in the evaluation and grant-making process. Technical assistance can also be provided through this field presence at the proposal writing stage.

Example: Our program started that we wanted to work on the grassroots level with community groups. At the same time, we required 60+ page proposals (before appendices!) with detailed business plans, biological and socioeconomic monitoring plans, and budgets that had to be written in English and submitted in duplicate to Washington DC with a fax number attached to them. Needless to say, it would have been easier for all concerned had we had our field team in place to follow the concept paper process outlined above.

- **Specify the details of the partnership between grantee and grantor in clear terms.** To avoid misunderstandings and disruptions in activities, it is important to clearly specify the nature of the partnership between grantor and grantee in terms of the roles and responsibilities of all parties. A particularly sensitive issue in hypothesis testing programs is the ownership and use of data collected about projects. Disputes can only be

avoided if all parties agree to terms before the issues arise. Keeping in view the evolving nature of partnerships, you should periodically review and revise the terms of these relationships.

Example: In the beginning, we had rocky relationships with a few groups over who would have control over and access to data. Over time, we have begun to iron these differences out.

- **Maintain transparency for processes and decision making to keep expectations realistic.** One of the biggest problems facing a grant making program is expectations. While soliciting ideas for projects; and deciding which projects will be funded, it is critically important that the expectations of local NGOs, people's organizations, and communities be kept realistic. Criteria for selection of projects and mutually agreed upon milestones need to be clearly communicated and transparent to all stakeholders.

Example: The BCN Planning Grants were a double-edged sword. On one hand, they gave groups the resources needed to develop full-fledged Implementation Grant proposals. On the other hand, especially since more groups received Planning Grants than could get Implementation Grants, they created very strong expectations among partner organizations and community members. These expectations in some cases seriously damaged BCN's ability to work with these groups. The process would have perhaps been easier if we had followed the concept paper application idea outlined above.

- **Insist that baseline monitoring data be collected BEFORE long-term funding is provided.** Given all their other responsibilities (implementing activities, maintaining social relations, and dealing with bureaucratic requirements), it is often easy for project staff to let monitoring efforts slip—monitoring is quite often the “incremental” activity that groups address after all the other work is started. Owing to the importance of monitoring to a hypothesis testing program, it is critical that you provide an additional “incentive” to ensure that monitoring data are collected while still providing the funds to do so.

Example: Many BCN-funded projects have gone months or even years before finding the time to begin collecting monitoring data.

- **Help national and local NGOs meet financial accounting rules.** Often, one of the most difficult aspects of project management for national and local NGOs is managing the money that you give them. If you can provide assistance early on in dealing with the

money, it will simplify your relations greatly in the future. Anticipating this technical assistance need and simplifying the reporting requirements can go a long way toward keeping the local partner's efforts focused on the conservation activities.

Example: BCN experience in the field indicates that approximately 30 percent of the staff time in the first two years of the program was spent assisting NGOs in fulfilling their USAID financial reporting requirements. One of the most useful steps we have taken is to send our administrative staff to the field to work directly with our partners on financial systems.

- **Use multiple sources of information to test your hypothesis.** No single source of information (e.g. proposal, technical report) is sufficient to lend complete insight on evaluating complex conservation or development issues. Instead, it is best to triangulate from a number of different sources. To improve the quality of technical reports, provide example technical early on as models.

Example: BCN staff use many sources of information including original proposals, technical reports, site visits, meetings, information from other donors and NGOs, newspaper articles, and the detailed monitoring information collected as part of the project by the grantees to enhance its understanding of the projects.

- **Ensure that the duration of the grant is adequate for ensuring sustainability of the project.** Donors generally like to see results as soon as possible. Most conservation efforts, however, require years if not decades of work to succeed. It is imperative therefore that your program be designed keeping the long-term nature of most conservation projects in view.

Example: The BCN experience indicates that three to five years is too short a time to ensure either the financial viability of the enterprises or the adequate development of a community of stakeholders that would guarantee the sustainability of the conservation effort. Indeed, in most cases this time frame is too short to even get the basic monitoring frameworks functioning adequately so that the hypothesis can be tested.

4. Financial Analysis

This section presents a financial summary of the BCN Program to date and an analysis of the grantee budgets as originally submitted with their Implementation Grant proposals.

4.1 Financial Summary

Table 1 presents a financial summary of the BCN Program through the end of September 1996. The disbursements by major budget line item are presented by fiscal year. Of the total authorized amount of \$20 million, obligations to date have totaled \$15.62 million. Expenditures during fiscal year 1996 were \$4.19 million. This represents an increase from the \$3.26 million expended during fiscal year 1995. The increase in fiscal year 1996 expenditures was due to the increase in grant expenditure brought about by the award of the five new Implementation Grants during the year. All twenty of the grants have now been contracted.

During FY 1997, four of the BCN Implementation Grants contracts will end. While significant progress has been made in the development of these projects, BCN feel that these projects will fail to meet their overall monitoring objectives without continued funding. At this time, BCN does not have additional funds to support these projects beyond the end of their grant period.

Table 1. BCN Financial Summary

Budget Item	Authorized Amount ¹	Total Obligations To Date ²	Disbursements				Total Disbursements To Date
			FY 1993 10/92-9/93	FY 1994 10/93-9/94	FY 1995 10/94-9/95	FY 1996 10/95-9/96	
Salaries/Benefits	2,116,079	1,787,924	112,607	530,117	574,955	570,245	1,787,924
WWF Indirect Costs	1,464,633	1,085,978	84,821	350,808	346,788	303,561	1,085,978
Travel & Per Diem	640,542	372,865	3,841	127,650	134,437	106,937	372,865
Other Direct Costs	862,634	679,313	62,066	153,114	266,294	197,839	679,313
Tech. Assist./Advisory Grps.	1,798,612	388,459	309	140,153	70,610	177,387	388,459
Small Grants	483,000	118,807	0	0	64,648	33,135	97,783
Grants	12,654,500	11,187,328	19,660	1,127,768	1,802,563	2,795,525	5,745,516
Total	20,000,000	15,620,674	283,304	2,429,610	3,260,295	4,184,629	10,157,838

Notes:

¹ Original program was for five years; program now includes an 18-month no cost extension for 6.5 total years.

² Expenses for salaries, indirect costs, travel, other direct costs, and technical assistance are disbursed through 9/96.

Expenses for grants are total Planning and Implementation Grants and Small Grants awarded through 9/96.

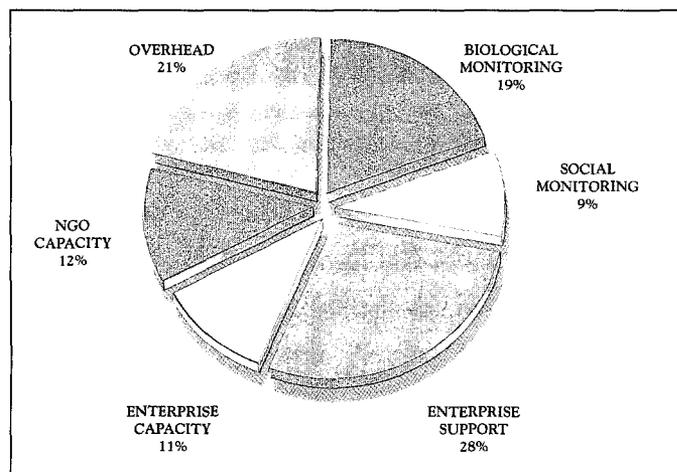
Previous Page Blank

4.2 Analysis Of BCN Grantee Budgets

The following pie chart displays the average allocation of BCN grantee budgets among six major categories. These categories and the costs that each include are:

- **Biological monitoring:** Staff time and travel to collect baseline biological data and conduct biological monitoring activities.
- **Social monitoring:** Staff time and travel to collect baseline social data and conduct social monitoring activities.

**BCN Implementation Grantee Budget
Average Allocation by Category**



- **Enterprise support:** Enterprise monitoring, costs of subsidizing enterprise start-up activities such as materials and supplies, equipment, staff time and rent, and funds to be used as short term loans to project participants (credit funds) which are included in five of the grants.
- **Enterprise capacity building:** All training and technical assistance for the enterprise.
- **NGO capacity building:** Technical assistance and capacity building funds for activities directly related to the NGO and not targeted specifically for the enterprise.
- **Overhead:** Rent, utilities, and administrative support for the project team (including administrative staff salaries).

On average, as shown in Table 2, BCN grantees devote almost a third of their overall budget to biological and social monitoring.

Table 2. Average and Range of Grantee Budget Allocations across the Categories

Category	Average	Minimum	Maximum
Biological Monitoring	19.1 %	4.2 %	35.1 %
Social Monitoring	9.0 %	3.0 %	21.0 %
Enterprise Support	27.8 %	7.4 %	65.0 %
Enterprise Capacity	10.7 %	3.7 %	27.0 %
NGO Capacity	12.1 %	1.0 %	26.7 %
Overhead	21.4 %	3.8 %	41.0 %

Appendix A: Summary of BCN Implementation Grants

Country	Lead Organization	Collaborators Receiving BCN Funds	Funds U.S. \$	Enterprise Component	Policy/Technical Issues	Threats to Biodiversity*
Nepal	Appropriate Technology International	Asia Network for Small-Scale Agricultural Biotechnologies Humla Conservation and Development Association	\$549,995	Aromatic plant collection and processing	Community management plans for natural products Keeping larger portion of NTFP taxes locally	<ul style="list-style-type: none"> • overharvesting of NTFPs*, fodder, and fuelwood
	King Mahendra Trust for Nature Conservation	World Wildlife Fund—US	\$636,607	Ecotourism Rosewood plantations	Legislation for tourism tax recycling to local communities Buffer zone enhancement	<ul style="list-style-type: none"> • poaching* • extraction of NTFPs & fodder • population growth • uncontrolled development of tourism
India	Appropriate Technology International	EDA Rural Systems Kumaun University	\$571,201	Harvesting and processing of tasar silk, and honey.	Supporting local community forest resource management	<ul style="list-style-type: none"> • overharvesting of NTFPs, fodder, & fuelwood
	The Mountain Institute	GB Pant Institute of Himalayan Environment and Development	\$449,465	Ecotourism	Ecotourism policy Strong emphasis on private sector conservation	<ul style="list-style-type: none"> • overharvesting of NTFPs, fodder, & fuelwood*
	University of Massachusetts at Boston	Tata Energy Research Institute Vivekananda Girijana Kalyana Kendra	\$610,404	Non-timber forest product collection and processing	Building a case for local management of resources	<ul style="list-style-type: none"> • overharvesting of NTFPs*
Indonesia	Biological Science Club	Wildlife Preservation Trust International University of Indonesia Gunung Halimun National Park	\$448,430	Domestic ecotourism	Building a case for local management of resources Working with GOI (PHPA) on allowable access to protected area	<ul style="list-style-type: none"> • agricultural encroachment • infrastructure development • overharvesting of NTFPs • gold mining* • illegal logging*
	Harvard University Laboratory of Tropical Forest Ecology	Ministry of Forestry	\$547,560	Sustainable timber harvesting	Working with GOI to set precedent for community-owned timber operations Working in critical orangutan habitat	<ul style="list-style-type: none"> • mechanized logging • handlogging* • agricultural encroachment

*Refers to some reduction in that particular threat since the project's inception. It does not mean the threat is removed.

Country	Lead Organization	Collaborators Receiving BCN Funds	Funds U.S. \$	Enterprise Component	Policy/Technical Issues	Threats to Biodiversity*
Indonesia (Continued)	Yayasan Dian Tama	P.D. Dian Niaga Appropriate Technology International	\$466,249	Harvesting and processing of illipe nuts, damar, and rattan	Working with SFDP project on community resource control in GOI recognized Protected Forest Management Area	<ul style="list-style-type: none"> • overharvesting of rattan* • hunting • agricultural encroachment • unsustainable NTFP harvest
	The Nature Conservancy	Sobek Expeditions University of Guelph University of Hasanuddin Directorate General of Forest Protection and Nature Conservation	\$584,892	Ecotourism (rafting) Butterfly ranching Honey collection and processing	Building a case for local management of resources Working with Government of Indonesia (GOI) via PHPA on allowable access to protected area	<ul style="list-style-type: none"> • agricultural encroachment • unsustainable NTFP extraction • rattan harvesting • infrastructure development*
	World Wide Fund for Nature Indonesia Programme	Yayasan Bina Lestari Bumi Cenderawasih	\$179,632	Butterfly farming	Streamlining CITES permitting process	<ul style="list-style-type: none"> • illegal butterfly capture/sale* • agricultural encroachment • rattan harvesting
	Rumsram Foundation	Hualopu Foundation Canadian University Service Organization	\$295,843	Marine tourism	Developing legal mechanisms to integrate traditional marine tenure	<ul style="list-style-type: none"> • overharvesting of marine species • cyanide/bomb fishing*
Philippines	Manila Observatory/ Environmental Research Division	Southeast Asia Sustainable Forest Management Network	\$426,798	Abaca and rattan, and other NTFP harvesting and marketing	Working to formalize community-controlled rattan concessions Tenure for local community seeking CADC	<ul style="list-style-type: none"> • agricultural expansion* • migration*
	World Wildlife Fund—Philippine Program	Nagkakaisang mga Tribu ng Palawan Tanggapang Panligal ng Katutubong Pilipino Tribal Filipino Apostolate	\$627,698	Rattan and almaciga product harvesting and marketing Honey Production	Building a case for local management of resources—seeking CADC	<ul style="list-style-type: none"> • overharvesting • agroforestry* • hunting
	Kalahan Educational Foundation	Nueva Vizcaya State Institute of Technology University of the Philippines, Los Baños Upland NGO Assistance Committee	\$321,190	Forest fruits processing Small-scale timber	Timber stand improvement Site is formally recognized by GOP. Project is working on building case for local resource management	<ul style="list-style-type: none"> • expansion of agriculture* • hunting* • road building and access*

*Refers to some reduction in that particular threat since the project's inception. It does not mean the threat is removed.

Country	Lead Organization	Collaborators Receiving BCN Funds	Funds U.S. \$	Enterprise Component	Policy/Technical Issues	Threats to Biodiversity*
Papua New Guinea	Research and Conservation Foundation	Wildlife Conservation Society	\$498,107	Research-based ecotourism	Community management of ecotourism business as an alternative to logging and mining	<ul style="list-style-type: none"> • industrial logging • Oil palm plantations • hunting • mining*
	Conservation International	Foundation of the Peoples of the South Pacific Wau Ecology Institute	\$355,487	Ecotourism	Community management of ecotourism business as an alternative to logging	<ul style="list-style-type: none"> • industrial logging • mining
	Pacific Heritage Foundation	Forest Research Institute	\$451,738	Small-scale timber harvesting with a credit facility to assist local landowners	Demonstrating sustainability of small-scale timber operation	<ul style="list-style-type: none"> • industrial logging* • mining • hunting*
Solomon Islands	The Nature Conservancy	Ministry of Forests, Environment, and Conservation	\$545,372	Deep-water finfish enterprise	Establishment of community-sanctioned sanctuary and cooperatively managed marine conservation area	<ul style="list-style-type: none"> • overharvesting of marine species*
	Conservation International	Maruia Society Solomon Islands Development Trust	\$347,574	Ngali nut processing Ecotourism Honey processing	Assisting communities develop resource management plans	<ul style="list-style-type: none"> • agricultural expansion • industrial logging* • overharvesting of NTFPs*
Fiji	University of the South Pacific	SPACHEE Rainforest Alliance	\$348,045	Biodiversity prospecting for pharmaceutical compounds with an equitable prospecting agreement	Policy framework for biodiversity prospecting in the Pacific Region	<ul style="list-style-type: none"> • overharvesting of marine species* • overharvesting of NTFPs

*Refers to some reduction in that particular threat since the project's inception. It does not mean the threat is removed.

Appendix B: BCN Midterm Evaluation— Executive Summary

Midterm Review of the Biodiversity Conservation Network

by John Mellor Associates

Executive Summary

The Biodiversity Conservation Network (BCN) is a program dedicated to enlisting the help of indigenous and local people in the conservation of biological resources. To this end, the BCN supports enterprises that earn their income from the sustainable use of those resources. A major task is to monitor resource use, enterprise profitability, and social organization.

More specifically, BCN's function is to (1) monitor the biological resource base to ensure its sustainable management; (2) establish and monitor profitable enterprises that give indigenous and local people a stake in that resource management; (3) develop institutional structures that enable indigenous and local people to participate in all phases of the income-earning enterprise, in the sustenance of the resource base, and in effective action to protect the resource base from internal and external forces; (4) facilitate networking across projects; and (5) promote policy changes essential to biodiversity conservation and to related enterprises.

The BCN is simple in concept, but complex in its operation. Since some of the above actions must be performed in sequence, they take considerable time to achieve their full effect. The present review examines the factors critical to the success of BCN's operation, the adequacy of the monitoring procedures for each of its functions, its progress in establishing enterprises, the policy issues affecting this progress, and institutional developments designed to ensure indigenous participation in the effort as a whole. The review team consisted of specialists in biodiversity and its monitoring, enterprise management, social institutions and organization, and policy (see Annex 6).

The analysis is based on a review of BCN project reports, interviews with numerous persons responsible for formulating and running the network, visits to 3 field sites, meetings and telephone interviews with key personnel

directly involved in the work of most of the projects, and discussions with national policy makers and representatives of foreign assistance organizations. A questionnaire was also administered to all the implementation grantees. A draft report was reviewed by key project personnel and discussed in a seminar for BCN staff. This final report reflects those interactions and suggestions.

How Is the Program Doing?

The BCN is by and large on track. Essential administrative structures, while still evolving in response to feedback from the field, are in place. Financial flows, while somewhat slow (28 percent disbursed by the end of the third year), are on track with respect to the realities of project contracting and implementation. Although monitoring urgently needs to be simplified, it has received substantial attention in comparison with other environmental projects and is headed basically in the right direction. Enterprise profitability is at the level expected, but individual accounting systems need improvement. In addition, the BCN is making good progress in understanding and addressing important social organization issues. Emphasis should now shift to the development and utilization of local social structures.

The grant agreement between the U.S. Agency for International Development and the Biodiversity Support Program was signed on September 30, 1992. After a brief initial delay, a responsive, efficient administrative system was established with headquarters in Washington D.C. and a regional office in Manila. The organizational structure is continually evolving to meet felt needs, and an increasing proportion of the staff is being deployed to the region. Only four regular staff members are now located in Washington: the project director, one senior program officer, one project coordinator, and the program secretary.

The Regional Representatives' Office in Manila has eight regular staff, two of whom are posted in other regions, one in Indonesia and the other in India. Five of the eight are dedicated technical experts in biodiversity conservation, social organization, and enterprise development.

As a first step in applying the BCN concept, the program launched an open and transparent system of selecting

projects. It provided a wide range of projects for testing the concept and for identifying problems and future modifications needed to achieve widespread emulation and success. The effort was then widely advertised, particularly in the institutionalized conservation community, and over 400 proposals and concept papers were received. A distinguished selection panel was appointed with worldwide representation (see Annex 4) to assist in the award process.

It soon became apparent that most applicants lacked the experience to formulate a proposal detailing their project's relevance to the BCN concept and did not have the capacity to carry out the project. Thus 34 applicants were awarded planning grants in support of technical assistance in feasibility study, project development, and proposal preparation. A total of 20 proposals were selected for implementation grants (see Annex 5). Seventy-five percent of these were drawn from the pool given proposal preparation grants. This selection process was expensive and time-consuming—it was completed in the thirty-third month of the project. However, the lessons learned made it possible to devise a far less expensive set of procedures for the future.

The total grant of \$20 million is to be disbursed in five tranches. The first, \$7.9 million, was received from USAID in 1993 and the second, \$4.0 million, in 1995. The third tranche, \$1.5 million, is expected in 1996. The fourth tranche, \$4.5 million, is due in the third and fourth quarter of 1997, and the last payment, \$2.1 million, is due in 1998. The project has committed \$11.56 million to grants, of which \$1.64 million has been disbursed for 34 planning grants averaging about \$48,379 each; \$94,317 for 6 small research grants averaging \$15,720 each; and \$9.8 million for 20 implementation grants averaging \$490,986 each. The smallest implementation grant, amounting to \$179,632, is for the ARFAK project in Indonesia, and the largest, totaling \$899,940 and awarded to Conservation International, covers a number of projects in different countries of Asia. The implementation grant obligations were expected to be disbursed in three years, from 1994 to 1996. As already mentioned, however, less than 28 percent of the amount obligated in each of the three years was actually disbursed.

Of the 20 projects selected, 7 were designed to promote ecotourism (one in the marine environment), 12 to utilize nontimber forest products, and 2 to harvest timber resources. The projects are being implemented in 7 countries: 6 in Indonesia, 3 in the Philippines, 3 in India, 2 in Nepal, 3 in Papua-New Guinea, 1 in Fiji, and 2 in the Solomon Islands. Each project has an on-site agency to oversee the work. Through the diversity of the projects

and their wide geographic distribution, the program has established a sound basis for judging the success of the BCN concept and its implementation.

Most of the enterprises (at least 15 of the 20) were ongoing efforts prior to project funding and thus will meet the three-year time horizon required to show the effectiveness of an enterprise. The fact that these are ongoing enterprises should in no way bias judgments about the value of the BCN concept. Unlike the enterprises, the indigenous institutions for ensuring local management were almost all in the early phases of development at the beginning of the project. Thus it will clearly take longer than three years to assess the long-term social, institutional, and biological viability of the projects, especially where indigenous takeover of the projects is concerned.

Although three years may be enough time in which to establish and prove the various monitoring systems or to detect the direction of change, it will take much longer to judge the project's overall effect on biodiversity. A longer time frame will also be required to assess the important impacts on local community organization. This suggests that once the monitoring systems are in place, grants will need to be extended to achieve BCN objectives, at least for the monitoring activities, and perhaps for the continued development of appropriate community structures. In any case, the institutional structure built by the BCN represents a large investment and should continue to evolve and provide important services far beyond the present AID grant.

An intense effort went into the review, not to mention a high level of expertise and experience. Thus the preliminary assessment of the likely effectiveness of several aspects of the BCN and the recommendations for improving it and for increasing the probabilities of success will be of great assistance in shaping the future of the program. Most important, the review has clearly established the soundness of the BCN concept.

First, it shows that biological resources used by very poor people cannot be preserved even with police action if the social and economic needs of the indigenous and local people are ignored. As with wildlife preserves, the situation becomes dire when the interests of the indigenous and local people are in direct conflict to those of the animals in their ecosystem.

Second, it demonstrates that profitable enterprises that draw upon biological resources in a sustainable manner can be established in a wide range of ecological conditions. In general, the enterprises BCN selected had large operating margins and low capital costs; thus their

potential for success was high. Some projects will undoubtedly prove their success within the three-year time frame.

Third, in several cases national policies will need to be changed to ensure the success of BCN activities. BCN resources are being used to pursue those policy changes, with early indications of a high success rate. By way of example, legislative changes now under way will provide indigenous and local people a major share of the revenues from Chitwan Park in Nepal; land tenure changes in Kalahan prior to BCN also demonstrate how such policy can be modified. As this report cogently argues, the benefits to local people attempting to harvest nontimber forest products under the TERI project will be slim without major institutional change. Indeed, policy impact must remain a primary concern beyond the three-year time horizon to ensure long-term success.

Fourth, indigenous and local people readily understand the relationship between sustaining the resource base and their livelihoods. Educational programs in the BCN projects have already awakened many of them to a broad concept of resource sustainability that incorporates concern for biodiversity itself. Educational programs in Kalahan, for example, have elicited indigenous support for the protection of primary forest resources. Such a response is best achieved if biodiversity-oriented educational programs are presented as part of an overall social and economic development effort.

Fifth, monitoring systems are difficult to implement through indigenous means. Therefore they must be simple and clearly related to the objectives of indigenous and local people. That means the BCN needs to simplify its monitoring efforts. It can do so by providing specific, results-oriented technical assistance to the project monitoring activities. A simplified monitoring system will not only have greater applicability across projects, but it will accelerate the implementation of the correct activities.

Sixth, it takes a great deal of time to train indigenous and local people to take full charge of enterprise development, monitor the resource base, and build support mechanisms for conservation. Equally important, implementation agencies at the local level must be committed to the turnover of activities. That commitment will have to be fostered by the BCN, since local support groups often fail to undertake the actions needed to make the effort completely indigenous. Because these groups tend to identify with the indigenous and local people, they often, unknowingly and naively, behave in a somewhat patronizing manner. The BCN needs to be more vigorous in encouraging the indigenous takeover of project activities.

In summary, the BCN concept is being proved. Newly established enterprises are beginning to turn a profit, indigenous and local people are learning how to protect their resource base, the participating nongovernment organizations are testing monitoring systems, and the required policy changes are becoming increasingly clear. The next critical step is to greatly simplify the monitoring systems so they can be implemented by the indigenous and local people themselves. Above all, local people need to be organized and more directly involved in all aspects of biodiversity conservation. This, however, will take far longer than the time currently mapped out for BCN projects.

Monitoring

As already mentioned, the monitoring of biological, economic, and social processes is central to the BCN concept. Three workshops (two in Los Banos, Philippines, and one in Bangalore, India) have been held to determine what form such monitoring should take. But in cutting across all the projects, the workshop approach produced a complex monitoring system that is too cumbersome to implement effectively and too expensive to sustain beyond the present projects. Furthermore, this system has been devised by those purportedly speaking for indigenous and local people but not by the people themselves. To bring them into the process, meetings must take place at the project level. That point should be emphasized in the BCN's follow-up activities. Such meetings would probably give rise to a simpler, more efficient monitoring system, one that stressed sustainable harvesting of the economically productive resource and that could continue beyond the subsidies provided by the project.

Simple, appropriately focused monitoring systems based on scientific principles can only be arrived at by examining the needs of indigenous and local people. The review team suggests that such bare-bone systems be instituted for each of the network's three fundamental objectives in projects already on the ground: biological conservation, economic profitability, and institutional viability. In addition, some high-level technical assistance and more local personnel may be needed at the country level.

Biological Sustainability

Thus far, biological monitoring has been experiencing three kinds of problems. In some cases, such as the TERI project in India, a high level of scientific effort has gone into shaping the monitoring system, and the results are likely to be scientifically sound, but almost no indigenous and local people have been involved. In others, such as

Kalahan in the Philippines, project implementation personnel have expressed an interest in intensive monitoring, but they have no knowledge of the basic scientific principles that need to be applied to make monitoring cost-effective. In still other cases—for example, Humla—local people are involved in the enterprise, but they do not fully grasp the need for biodiversity and sustainable monitoring, and hence there is no basis for implementation. In general, the monitoring plans are too complex to be implemented efficiently and certainly do not lend themselves to continuation after BCN subsidies are ended.

The review team attaches great importance to monitoring biodiversity. Monitoring, team members point out, is usually overlooked or downplayed in internationally financed biodiversity projects, and the BCN deserves high praise for its emphasis on biological, social, and enterprise monitoring. The team's suggestions therefore concentrate on further strengthening the BCN's monitoring capabilities. Since so little is usually done in this area, the team also encourages the BCN to develop community-level monitoring procedures that can be widely emulated.

Biological monitoring should focus on the actual resource being utilized by the enterprise. The first important step is to enumerate the species directly affected by the enterprise; the second is to conduct periodic inventories of minimal sample size to measure significant changes in species distribution and abundance. The indigenous and local people need to participate in all discussions of the importance of maintaining their resource, the dangers of over-exploitation, and the role of monitoring in regulating the use of the resource. Their input into the details of the monitoring process will greatly improve its effectiveness.

Monitoring should be inexpensive and easy for indigenous and local people to manage. At times, conservation concerns and interests may call for a survey of somewhat larger areas than the local people are utilizing. If that is the case, a primary concern should be who is going to pay for the survey, how it will be paid for in the future, and the value of such an effort if it is not to be kept up over time. Above all, it is essential to determine what resources local people use and consider important to conserve.

Economics of the Enterprise

With the aid of basic cash flow information, the review team was able to make a preliminary assessment of the financial viability of BCN enterprises and to elucidate BCN's general approach to monitoring an elaborate program. The team concluded that grantees need to keep enterprise accounts separate from other NGO accounts as far as is possible and require assistance in this regard. For

biodiversity monitoring, they recommended a simple system of enterprise accounts that can be applied across all the projects and thus be used to compare the success record and sources of success among enterprises.

Institutional Organization and Participation

So far, indigenous and local people have not been sufficiently involved in the development of project activities to give them a stake in the outcome. Instead, the NGO often speaks for the local people and thus tends to leave them out of the process as a matter of course. In several cases—the TERI project is one—the enterprise touches only a small proportion of those gathering the resources. Attention needs to be given to how to organize the participation of indigenous and local people and develop simple systems for monitoring that participation.

Basic Concepts

Several basic concepts lie at the heart of the BCN system, in addition to the central belief that enterprises dependent on the biological resource should be used to enlist support for conservation. These concepts have to do with population density, income dynamics, macro impact, the intermediary role of the BCN, and specialization.

Population Density

In general, the natural resource base of biologically diverse environments can only support low population densities. However, that means sparsely populated areas like Humla, Nepal, can take advantage of biologically based enterprises to improve the aggregate incomes of their inhabitants.

Conversely, in areas with dense populations of very poor people, any income effect of the biologically based enterprises will be lost in the general poverty. The mass of poor will overwhelm the protective efforts of the few. This is a serious problem in Royal Chitwan National Park, in the terai of Nepal. In such circumstances, the BCN effort will fail unless an attempt is also made to raise incomes more broadly. This is not to say that the BCN should be directly involved in such activities, but that the program needs to recognize the problem and to encourage other agencies to take the necessary steps to resolve it. Since such encouragement is vital to BCN interests, it must be an explicit part of the network's policy mandate.

For the most part, the problem is already being taken care of in the BCN countries experiencing rapid economic development. For example, there is no serious danger that the plains people near the TERI project will overwhelm the natural resource because incomes there have risen appreciably as a result of effective agricultural

development. Now, the returns to raiding the biological resource are far lower than those gained by other means. The problem is acute, however, in the few countries or regions of Asia not yet experiencing much economic growth, such as Nepal. It would be an immense and perhaps insurmountable problem if the BCN concept was introduced in Africa. In that case, the issue would have to be given explicit attention in the planning stages.

Income Dynamics

In a developing country, per capita incomes rise over time, often rapidly, owing to advances in technology and increases in real prices. BCN enterprises need to identify the means by which incomes can be increased gradually over time. One possibility is to raise productivity, although in general it will be more difficult to continually increase the productivity of biological resources gathered in a natural state than in settled agriculture. The potential contribution of improved technology in this regard should not be ignored, and the opportunity for market differentiation must be seized.

The critical point is that BCN needs to think not in static terms of a single increase in incomes, but rather in terms of how incomes can be increased continually over time—at least up to the time when employment and income opportunities in the rest of the economy will pull people completely out of poor areas. Although such a move may occur, it will probably take place well into the future, particularly if the people are somewhat marginalized by the social attitudes of majority communities. A more dynamic approach would be to address what are now largely neglected technical issues in resource development and market development, notably those connected with green markets in developed countries, where higher prices may be quite feasible.

Macro Impact

A common problem with BCN enterprises, particularly those oriented toward nontimber forest products, is that they directly employ only a small proportion of the people drawing from the natural resource base. Those enterprises should be looked upon as pilot projects for identifying large potential and for showing the way to a broader set of activities. For a macro impact, greater attention will have to be given to the gatherers themselves—a group neglected in both the Kalahan and TERI projects. It is also vital to encourage private sector activities so as to stimulate competitive marketing and processing on a far larger scale than the BCN project can directly support. At the same time, development activities could explore the potential

for raising incomes in areas in which natural resource preservation is important.

The Intermediary Role of BCN

Although the BCN is considered an intermediary, its projects employ two or more intermediaries between the sources of funds and the indigenous and local people. The BCN needs to ensure that the local people are indeed organized and speaking for themselves. The report outlines specific ways in which the BCN can promote such participation. In addition, the BCN needs to carry technical assistance all the way to the local organizations of indigenous and local people. Most of the intermediaries that the BCN works with and that are essential to its purpose have little capacity to provide technical assistance in monitoring, in business management, and in the technical aspects of biological resource development.

Specialization

The BCN has developed a diverse portfolio of projects to properly test its key hypotheses. If the network is to develop further, however, it needs a mechanism for wholesaling intermediary services for large funders; otherwise it will be unable to achieve a macro impact. In addition, it must develop a base for the efficient provision of its services and must increase its technical competence. To do so, it will have to divide its own portfolio of projects into groups that will promote such efficiencies and help develop a concept on which to concentrate in the future.

Recommendations

The following recommendations are set forth in order of priority and pertain to a BCN project that appears en route to fulfilling its objectives. They should be seen as supplements to an effective operation.

1. Develop simple techniques for monitoring biodiversity, enterprise profitability, and social structures of participation. This may require some additional funding in order to provide technical assistance from outside consultants for specialized aspects of monitoring. The local staff may need to be expanded in this area. The BCN also needs to persuade NGOs on the scene that local people should be helping to develop and implement systems of monitoring.
2. Make sure that indigenous and local people are participating in all aspects of project activities. Local NGOs should not be confused with the indigenous and local people themselves. Those NGOs of course play a vital role in establishing the institutional structures that will involve local people. But they must remember that the

structures should be designed specifically for this purpose. This is another area in which the BCN needs to have direct contact with indigenous and local peoples.

3. Begin to plan for a larger enterprise impact by increasing the competitiveness of the private sector in non-timber forest products. BCN projects tend to be implemented in areas where the infrastructure is poor and thus they attract relatively few private operators. This activity will have a longer time horizon than current enterprise activities and thus would require the project to be extended.
4. Be aware of the relationship between broader development efforts on the perimeter of the biological resource bases and encourage other institutions to take up appropriate action where necessary.
5. Identify the broader policy issues of concern, from the rights of indigenous and local people to land tenure, and develop a plan for policy action across projects and for a general set of policy thrusts. As part of that thrust, the help of NGOs should be sought to generate action at each appropriate level of government.
6. Classify projects and develop a concept of specialization that will make it possible to supervise a large portfolio of projects with the utmost efficiency.
7. Seek funding from AID beyond the present grant, preferably for another five years, to enable the BCN to pursue and spread its central concept as modified by the experience of the first five years.

BCN as a Bellwether for the International Community

International support for preserving the biological resource base in developing countries is massive. Foreign assistance is already pouring vigorously in this direction. The BCN has a rare opportunity to ensure that those resources fulfill their mission: it can help indigenous and local people conceptualize projects, improve their capacity to articulate their needs, and apply the foreign resources to meeting those needs.

Despite all the limitations and inefficiencies noted in this report, the BCN offers a far more cost-effective approach to biodiversity conservation, with a much more fully developed panoply of resources and approaches, than is typical of other approaches. It stands out for the clarity of its conceptualization, breadth of its approach, and holistic nature of its philosophy. In short, it lays a strong foundation for larger efforts. The international review committee constituted for the award of the BCN grants provides the

network with an extensive network of reputable advocates for its approach. The BCN should continue to build on its ongoing involvement with the committee members seeking further input and comment and obtaining outreach.

Above all, that strength lies in the BCN's primary objective: to enable local people to raise their incomes by monitoring the sustainable, economic utilization of biological natural resources. The network provides technical assistance to enterprises that pursue that objective. It mobilizes local people to protect the resource base in their own interest. It relies on national NGOs to provide the protection and support for nascent indigenous organizations. And it provides technical assistance to the monitoring operations so essential to the sustainable use of biological resources.

The foreign assistance community needs to be made aware of each of these elements of the BCN story. That will help to guide environmentally oriented foreign assistance into the appropriate channels and define appropriate levels of foreign assistance. Through the breadth of its projects, the BCN can also demonstrate the priorities for foreign assistance, the kinds of technical assistance that are currently lacking, and the need to sustain and preserve biological resources for the benefit of overall development.

The burden the BCN must carry is unquestionably a heavy one. But the value of the collective experience gained through the mass of its projects will be enormous.

JMA Team:

John W. Mellor
Sandra Bertoli-Minor
Sohail Malik
Charles M. Peters

Appendix C: Conservation Impact Indicators

The BCN has two goals: 1) Support site-specific conservation, and 2) Evaluate the effectiveness of an enterprise-oriented, community-based approach to conservation. BSP and BCN staff in conjunction with our USAID Project Officer have been in the process of developing indicators for BCN's conservation impact. The current set of draft indicators is shown below. BCN staff are in the process of defining a second set of complimentary indicators regarding our second objective. Given BCN's dual goals, neither set of indicators will be used individually to judge BCN's performance. Both sets of indicators are used in the process of defining the annual workplan.

Strategic Objective: Effective biodiversity conservation and management

Indicator 1: Area of biologically important habitat under effective management

Indicator 2: Documented improvements in biodiversity conservation as a result of strengthened policies or improved policy implementation

Intermediate Result:

Increased public awareness and decision-maker understanding of biodiversity and its conservation

Indicator 1: Number of individuals participating in G/ENV biodiversity outreach activities: workshops, networks, and oral presentations

Indicator 2: Number of publications sent to appropriate audiences and number of mass media events held

Intermediate Result:

Strengthened national and local policies and/or improved policy implementation to support biodiversity conservation

Indicator 1: Index of policy results

Intermediate Result:

Improved Management of globally and locally significant biodiversity sites

Indicator 1: Index of site management benchmarks

Indicator 2: Number of people successfully trained

Intermediate Result:

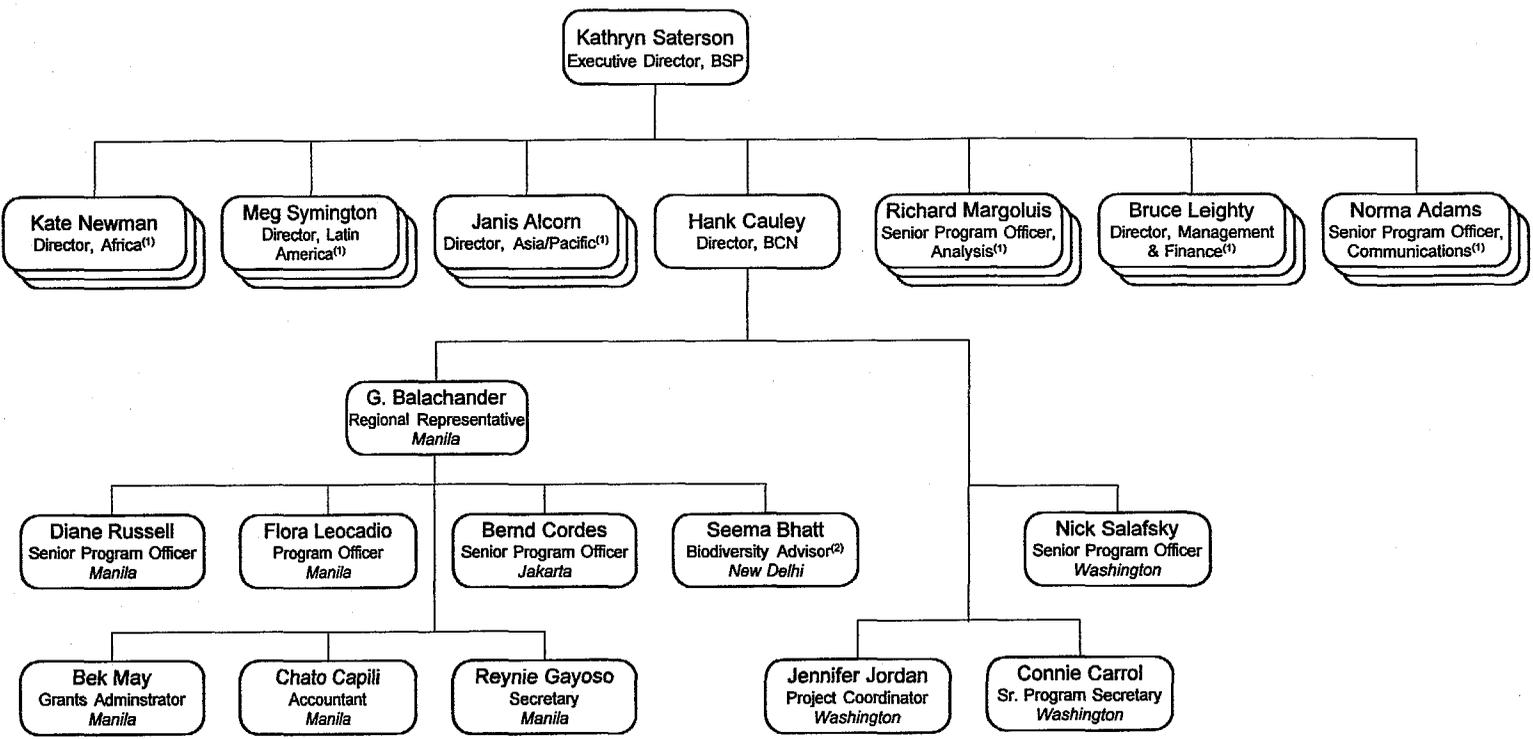
Sustained financing of biodiversity conservation through innovative public and private sector funding

Indicator 1: Number, value, and beneficiaries of viable enterprises supporting the conservation of biodiversity

Indicator 2: Conservation funds leveraged by G/ENV programs

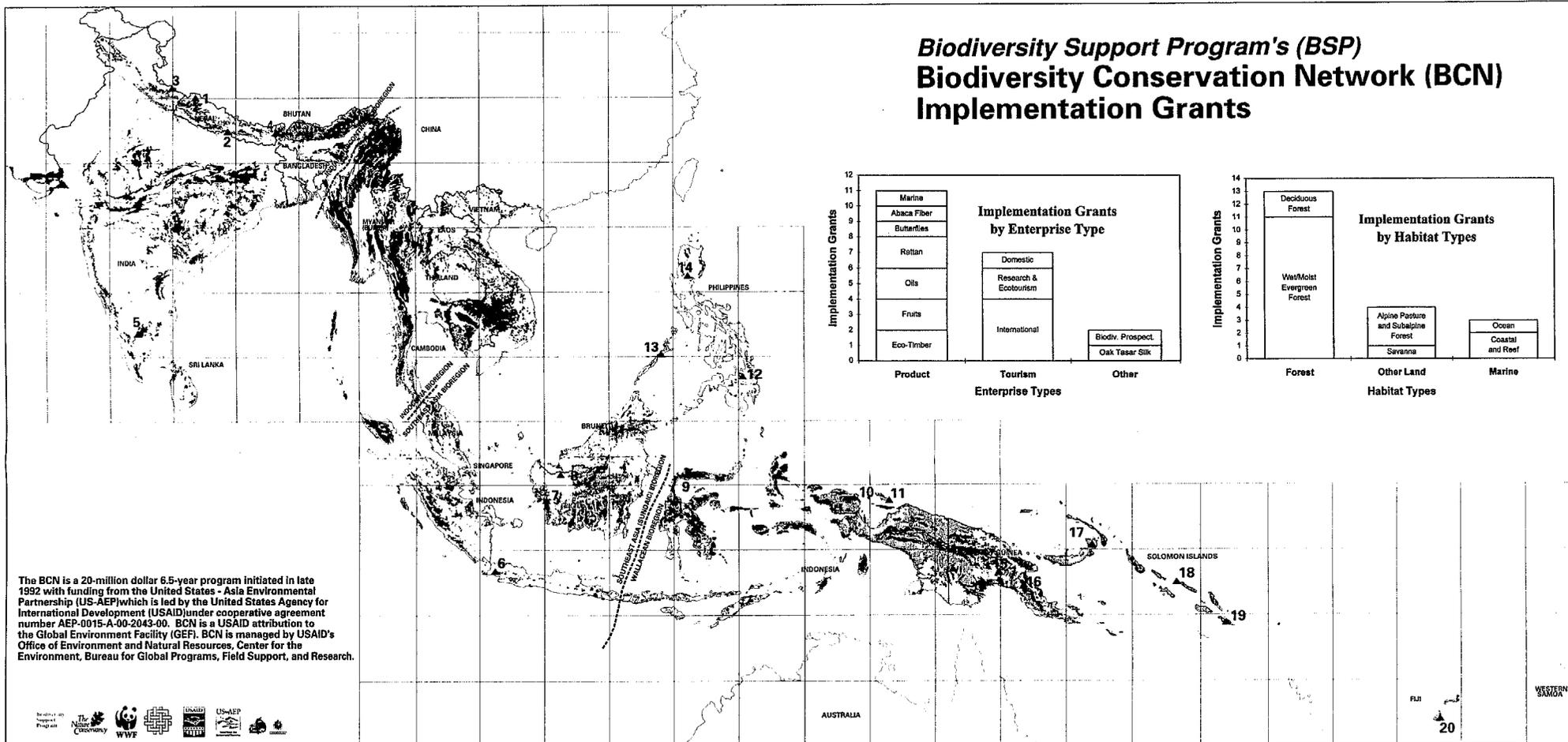
Appendix D: BCN Staff Organization

Biodiversity Support Program (BSP) Biodiversity Conservation Network (BCN) Organizational Chart, October 1996

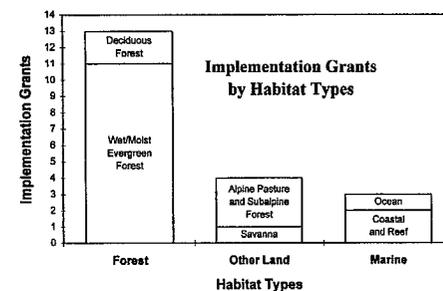
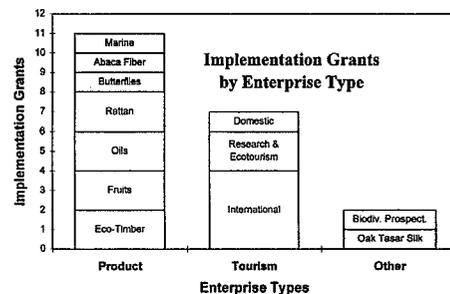


All BSP staff based in Washington DC unless otherwise noted.
 Interns include John Wagner, Minnie Ames, Sarah Christiansen, and Damon Lynch.
 (1) = Organizational chart does not show staff in these programs
 (2) = Employed by US-AEP and managed by BCN

Biodiversity Support Program's (BSP) Biodiversity Conservation Network (BCN) Implementation Grants



The BCN is a 20-million dollar 6.5-year program initiated in late 1992 with funding from the United States - Asia Environmental Partnership (US-AEP) which is led by the United States Agency for International Development (USAID) under cooperative agreement number AEP-0015-A-00-2043-00. BCN is a USAID attribution to the Global Environment Facility (GEF). BCN is managed by USAID's Office of Environment and Natural Resources, Center for the Environment, Bureau for Global Programs, Field Support, and Research.



1. Chuwa and Humla Karnali, Nepal
Alpine, Sub-alpine Conifer Forest - pg. 8

2. Royal Chitwan National Park, Nepal
Grassland and Savanna - pg. 10

3. Akash Kamini Valley, Garhwal, India
Himalayan Temperate Forest and Alpine - pg. 12

4. Khangchendzonga National Park, India
Montane Wet Temperate Forest - pg. 14

5. Biligiri Rangan Hills, Western Ghats, India
Tropical Moist and Dry Deciduous Forests - pg. 16

6. Gunung Halimun National Park, Indonesia
Tropical Moist Evergreen Forest - pg. 18

7. Gunung Palung National Park, Indonesia
Tropical Wet Evergreen and Peat Swamp Forests - pg. 20

8. Participatory Forest Management Area, Indonesia
Tropical Wet Evergreen Forest - pg. 22

9. Lore Lindu National Park, Indonesia
Tropical Wet and Moist Evergreen Forest - pg. 24

10. Arfak Mountains Nature Reserve, Indonesia
Tropical Wet and Moist Evergreen Forests - pg. 26

11. Padoaido Islands, Indonesia
Coastal and Marine - pg. 28

12. Mt. Palaypalay National Park, Philippines
Tropical Moist Semi-Evergreen Forest - pg. 30

13. Palawan Island, Philippines
Tropical Wet/Moist Evergreen Forest - pg. 32

14. Kalahan Reserve, Nueva Vizcaya, Philippines
Tropical Moist Deciduous Forest - pg. 34

15. Crater Mountain Wildlife Management Area, Papua New Guinea
Tropical Wet and Moist Evergreen Forests - pg. 36

16. Lakekamu Basin, Papua New Guinea
Tropical Wet/Moist Evergreen Forests - pg. 38

17. Bainings and Wide Bay Areas, East New Britain, PNG
Tropical Moist Evergreen Forest - pg. 40

18. Arnau Islands Community, Solomon Islands
Marine - pg. 42

19. Makira Conservation Area, Solomon Islands
Tropical Wet Evergreen Forest - pg. 44

20. Ucuivanu and neighboring villages, Fiji
Coastal, Marine, and Tropical Forest - pg. 46

ab