

CONSERVATION AND DEVELOPMENT

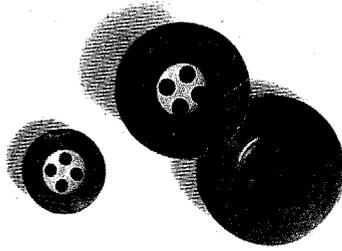
MARKETING BIODIVERSITY PRODUCTS

THE TAGUA INITIATIVE

LESSONS FROM THE FIELD



LESSONS FROM THE FIELD II



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THE TAGUA INITIATIVE

LAURA TANGLEY

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INTRODUCTION

THROUGHOUT HISTORY, ECONOMIC FORCES HAVE BEEN A MAJOR DRIVER OF DEFORESTATION AND OTHER FORMS OF HABITAT DESTRUCTION. BUT ECONOMICS CAN ALSO PROVIDE A POWERFUL INCENTIVE TO PROTECT NATURAL HABITATS. SINCE IT WAS FOUNDED SIX YEARS AGO, CONSERVATION INTERNATIONAL (CI) HAS BEEN AT THE FOREFRONT OF EFFORTS TO HARNESS THE POWER OF ECONOMICS TO PROMOTE CONSERVATION. THIS IS REFLECTED IN OUR VARIOUS PROGRAMS IN CONSERVATION FINANCE, ECONOMIC POLICY, ECOTOURISM, AND MARKETING BIODIVERSITY PRODUCTS.

THIS PUBLICATION, THE SECOND IN THE SERIES "LESSONS FROM THE FIELD," DESCRIBES CI'S EXPERIENCE WITH MARKETING BIODIVERSITY PRODUCTS. IN PARTICULAR, IT FOCUSES ON THE TAGUA INITIATIVE™, CI'S FIRST AND FLAGSHIP PROJECT TO MARKET A NONTIMBER FOREST PRODUCT.

LAUNCHED NEARLY THREE YEARS AGO, THE TAGUA INITIATIVE LINKS RURAL HARVESTERS OF THE IVORY-LIKE NUT OF THE TAGUA PALM—WHICH GROWS IN SOUTH AMERICAN RAIN FORESTS—WITH MAKERS OF BUTTONS, JEWELRY, AND ARTS AND CRAFTS. THE INITIATIVE IS A PROJECT OF SEED VENTURES™, A CI PROGRAM THAT CREATES INCENTIVES FOR CONSERVATION BY DEVELOPING INTERNATIONAL MARKETS FOR PRODUCTS SUCH AS TREE OILS, PLANT FIBERS, FRUITS, NUTS, AND LATEXES.

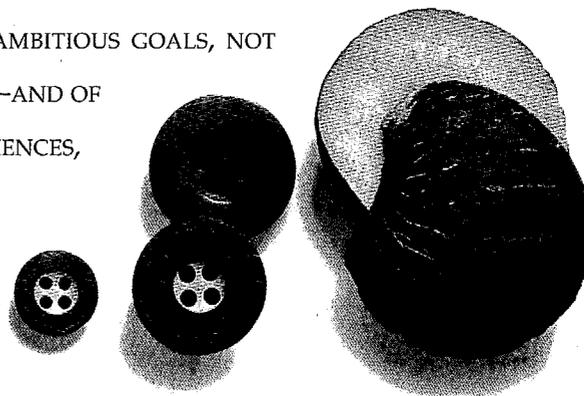
AS THE WORK DESCRIBED ON THE FOLLOWING PAGES SHOWS, SEED PROJECTS INVOLVE A COMPLICATED MIX OF ACTIVITIES IN SUCH DIVERSE FIELDS AS CONSERVATION BIOLOGY, BUSINESS, COMMUNITY DEVELOPMENT, AND CONSERVATION PLANNING. DEPENDING ON THE PARTICULAR PRODUCT OR REGION INVOLVED, EACH PROJECT ADOPTS A DIFFERENT SPECIFIC STRATEGY. BUT THERE IS ONE THING THAT ALL SEED PROJECTS HAVE IN COMMON: EACH ATTEMPTS TO CREATE ECONOMIC INCENTIVES FOR CONSERVATION IN A SPECIFIC REGION THAT CI HAS IDENTIFIED AS A HIGH CONSERVATION PRIORITY. WITHIN THAT REGION, EFFORTS TO MARKET BIODIVERSITY PRODUCTS ARE JUST ONE COMPONENT OF A LARGER CONSERVATION STRATEGY.

AS PART OF A LARGER STRATEGY, MARKETING BIODIVERSITY PRODUCTS IS NEVER AN END IN ITSELF. WHILE SUCCESSFUL MARKETING CAN HELP DEMONSTRATE—TO LOCAL COMMUNITIES AND NATIONAL GOVERNMENTS—THE ECONOMIC VALUE OF INTACT ECOSYSTEMS, AN EQUALLY IMPORTANT GOAL OF THESE PROJECTS IS TO OPEN THE DOOR TO AN ENTIRE COMPLEX OF CONSERVATION ACTIVITIES, INCLUDING PROTECTED AREA MANAGEMENT, ENVIRONMENTAL EDUCATION, ECOTOURISM, AND BUILDING LOCAL CONSERVATION CAPACITY.

LIKE ALL CI PROJECTS, OUR EFFORTS TO MARKET BIODIVERSITY PRODUCTS ARE CARRIED OUT IN PARTNERSHIP WITH LOCAL ORGANIZATIONS. IN THE CASE OF THE TAGUA INITIATIVE, CI IS WORKING WITH TWO LOCAL PARTNERS: CIDESA, BASED IN QUITO, ECUADOR, AND FUNDACIÓN INGUEDÉ, BASED IN BOGOTÁ, COLOMBIA. JUST AS PRODUCT MARKETING FORMS ONLY PART OF A LARGER CI STRATEGY, THESE GROUPS ALSO PURSUE A VARIETY OF INTERRELATED ACTIVITIES TO PROMOTE CONSERVATION IN THE REGIONS WHERE THEY WORK.

THIS YEAR, AS THE TAGUA INITIATIVE APPROACHES ITS THIRD ANNIVERSARY, CI AND ITS LOCAL PARTNERS ARE PLEASED WITH THE INITIATIVE'S PROGRESS OVERALL. BOTH IN MARKETING AND COMMUNITY DEVELOPMENT, THE PROJECT SHOWS MANY SIGNS OF SUCCESS. IT ALSO HAS BEGUN TO HAVE AN IMPACT ON HOW PEOPLE VIEW THEIR FORESTS AND OTHER NATURAL RESOURCES.

HOWEVER, AS WOULD BE EXPECTED WITH ANY PROJECT PURSUING SEVERAL AMBITIOUS GOALS, NOT ALL ASPECTS OF THE WORK HAVE GONE SMOOTHLY. THE PURPOSE OF THIS PUBLICATION—AND OF ALL VOLUMES IN THE "LESSONS FROM THE FIELD" SERIES—IS TO DOCUMENT OUR EXPERIENCES, BOTH GOOD AND BAD, AS THEY UNFOLD. IN THIS WAY, WE HOPE THAT OTHERS WILL BE ABLE TO LEARN WHAT WORKS—AND WHAT DOESN'T—IN ORDER TO REPLICATE CONSERVATION SUCCESS STORIES IN CRITICAL ECOSYSTEMS AROUND THE WORLD.



ECONOMICS AND CONSERVATION

It was a Sunday afternoon and raining so hard that dirt roads had turned into rivers, but at the open-air community center in El Valle, Colombia, everyone was hard at work. About 25 community members—men in mud-covered work boots, mothers with their children, and older women wearing their Sunday best—sat in groups of five to six. Above the steady drumming of rain on the tin roof, their voices rose in heated discussion. The topic: how much rain forest should the community leave uncut along rivers in order to prevent soil erosion.

Suddenly, a new sound joined the chorus. It was the sound of a woman crying. At once, everyone stopped talking, then watched as two men ran across the muddy soccer field out front carrying a woman in their arms. Beside them ran the woman who was crying, followed by more than a dozen other men, women, and children.

It turned out that the sick woman was being carried to a truck that would take her to the next town, Bahia Solano. Because El Valle's clinic lacks a doctor and most basic medicines—in this case, intravenous fluids for rehydration—the woman had to travel more than an hour over rough, flooded

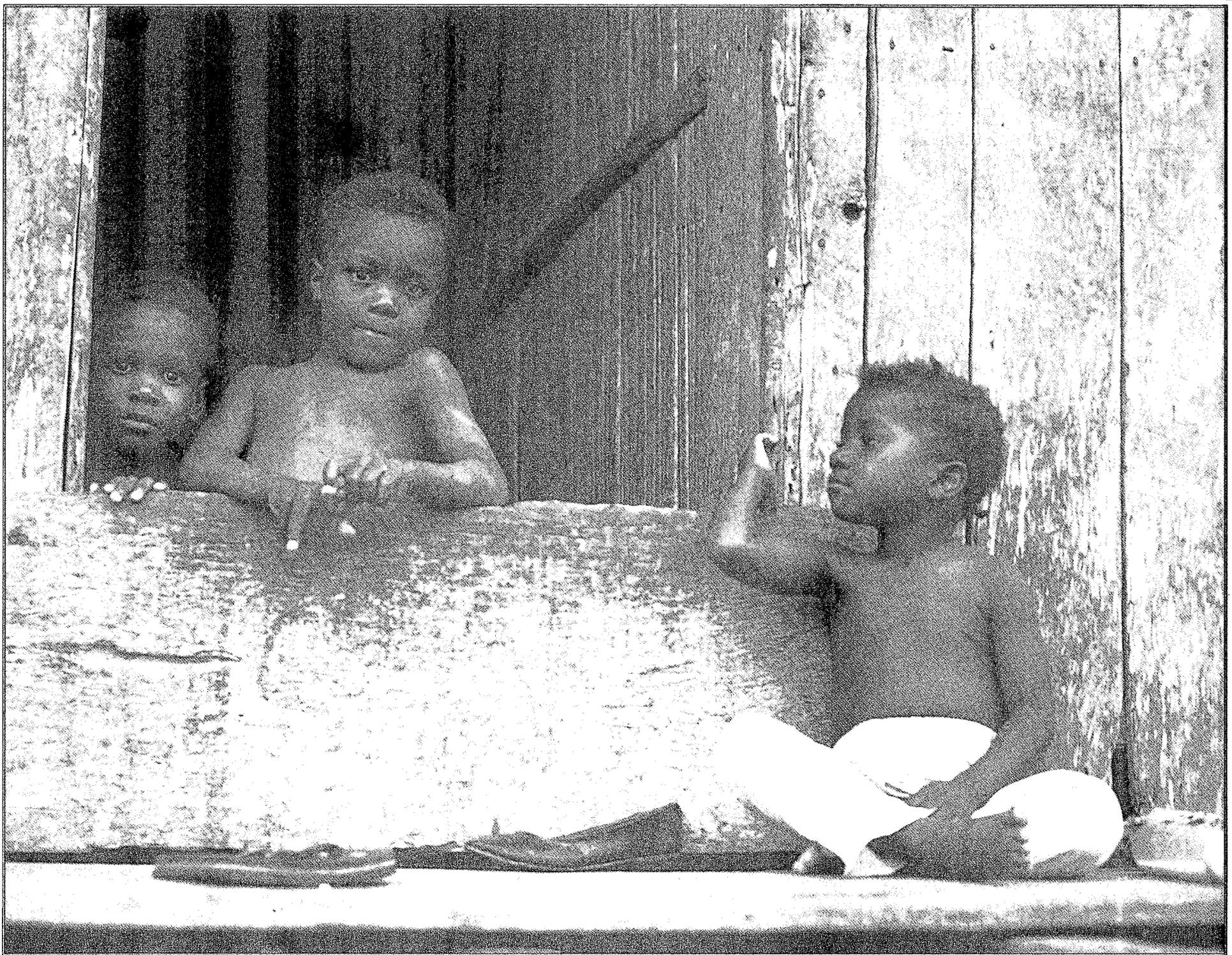
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roads to get treatment.

The incident was more than just an interruption to the gathering at the community center. Particularly to a group of visitors from Bogotá and the United States, it was a poignant reminder of the significance of the project they had come to see. Launched by the Colombian organization Fundación Inguedé in partnership with Conservation International (CI), the project promotes both rural development and conservation through the harvest and sale of nontimber forest products—such as nuts, oils, waxes, fibers, and resins—that can be extracted from the region's forests without harming them.

Linking forest conservation to economic development is essential if conservation is to succeed in a place like El Valle. Living in the Colombian Chocó, home to some of the richest rain forests on earth, the people of this region cut trees to grow crops, raise cattle, or sell timber so they can pay for such essentials as food, clothing, and health care. Until these basic needs are met, forest conservation can seem like an unnecessary luxury.

Fundación Inguedé is trying to demonstrate to these communities that they can actually earn more by harvesting and selling nontimber forest products than they can by clearing the forest for other uses.



More important, such livelihoods are sustainable over the long term, because they do not destroy the forests on which they are based. The foundation works closely with Seed Ventures™ (for Sound Environmental Enterprise Development), a CI department that creates international markets for sustainably harvested biodiversity products.

The work in Colombia is a part of Seed's first and flagship project, the Tagua Initiative™. Nearly three years old, the Tagua Initiative links rural harvesters of the ivory-like nut of the tagua palm—which grows in rain forests from Panama to Brazil—with manufacturers of buttons, jewelry, and arts and crafts made from the nuts.

In the first part of this century, before inexpensive plastics were developed, one in every five buttons manufactured in the United States was made from tagua. European button-makers also imported large amounts of tagua. Collected from wild palms growing near rivers in coastal Ecuador, Colombia, and Panama, the nuts were shipped overseas by cargo-steamers along with rubber, cacao, balsa, and other products. During the 1920s, the peak of tagua production, Ecuador earned \$5 million a year from tagua exports.

CI launched the Tagua Initiative in Ecuador's Esmeraldas Province, a region historically important

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in the tagua trade that had continued selling tagua to button-makers in Europe. A year later, the project expanded to El Valle and other towns around the Gulf of Tribugá on the Pacific coast of Colombia. Both sites are within a large biogeographic region known as the Chocó. Containing some of the richest and most endangered rain forests on earth, the Chocó is considered one of the world's rain forest "hotspots" and thus a top priority for conservation.

Though still a young project, the Tagua Initiative has accomplished a great deal in just a few years. In Ecuador's Comuna Río Santiago Cayapas, where the project began, the initiative has created a local enterprise to sell tagua directly to Ecuadorian factories that process the nuts into disks for buttons. To run the enterprise, 16 community members have received training in accounting, management, and product sales. As of May 1993, the community had sold more than 850 tons of tagua in Ecuador and exported another 40 tons directly to the United States and Japan. Since the project began, the price of tagua has nearly doubled, and the initiative has generated over \$1.5 million in tagua button sales.

These signs of economic success have been accompanied by progress toward conservation. One example is the natural resource management

workshops that took place in El Valle, Colombia—nine in all during 1992—where community members discussed the economic value of forest products and how best to protect them and other natural resources for the future. In Ecuador, for the first time ever, considerations about the value of standing forest entered into a 1991 debate over whether to clear land for a banana plantation (the proposal was defeated). And in the fall of 1991, CI staff members visiting the project were asked to help draft a management plan for the community's forests.

Yet before attempting these conservation activities, project organizers first focused on demonstrating to communities that rain forest conservation pays. According to CI's Mike Saxenian, director of Seed Ventures, "Unless we build markets for forest products and make sure the benefits flow back to local communities, forests will continue to fall to loggers, ranchers, and farmers who see no other option."

Traditionally, economic analyses of what a rain forest is worth looked only at timber or the value of forest land cleared for crops, cattle ranches, or development projects. But indigenous forest people have long known that rain forests are worth much more than their wood and the land they sit on. These people depend directly on the forest for survival, hunting

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animals to supplement a diet of fruit, nuts, and crops such as corn, beans, and rice. Forest plants also provide raw materials to make houses, canoes, clothing, soap, bowls, baskets, medicines, and the other basics of everyday life.

Long underestimated—or ignored completely—such nontimber forest products are finally getting recognition. One milestone toward this new thinking was a study conducted by Charles Peters of the Institute of Economic Botany, Alwyn Gentry of the Missouri Botanical Garden (and a member of CI's Rapid Assessment Program team), and Robert Mendelsohn of Yale University. Published in *Nature* in 1989, the study compared the amount of income that would be generated by selling nontimber forest products from one hectare of land in the Peruvian Amazon with the income that would be generated by a hectare that was cleared and put to other uses. It found that by selling nontimber forest products at a local market, the Peruvians would be able to earn more money—and on a longer-term basis—than they would by selling timber or using the land for crops or cattle pasture.

Although the study was site-specific and largely theoretical, it received a great deal of attention from the press and conservation community, because it

PHOTO COURTESY OF THE PERUVIAN GOVERNMENT

demonstrated that there are viable economic alternatives to deforestation. Failing to recognize this, the governments of many tropical nations actively encourage forest destruction for large-scale commercial agriculture and development projects yet do nothing to promote markets for nontimber forest products.

Demand for tropical forest products also exists far beyond the tropics. Fueled by growing concern about the environment, and particularly about the fate of tropical rain forests, consumer demand for environmentally sound products is high in the industrialized world. In one recent survey, 75 percent of U.S. consumers say they are concerned about the environment, and more than 50 percent say they have purchased products for environmental reasons. Meanwhile, businesses that sell products to this “green market” are booming. With annual sales of about \$4 billion, the organic foods industry, for example, has grown at more than 10 percent per year.

But despite enormous potential demand—and the wealth of known and unknown natural products that could meet that demand—there are few links between tropical forest products (except timber) and international markets. According to Karen Ziffer, director of programs for CI’s Conservation Economics Department and founder of the Tagua Initiative,

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“We realized that there is a vast gap between what’s known—both by traditional forest dwellers and scientists who study useful species—and businesses eager to launch natural products that are ecologically sound.”

Over the last few years, CI and other conservation groups have been working to fill that gap. CI’s involvement began in early 1990, when the organization teamed up with an international management consulting firm, Strategic Planning Associates, Inc. (SPA), to determine what kinds of development activities would be most likely to create long-term economic incentives for rain forest conservation.

The study, which quantified and compared potential present and future income resulting from different uses of an acre of rain forest, found that, over the long term, the sustainable harvesting of products such as nuts, fruit, and rubber can have a financial advantage over more destructive uses of the land. However, government policies that favor deforestation and a lack of sizeable markets for rain forest products have limited these opportunities. One of the study’s main conclusions was that creating more markets for nontimber forest products would provide powerful incentives for conservation and sustainable development in the tropics.

Later that year, CI created Seed Ventures and the program's pilot project, the Tagua Initiative. From the beginning, the initiative was designed to be different from other projects that promote nontimber forest products. First, rather than buying these products on the open market, CI targets its projects in the buffer zones of protected areas located in rain forest hotspots—the most biologically diverse and endangered ecosystems on the planet.

Based on a concept proposed by British conservationist Norman Myers, and expanded upon by CI scientists, rain forest hotspots are believed to contain 30 to 40 percent of earth's biodiversity, although they cover less than 1 percent of its land area. After helping the organization identify these hotspots and conservation priorities within them, CI scientists remain involved with Seed projects, helping to select biodiversity products and ensuring sustainable levels of harvest.

According to Saxenian, it is the integration of conservation science with two other disciplines—business and community development—that most distinguishes CI's work on biodiversity products. This year, as the third anniversary of the Tagua Initiative approaches, Saxenian, Ziffer, and their colleagues are pleased with the initiative's progress on all three

fronts. But an anniversary also is a time for introspection. "We know we're on the right track," says Saxenian, "but we're also using some of the lessons we learned during the first few years to build on and design our programs differently in the future." ■

CHOCOAN FOREST HOTSPOT

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SEED VENTURES™



In 1991, CI created a new department, called Seed Ventures™, to expand upon the work of the Tagua Initiative™, its first project to market nontimber forest products. Although tagua remains the best known Seed product—and the one we have the most experience with—CI has moved beyond tagua to a variety of nuts, oils, waxes, fibers, and other natural materials that are being made into products ranging from food and fragrances to jewelry, textiles, and furniture.

“Over the past year, we’ve even changed the way we describe our department,” says CI’s Mike Saxenian, director of Seed Ventures. “While at first we said Seed was in the business of marketing nontimber forest products, today we use the term *biodiversity products* to reflect our expanded role.”

Nonforest products under development include carrageenin, a seaweed-based food thickener harvested from the Philippines,

and trochus shells from Melanesia that are carved into buttons. Recently, CI decided to begin marketing timber itself—as long as that timber has been extracted in an ecologically sound manner by a forest community that is managing its natural resources wisely (see page 26).

A common thread among all these projects is that they create alternatives to habitat destruction in regions CI considers important conservation priorities. Within these regions, marketing biodiversity products is part of a larger strategy to protect biologically rich and endangered ecosystems. ■

SEED PRODUCTS UNDER DEVELOPMENT

FOOD INDUSTRY

Brazil Nuts	Peru	<i>Edible Nuts</i>
Pecans	Peru	"
Allspice Berries	Guatemala	"
Cacao	Ecuador/Brazil	<i>Chocolate</i>
Carrageenin	Philippines	<i>Seaweed-based Thickener</i>

PERSONAL CARE INDUSTRY

Cohune Oil	Guatemala	<i>Ingredient for Cosmetics/ Toiletries Products</i>
Carapa Oil	Colombia	"
Calathea Wax	Colombia	"
Brazil Nut Oil	Peru	"
Ngali Nut Oil	Melanesia	"
Jaboncillo	Guatemala	<i>Botanical Extract</i>
Allspice Leaves	Guatemala	"
Allspice Oil	Guatemala	<i>Fragrance</i>
Potpourri	Guatemala	<i>Finished Product</i>

APPAREL INDUSTRY

Tagua Nuts	Ecuador/ Colombia	<i>Buttons, Jewelry, Carvings, and Furniture</i>
Pita Fiber	Colombia	<i>Textiles</i>
Trochus Shell	Melanesia	<i>Buttons</i>

TIMBER INDUSTRY

Ecologically Sound Timber	Guatemala/ Bolivia	<i>Furniture and Other Finished Wood Products</i>
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MARKETING A BIODIVERSITY PRODUCT

In the dim light filtering through the palm fronds above, it was just possible to make out four spiny, seed pods about the size of soccer balls on the tree's trunk. "*Estas no están listas* (These are not ready)," Leoncio Nazareno told the group that had followed him into a tagua grove, or *tagual*, in the Esmeraldas province of northwestern Ecuador. To harvest tagua properly, Nazareno explained, one must wait for these large heads, or *cabezas*, to ripen, fall off the tree, and break open, spilling their pods, or *racimos*, onto the ground. Next, he said, animals (either wild rodents or domestic animals like pigs) will come to feed on the fruit, exposing five or six hard seeds—or tagua nuts—inside.

Of the many criteria used to evaluate a potential Seed product, one of the most important is the product's capacity to be harvested sustainably without harming the ecosystem. Because it comes from a fruit—and most of that fruit as well as the tree itself are not removed from the forest—tagua easily meets this first criterion. There is no need to either cut down or damage a tree to obtain tagua nuts. If the fruit is removed prematurely, the tagua turns red and thus can be detected and turned down by buyers.

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Another biological property of tagua—the fact that it produces fruit year round—also makes it a good candidate for a sustainable rain forest development project. The palm, which at any one time may have up to 25 fruits at different stages of ripeness, can provide a community with a harvestable product all year long.

Such biological considerations play a role throughout the course of all Seed projects. In the case of tagua, CI sent several scientific experts to Ecuador before deciding to proceed with the initiative. The largest was a team that included Mark Plotkin, an ethnobotanist and CI's Vice President for Plant Conservation; Robin Foster, a plant ecologist at the Field Museum of Chicago and a member of CI's Rapid Assessment Program team; and Henrik Pedersen, a palm specialist and former director of the herbarium at the Catholic University in Quito, Ecuador.

In September 1990, these researchers and several Ecuadorian colleagues spent an intensive week at the proposed project site—conducting overflights, field surveys, and interviews with local people. Their conclusion, presented in a report to CI from Foster, was that a sustainable development project based on the extraction of tagua would most likely not harm this region's forests and should, if properly



carried out, provide incentives to protect them.

Since the project began, scientific research has continued. Pederson and researchers from CIDES A, a Quito-based organization that coordinates the Tagua Initiative in Ecuador, have set up a series of test plots to evaluate the impact of harvesting tagua nuts on the trees' long-term survival and productivity. They are also conducting experiments—manipulating the amount of light the trees get or changing the ratio between male and female trees, for example—to see what conditions result in the greatest tagua production. In Colombia, the project was launched by that country's leading palm experts—Rodrigo Bernal and Gloria Galeano of the Universidad Nacional de Colombia—who also are studying tagua trees in test plots.

While critical, the potential for long-term harvesting without ecosystem damage is just one criterion used to select a Seed product. "We have to look at potential products the way any business would," says Saxenian. "The bottom line must be that the product is profitable to everyone involved, from local harvesters to national and international companies."

Before launching the Tagua Initiative, Ziffer spent several months preparing a detailed business assessment that looked at tagua's commercial history

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in the region, the volumes exported over time, and the relationships between local producers, processing facilities, and consumers. She also analyzed current market conditions to see if there was any possibility for growth. "In particular," she says, "I wanted to find out whether there was a niche for a new commercial player with an environmental story to tell."

After concluding that CI could indeed play a role in expanding international markets for tagua, Ziffer and Rodrigo Calero, CIDES A's president who manages the initiative's work in Ecuador, turned to the community they had begun working with to assess the project's fit with local conditions. The fact that there was a long tradition of harvesting and selling tagua here indicated that boosting the activity would have little impact on local culture and traditions. And because the region suffers from considerable poverty—annual per capita income is \$600, about half the income level for Ecuador as a whole—the prospect of a new money-making activity appealed to community leaders.

Once CI decided to go ahead with the initiative, the first step toward launching the U.S. side of the project was to develop a relationship with prominent garment manufacturers that agreed to use tagua buttons on their clothing. In return, the companies

would be able to market these clothes using the Tagua Initiative's compelling conservation story.

Next, assisted by attorneys from the Washington, DC-based Latham & Watkins, CI developed a licensing agreement with Emsig Manufacturing, a U.S. button-maker chosen to supply tagua buttons to the clothing companies. The conditions of the agreement were, first, that Emsig buy tagua button blanks (tagua slices turned on a lathe) only from manufacturers that bought their tagua from the project site at good prices and, second, that the company pay CI a royalty based on a percentage of all sales. Those royalties would be used to support Seed's work with tagua and other products.

CI officially launched the Tagua Initiative at a fall 1990 press conference. Attended by key newspaper, magazine, radio, and television journalists, the launching reached large audiences throughout the United States, Europe, Latin America, and Japan.

From the beginning, such high visibility in the press has been critical to the project's success. One of the main reasons CI's business partners joined the initiative was because they believed that the story of tagua—a product that provides a livelihood to people living in endangered rain forests—would help improve their sales. Press coverage also has given CI

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an opportunity to communicate the story of rain forest destruction (and, just as important, that there are alternatives to that destruction) to hundreds of thousands of consumers in the industrialized world. Seed estimates that more than 100 million people have heard about the Tagua Initiative through newspapers, magazines, radio, television, hang tags, store displays, and catalog descriptions.

Soon after its launching, the marketing side of the Tagua Initiative took off rapidly. By the end of the project's first year, seven million buttons had sold for nearly half a million dollars. By the end of the second year, CI had signed licensing agreements with two additional button manufacturers (State Button Company and A.B. Lion Button Company) and with one supplier to the retail button market (B. Blumenthal), which sells buttons under the name La Mode to home sewing shops throughout the United States.

Today button-makers are selling tagua buttons to more than 30 garment manufacturers (including Esprit, Smith & Hawken, the Gap, and Banana Republic) with markets in the United States, Europe, Canada, and Japan. As of May 1993, the initiative had sold a total of 15 million buttons with a wholesale value of \$1.5 million. These sales have generated more than \$100,000 in licensing fees for CI, which the orga-

nization is using to support Seed's work with tagua and other biodiversity products.

The project's next step was to begin to diversify products. "To create stable, long-term demand for tagua, or for any forest product, it's important not to become dependent on any single use of that product," says Robin Frank, who joined CI's staff as product manager for tagua in December 1992. "Because its texture and consistency are similar to ivory, tagua can be carved into many different forms and polished or dyed to a variety of finishes and colors."

Frank is working on several new products, including jewelry, games, and carvings. For example, CI has signed a licensing agreement with Imperial Pearl, one of the largest U.S. manufacturers of costume jewelry. Frank also is working with several small companies to create a variety of other jewelry products.

One of the most promising new markets for tagua is using the nuts to make netsukes, traditional Japanese carvings of people and animals. Originally, netsukes were made from elephant ivory, which is now banned in international trade to protect elephants from extinction. CI is working with carvers in both Asia and Ecuador to market Tagua Initiative carvings through distributors such as the Colorado-based Nature's Own.

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Another part of the strategy to diversify markets is promoting products that can be made in areas where tagua is collected, further increasing economic returns for communities that harvest the nuts. Toward this end, CI in 1992 hired designers from the non-profit Aid to Artisans to train community members in tagua handicraft design and production. The first products to come out of this effort, hand-carved buttons, have been well received. One Seed partner plans to launch a line of these buttons in the fall of 1993. As button-carvers gain more skill and experience, Seed will provide training to make more complex products such as animal carvings. CI also is exploring markets for new, non-tagua products from the comuna. So far, the most promising is organic chocolate.

With the Tagua Initiative's growth and expansion in new directions, new challenges have cropped up as well. The most serious problem on the marketing side was the discovery that, over time, some tagua buttons began to crack or lose their color—presumably because the nuts, a natural material, absorb water and expand or contract depending on their water content. Although tagua has been used to make buttons for over 100 years, the way we wash clothes has changed considerably during this time. In fact, early premarketing tests of clothing with tagua buttons failed to

reveal any problems at all. It was only after consumers washed and dried the clothes repeatedly—using high temperatures and strong detergents—that difficulties began to show up.

CI's business partners responded in different ways to these problems. While one garment manufacturer decided to stop using tagua buttons altogether, others have found that taking precautions—attaching special washing instructions to the garments or recommending dry cleaning only—have been sufficient. Meanwhile, button manufacturers are designing new shapes for buttons to make them sturdier and working on ways to seal the buttons to protect them from the harsh ingredients and high temperatures of modern-day washing.

Another challenge has been competition from button manufacturers who do not participate in the Tagua Initiative. Although they do not buy their tagua from specific communities where they ensure fair business practices and sustainable harvests (but instead buy it on the open market for the cheapest price), these companies nevertheless have marketed their buttons using a conservation story like CI's.

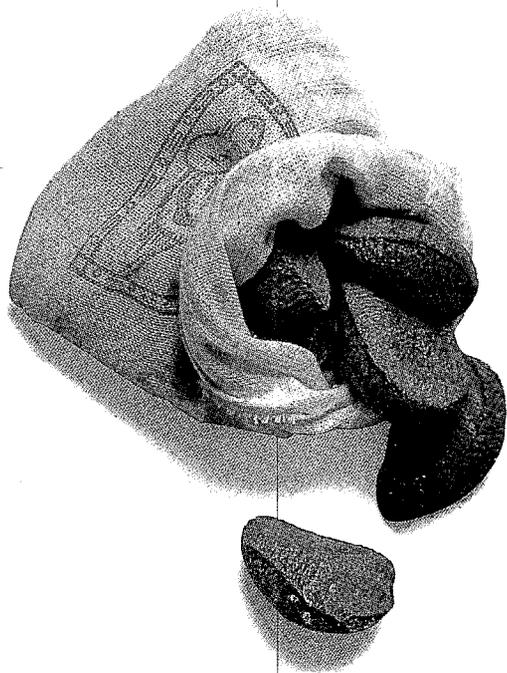
Troubling as they are, such problems are inevitable with a project as ambitious and complex as the Tagua Initiative. "As is obvious from the number

of small businesses that fail each year in the United States, developing new markets for any product is extremely difficult", says Ziffer. "It's even more difficult if at the same time you're trying to achieve conservation and community development." ■

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BRAZIL NUTS FROM PERU

Encouraged by the Tagua Initiative's success in Ecuador and Colombia, CI is now promoting biodiversity products from other high-priority ecosystems. In the Peruvian Amazon, for example, CI is working with a local counterpart, Candela Peru, to strengthen the market for sustainably harvested Brazil nuts.



Like tagua nuts, Brazil nuts are a particularly attractive product because they are collected from the ground without destroying or damaging trees. The nuts also have considerable value in today's international market. After timber, they are the most valuable forest product from this region.

In the CI-Candela project, local people harvest Brazil nuts from trees growing in and around Tambopata Candamo Reserved Zone, a protected area that contains the largest tract of pristine rain forest left in Peru. These forests are home to an exceptional level of biodiversity, including the greatest number of butterfly and bird species ever recorded from one site.

Candela Peru, a social development and trading organization, has been working with Brazil nut harvesters in the region since 1987. In September 1992, CI's Seed and Peru programs helped Candela buy the area's largest Brazil nut processing plant. The purchase has helped Candela increase its production capacity and reduce its production costs, which together mean the organization can pay local harvesters a premium price while remaining competitive in international markets.

In December 1992, Seed sold its first 5,000 pounds of Candela Brazil nuts, marking CI's official entry into the food industry. CI and Candela are now developing Brazil nut by-products, a strategy to add value to products exported from the community. Products currently under development include Brazil nut oil and a handmade soap derived from the oil. ■



COMMUNITY DEVELOPMENT

An hour upriver from El Valle, dense rain forest grew right to the water's edge, and in the distance, mist-covered hills also were blanketed by forest. A dugout canoe slowly approached the riverbank where a small, hand-painted sign read *Punto de Compra de la Tagua*, or tagua-buying point. As the boat's occupants helped each other up the muddy slope, the first thing they noticed was an unusual sound—like horses trotting on pavement—that seemed especially loud in the hot, afternoon stillness.

The sound came from a small bamboo building on stilts. Inside, surrounded by piles of brown, golf ball-sized nuts, sat four women in their fifties. Deftly wielding large machetes in one hand and holding tagua in the other, the women hit the nuts sharply and repeatedly, quickly removing the peel from one after another.

These women's lives and how tagua will affect them—as well as their surrounding forest—are the other side of the Tagua Initiative. As important as international marketing is to the initiative's success, it is only one part of the project's work. The rest, which takes place in communities where forest products are

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harvested, is even more challenging. And it is in these remote areas, near some of the world's most important and endangered ecosystems, that the success or failure of the Tagua Initiative ultimately will be decided.

Before beginning to work in these areas, CI first forms partnerships with local communities and non-governmental organizations. In the case of the Tagua Initiative, CI teamed up with CIDES A, a community development organization that already was working in the Esmeraldas region of Ecuador.

CIDES A's primary interest in the initiative was its potential to improve the lives of the region's people. The area targeted by the project, Comuna Río Santiago Cayapas, is one of the poorest in the country. Living in 52 communities scattered throughout 63,000 hectares of forest (mostly along rivers), the comuna's 15,000 inhabitants have an average family income of less than \$80 a month. Four out of every ten children suffer from malnutrition, and the child mortality rate is 6 percent. Tropical diseases such as malaria, onchocerciasis (river blindness), leishmaniasis, and cholera are common. Life expectancy is about 50 years, half the population is illiterate, and the comuna lacks such basic services as clean drinking water, sewerage, and adequate health care.

The greatest potential for improving life in the

comuna lies in the rain forests and other natural resources that surround it. Conversely, the loss or degradation of these forests—which already has occurred throughout most of Esmeraldas and is also a threat here—would only worsen the standard of living. According to CIDESA's Rodrigo Calero, who manages the Tagua Initiative's work in the comuna, "The natural resources of Esmeraldas are crucial to protecting earth's biodiversity, but they may be even more crucial to the economic survival of local people."

After CIDESA and the comuna's leaders decided to participate in the initiative, the first step was to establish a system for collecting and selling tagua to factories down the coast in Manta, where the nuts are dried and processed into disks for export to button manufacturers. To decide how best to set up this system, CIDESA held a series of workshops attended by representatives of the 52 communities. These workshop participants concluded that an independent group—rather than the comuna's five elected officials, called the *Cabildo*—should be in charge of tagua marketing.

Next, CIDESA and community representatives created a body called the Commercialization Committee. Made up of one *Cabildo* member, one CIDESA representative, and three elected comuna

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members, this committee was made responsible for managing all funds related to buying and selling tagua—including the initial \$20,500 CI contributed to provide start-up capital and to purchase a canoe, motor, and scales to weigh the nuts. To carry out its new responsibilities, the committee and 12 other community members involved in the project received training in basic business management and accounting from CIDESA.

Today the Commercialization Committee oversees a network of 13 buying centers along the Santiago, Cayapas, and Estero Maria Rivers. These centers, each consisting primarily of a scale and bamboo shack for storing tagua, are operated by buyers selected either by the *Cabildo* or the community. Each buyer, who receives approximately 26 cents for each quintal (45 kilograms) of tagua collected, purchases tagua from local harvesters (making sure of its quality and that it was properly harvested) at a price established by the committee. More recently, the committee formed a working group, called the *cuadrilla*, that is responsible for collecting tagua from the centers and preparing it for shipment to Manta. *Cuadrilla* members receive about \$30 for each shipment, or between \$60 and \$90 per month.

Since the project began, the system set up by

CIDESA and the comuna has sold more than 850 tons of tagua to factories that make button blanks in Manta and is selling about 40 additional tons each month. Some factories buy tagua from the project (as opposed to other tagua sellers in the region) because they are required to by U.S. button manufacturers that participate in the Tagua Initiative. Others, who are not required to buy comuna tagua, do so anyway because of its dependable, high quality.

Because demand for its tagua has grown (and because there is now competition for the few buyers who once monopolized tagua purchasing in the region), the comuna has been able to negotiate better prices. Since the project began, the price paid to producers has nearly doubled. Equally important, the factories, which once paid variable prices depending on whether or not tagua was abundant, now pay stable prices to producers all year long.

Such commercial success has translated into higher incomes for families that participate in the project. Currently, 311 comuna families—about 1,244 people—are involved with the initiative, and the number is expected to increase next year. Depending on the amount of tagua it has access to, each of these families supplements its annual income by \$100 to \$600, an amount equivalent to between 10 and 60 percent of

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the average annual income for the region.

But despite these successes, there have been some problems implementing the Tagua Initiative in the comuna. Perhaps the most serious involves the role of the comuna's leadership, or Cabildo. Initially, one Cabildo representative was a member of the Commercialization Committee. But over time, tension between these two bodies developed, in part because the Cabildo felt it should have greater control over the finances of tagua commercialization, while the committee felt that the Cabildo's representative was not fulfilling all of his responsibilities.

In January 1992, this tension escalated when the committee's accountant lost approximately \$1,000 of the project's funds. While the cause of the loss may never be known for certain, the incident suggested that control had been transferred to the community without sufficient groundwork and training.

In response, CIDESA and the committee restructured the procedures the following month. The new system temporarily gave CIDESA administrative control over the commercialization process. The organization is now seeking an alternative that will involve all participants—producers, buyers, and sellers—in tagua commercialization. As it stands today, the system depends too much on CIDESA, and one of the

PHOTO COURTESY OF THE TAGUA INITIATIVE

project's most important goals is to build the comuna's capacity to run the project on its own.

According to Calero, the problems faced by the Commercialization Committee mirror a larger failing of the initiative as a whole. "Perhaps the most serious problem so far," he says, "has been the delay among the comuna's leaders and members in taking over the Tagua Initiative and making it their own."

Calero does not feel the problems are insurmountable, however. For one thing, the Tagua Initiative is still relatively young, and the effort is also the first time the comuna has attempted any kind of complex economic development project. "The pace of implementing the Tagua Initiative locally must be slower than the pace internationally," Calero says. And considering that just over two years ago there was no sign of this project at all, its progress so far has been remarkable.

Not only has the community launched a viable local business—and trained more than a dozen people in how to run that business—but it also is seeking funds to improve the enterprise (by, for example, managing tagua groves for higher production and purchasing vehicles to get more nuts to market). In addition, with help from CIDESSA and CI, the community is investigating new income-generating activities,

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principally the harvest and sale of other nontimber forest products.

"To an outsider, these changes may seem incremental," says Calero, "but they are revolutionary in a community where little has changed substantially in a long time. The upshot," he says, "is that community members have more options now than they had in the past."

In Colombia's Gulf of Tribugá region, where the Tagua Initiative expanded in 1991, the long-term goals of the project are similar: to attain sustainable economic development while promoting local capacity, wise natural resource management, and forest conservation. But due to differences in the project sites—and differences in personnel running the two projects—the approach to community development in Colombia has been somewhat different.

Like Ecuador's Comuna Río Santiago Cayapas, the 10 communities targeted in Colombia are small (5,000 to less than 500 inhabitants each), located along forested rivers, and composed mainly of black descendants of slaves who make their living by fishing and farming. In general, the standard of living is below the average for Colombia as a whole. Unlike the comuna, the Colombian communities are scattered far apart and lack a strong community organization.

As far as the initiative goes, the biggest difference between the two sites is that although the Gulf of Tribugá was once an important region in the tagua trade, no tagua had been collected for export since 1935. Thus from the beginning, the Colombian project has focused on developing a range of nontimber forest products—including tagua—rather than focusing first on tagua and then moving on to other products (the project in Colombia, in fact, is called the Forest Products Project rather than the Tagua Initiative).

As in Ecuador, CI's first step in Colombia was to form a partnership with a local nongovernmental organization, in this case Fundación Inguedé. The foundation was interested in participating in the project as part of a larger strategy to promote conservation and development in the region through education, community organization, and the recovery of traditional knowledge as well as marketing nontimber forest products. Like CIDESA, Inguedé began the project with a series of community workshops. These workshops, however, focused on the use and management of natural resources in general rather than on the commercialization of tagua.

In the project's first year, the foundation sponsored nine workshops (coordinated by a sociologist and anthropologist living in the community) on a

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range of topics, including land tenure, local versus national interests in developing the Chocó, traditional uses of forest resources, and management practices that either benefit or harm those resources.

Workshop participants included a wide range of community members, both men and women, from the very young to the very old. The active participation of community elders, who have valuable historical knowledge of the land and its resources, was particularly important. After each workshop was over, the proceedings were compiled and distributed to communities throughout the region. In November 1992, at the end of the first workshop series, each participant received a certificate in natural resource management, and the group together drafted a code of ethics for local resource use.

Workshop participants also made a list of more than 100 plant species used by local people—products that may have potential for markets outside the community as well. Fundación Inguedé botanists Gloria Galeano and Rodrigo Bernal are coordinating biological research on these potential products.

Meanwhile, Inguedé has formed partnerships with other Colombian organizations—in particular the Foundation for the Development of Technology—to develop appropriate technologies for extracting and

processing nontimber forest products. Because virtually all the products under consideration are new to the market, there is no technology for processing them on a large-scale, commercial basis. And both Fundación Inguedé and CI are exploring new national and international markets for nontimber forest products.

So far, the project has targeted four products for further research and development. In addition to tagua, these products are: pita, a flax-like fiber that is extracted from leaves of the pita plant and has potential for use in textiles and paper; huina, an oil from the seeds of a rain forest canopy tree that has potential for shampoos and soaps; and *hoja blanca*, a plant whose leaves are covered with a wax that also has potential in the personal care industry.

Of these four products, tagua is the most advanced—simply because harvesting and processing techniques as well as markets for the product already exist. In its first year, the Forest Products Project revived the activity of tagua harvesting, which had not been practiced in more than 50 years, and as of early 1993 had built up an inventory of more than 60 tons of tagua nuts.

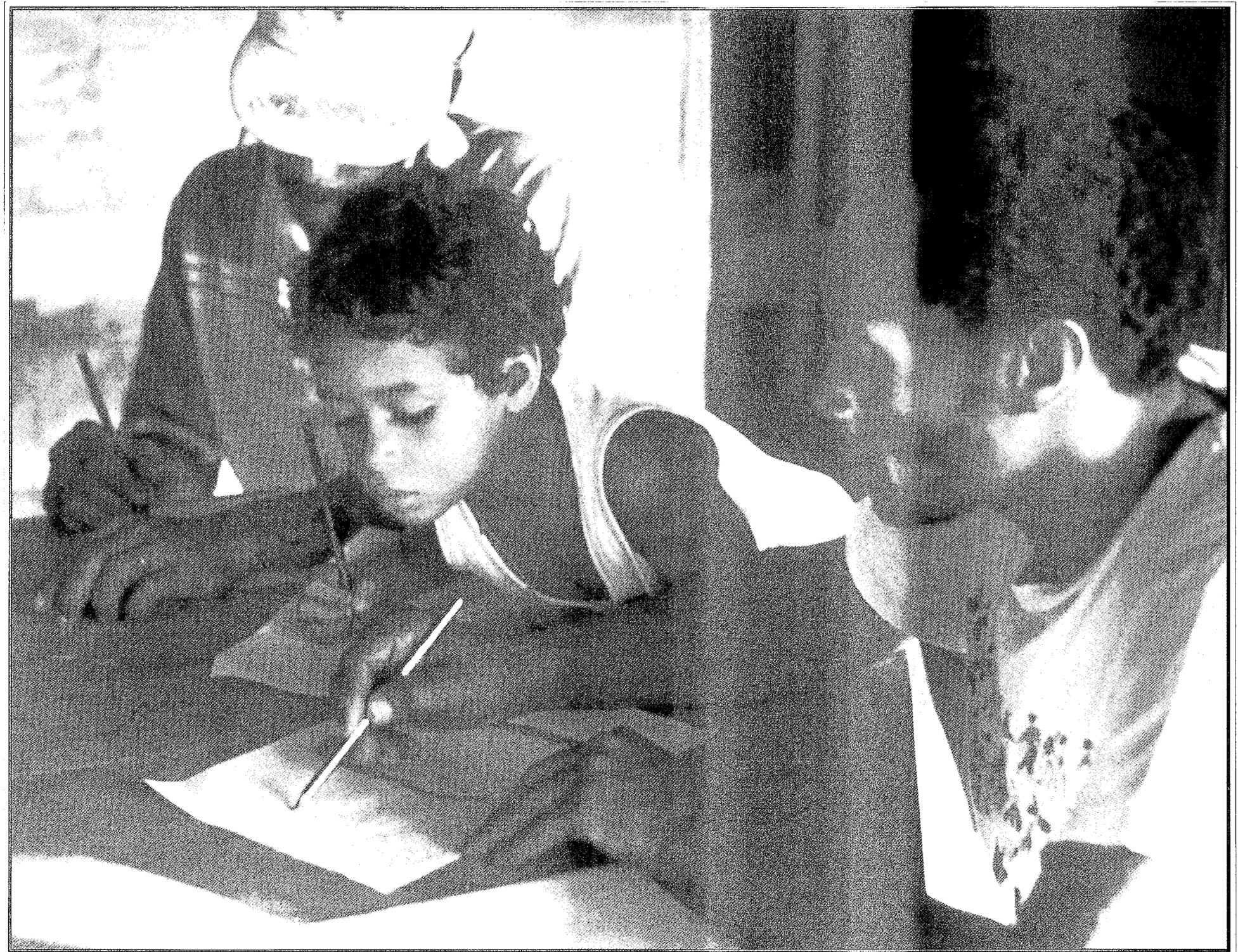
However, except for 20 tons purchased by CI in March 1993, this tagua remains in storage waiting for

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a buyer. Unlike Ecuadorian tagua, Colombian tagua is not a known commodity in today's market. Although Frank feels confident she will eventually find a buyer, the initial inability to sell tagua from Colombia has been a problem—because it disappointed local harvesters who expected to sell large amounts of tagua soon after the project began.

But project organizers, who did not expect Colombian tagua to be an instant commercial success, say that the project is on track. "We never saw tagua as a panacea," says Bernal. "That's why we started exploring a variety of products from the beginning." In addition, he says, the project is more interested in adding value locally to forest products than in simply selling raw materials. In this way, local communities will be able to receive larger profits from wise forest management.

The most important step toward this goal took place last November, when a Colombian artist, Dora Sánchez, spent a month in El Valle leading a workshop on the basics of artistic design and tagua-carving techniques. Attended by 12 community members (men, women, and a few older children) who already had demonstrated some artistic talent, the workshop concluded with an exposition of 88 tagua carvings produced by participants.



Already, these carvings are in great demand among tourists who visit the region. At a recent regional art exhibition, tagua carvers trained at the workshop won both first and second prizes. They now plan to participate in a national contest. Sánchez will offer more workshops in the future, both to train new tagua carvers and to refine the techniques of those who already have received some training.

Because organizers of both the Colombia and Ecuador projects recognize the benefits of adding local value to forest products, workshops for artists have been a key strategy at both sites. Throughout the course of the projects, CIDESIA and Fundación Ingedé have been in contact, sharing ideas on this and other aspects of their projects. As botanists, Galeano and Bernal were invited to visit and help evaluate the work in Esmeraldas even before beginning their own project. Information gleaned from that visit in turn helped them design Colombia's Forest Products Project.

Since then, Bernal and Calero have met and shared experiences in person twice, once in Panama City at a 1991 conference on rain forest products where they both gave papers (see page 31) and again in Washington, DC when they were visiting CI in March 1992. These meetings have been useful to both

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project leaders. During them, Calero and Bernal have discussed issues ranging from the extremely practical—how best to harvest, dry, peel, and pack tagua into sacks for export—to the complex challenge both men face as white outsiders managing projects in communities that are primarily black.

Recently, CI created a more formal mechanism for local organizations working on nontimber forest products to communicate with one another. Funded by the MacArthur Foundation, the new Andean Nontimber Forest Product Management Network will facilitate collaboration among individuals from different South American countries through regular workshops, newsletters, and other activities. The network will be very helpful to project leaders like Bernal and Calero, because, as they've learned from their own experiences, each project has its own particular strengths and weaknesses. "I always learn something new from Rodrigo," said Rodrigo Bernal during their 1992 meeting in Washington. "So do I," responded Rodrigo Calero. ■

THE TIMBER INITIATIVE

When CI launched Seed Ventures nearly three years ago, the program's goal was to create alternatives to cutting forests for timber or agriculture by developing markets for nontimber forest products. In the Chocó and other areas, these efforts to provide incentives for managing forests rather than destroying them for short-term gain so far appear to be successful.

But in some places, Seed's efforts have had to compete against more profitable—and ecologically destructive—timber harvesting operations.

Recognizing that timber extraction will continue to occur in areas where it is profitable, CI has decided to support ecologically sound methods of harvesting wood in areas already committed to timber extraction.

While biologists, ecologists, and foresters continue to research criteria for sustainability, CI is ready to put into practice several emerging approaches to sustainable timber harvesting.

Relying on lessons we've learned marketing nontimber forest products, CI has begun working on a "green" timber marketing project in the Petén region of Guatemala.

Located just outside the Petén's Maya Biosphere Reserve, the small community of Bethel cooperatively owns 4,000 hectares of land,

70 percent of it covered by primary forest. The cooperative's forests are considered a buffer zone for the biosphere reserve, an important protected area in the endangered Middle American Forest "hotspot."

Because of rising beef prices and other factors, these forests today are threatened with destruction, primarily for cattle ranching. Within its large conservation program for this region, called ProPetén, CI has launched a project in Bethel to demonstrate the economic viability of harvesting forest products—including timber—in an ecologically sound manner rather than cutting the forests down.

As part of this project, Seed recently purchased 5,000 board feet of timber from the cooperative, all of it derived from large logs left on the ground by timber harvesters in the past. From this small start, the project next year will harvest larger quantities of timber following an ecological management plan developed by CI and the community.

Meanwhile, Seed is preparing to expand its green timber marketing into other regions. Through these projects, CI hopes to turn today's single most destructive forestry practice into an economic incentive for conservation. ■

THE CONSERVATION CONNECTION

From the window of a small plane, Comuna Río Santiago Cayapas looked more like a forest than a settlement of 15,000 people. Except for small clearings here and there along the rivers, it was green all the way to the horizon. "Where people do live, they seem to have slipped under the trees rather than displacing them," said Jim Nations, CI's vice president for Latin America. Accompanied by Ziffer and Calero, Nations was flying over the comuna in October 1991 as part of a visit to evaluate the Tagua Initiative on its first anniversary.

This view of the comuna was in sharp contrast to what the group had seen during most of the flight from the city of Esmeraldas. All along this route, the land was deforested, covered by sprawling cattle ranches or bare, dry earth. At times, the dust and smoke were so thick that the ground became invisible.

One of the most important characteristics of both sites where the Tagua Initiative works is that they still have intact rain forests left to protect. Equally significant, the forests are both biologically important and threatened with destruction.

Located in 1 of 15 of the world's rain forest hotspots—called the Chocoan Forest—these ecosys-

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tems are exceptionally rich in plant and animal life. Biologists believe that the Colombian Chocó has more plant species than anywhere else in the world—between 8,000 and 9,000 species (of which at least 2,000 occur nowhere else).

Because it is both biologically significant and endangered, the Chocoan Forest is one of CI's top conservation priorities. According to Carlos Poncé, CI's vice president for the Andean Region, "The Tagua Initiative is a key component of a larger plan to promote conservation and sensible use of natural resources throughout the Chocó."

Within the Chocoan Forest hotspot, both project sites are strategically well placed: Located just beyond the borders of protected areas, they are considered buffer zones, or zones where sustainable development and wise use of resources can cushion the protected areas from pressures of human populations in the future.

In Ecuador, Comuna Río Santiago Cayapas is located adjacent to Cotacachi Cayapas Ecological Reserve, the only protected area in a biologically rich region where most forests already have been destroyed. Today's deforestation rate in the country—2.3 percent annually—is the highest in Latin America. "Because the comuna's forest runs right up to

Cotacachi Cayapas," says Nations, "it represents a prime buffer zone for the reserve."

Similarly, the communities surrounding the Gulf of Tribugá are considered a buffer zone for Ensenada de Utría National Park, a 54,000-hectare, forested park in Colombia's portion of the Chocó. Although the Colombian Chocó is much larger and less disturbed than Ecuador's, it is now threatened by a number of large development projects. Successful, small-scale forest development just outside the park could serve as a buffer between its pristine forests and the rapidly approaching modern world.

At both sites, the hypothesis that rain forests can be protected by a conservation strategy based on marketing forest products will soon be put to a difficult test. Roads are under construction that will link these relatively isolated areas with more populated parts of the countries. The roads will bring two specific threats. First, they will open previously inaccessible forests to commercial logging companies. Using bulldozers floated in on rafts, loggers already have devastated primary forest along major rivers in the Ecuadorian Chocó.

But an even more serious threat comes from the mass migration of people likely to follow these roads into the forest. Throughout Ecuador and Colombia

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live thousands of poor, landless families, ready to pack up and move to "uninhabited" parts of the country where they can begin new lives. Given the fragility of the Chocó's ecosystems, its forests will not be able to support such a mass influx of people if they pursue traditional methods of agriculture and development. To protect the Chocó's forests—and the communities that already inhabit them—economic alternatives are desperately needed.

While every Seed project has a number of important goals, the bottom line on a project's success—from CI's perspective—is the impact the project has on the survival of a high-priority ecosystem. After more than two years of effort, has the Tagua Initiative improved conservation prospects for the rain forests it works in? "The short answer," says Saxenian, "is that it's too soon to tell." Poncé agrees: "The initiative is a good start, but it's certainly too soon to call it a victory."

There is no doubt that the project has demonstrated—to local people, governments, international funding agencies, and other conservationists—that there is considerable demand for sustainably harvested tropical products in the industrialized world. Moreover, that demand has been translated into higher incomes for communities where those products are harvested.

In short, the initiative has shown that there are viable alternatives to destructive uses of forests for short-term economic gain.

At both project sites, there also are encouraging signs that the initiative is having an impact on how people think about rain forests and other natural resources. In Ecuador, for example, Nations and Ziffer had an opportunity to participate in a 1991 meeting of the Cabildo where important land-use planning issues were discussed. At the meeting, CI was asked to provide input into a management plan for the comuna's forests. "Something like that would never have happened without the Tagua Initiative opening the door for us," says Ziffer. "The initiative is proving to be a powerful tool for delivering CI's conservation message."

At the end of the meeting, the comuna's leaders also agreed with an idea to establish a new reserve within their territory. The reserve would serve as a buffer zone between the comuna and Cotacachi Cayapas Ecological Reserve, helping to protect its pristine forests from the wave of immigrants expected to move into the region. Although no further action on the reserve has taken place so far, Nations—who has worked on protected area issues in Latin America for 15 years—was nevertheless impressed by the

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group's receptivity. "If we could encourage attitudes like that along the borders of all protected areas," he says, "we just might work ourselves out of a job."

More concrete evidence of the initiative's impact on attitudes toward natural resources came in 1991. About a year before that, a private company from Ecuador had proposed developing a 12,000-hectare banana plantation in Comuna Río Santiago Cayapas. Although the company planned to use some degraded land for the plantation, it also wanted to clear a significant amount of forest. Some comuna members, excited by the economic windfall the company promised, strongly supported the proposal. Others were suspicious.

In the end, the company was unable to gain the support of enough comuna members to go ahead with its plan. Although many variables influenced the final outcome, one of the most important was the Tagua Initiative's demonstration that standing forests have value and can provide concrete economic benefits. Another important factor was CIDESA's presence in the community, which meant that the pros and cons of the proposal—as well as alternative means of economic development—were fully discussed.

Although no similar showdown has occurred yet at the Colombia project site, Fundación Inguedé's

Bernal believes that the initiative has had a positive impact on how communities regard their forests. During the workshops, for example, several community members spoke passionately—and spontaneously—in favor of protecting the region's natural resources for future generations.

"The greatest success of the project so far," says Bernal, "is the change in thinking we've seen about the value of natural resources. Now, when people think about cutting down forest to grow rice, they think about the economic costs as well as the benefits of that decision."

Still, there are many powerful and competing forces that influence natural resource decisions in this region. The Colombian government, for example, sees the Chocó as that nation's frontier for future economic development. Along with a number of foreign companies, it is planning several large, potentially damaging projects for the region. These include highways, ports, oil pipelines, resorts, and even a new canal that would connect the Atlantic and Pacific Oceans. A small project demonstrating the economic worth of standing forests may convince some communities to protect them for their children, but it certainly cannot guarantee that the forests will not fall victim to these external pressures in the future.

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However, given the severity of the crisis facing the world's rain forests and other biologically rich habitats, we have no choice but to try and protect them using as many strategies as possible. While conservationists have long talked about the potential of combining conservation with economic development, there have been few attempts to actually test this strategy in the real world. The Tagua Initiative is one of the first efforts to move beyond theory into practice. No matter what its long-term outcome may be, we are learning valuable lessons about how to implement one of today's most promising approaches to protecting global biodiversity. ■

SHARING THE LESSONS

In addition to developing and marketing its own biodiversity products, CI has taken the lead in promoting this strategy within the conservation community as a whole. One component of this effort has been facilitating communication among the many people already working with nontimber forest products around the world (see page 25).

The first major step in this direction was a conference organized by CI and the Asociación Nacional para la Conservación de la Naturaleza (ANCON) in June 1991. Held in Panama City, Panama, "The Sustainable Harvest and Marketing of Rain Forest Products" brought together dozens of experts in ethnobotany, business development, conservation biology, sociology, and other fields.

Participants addressed a number of questions concerning how best to bring rain forest products to market. For example: Which forest

species show the greatest promise? What levels of harvest are sustainable? and How can indigenous forest people be adequately compensated for their knowledge and their efforts?

The conference pulled together the best available information on these and other topics, including experiences with international marketing of rain forest products. CI's Karen Ziffer, CIDEA's Rodrigo Calero, and Fundación Inguedé's Rodrigo Bernal all gave presentations on the Tagua Initiative.

Their papers and more than 30 others presented at the conference are published in *Sustainable Harvest and Marketing of Rain Forest Products*, edited by CI's Mark Plotkin and Lisa Famolare. The book is available through Island Press, 1718 Connecticut Avenue, NW, Suite 300, Washington DC 20009. ■

LESSONS LEARNED FROM THE TAGUA INITIATIVE

After nearly three years of experience with the Tagua Initiative, Seed Ventures Director Mike Saxenian offers the following advice to anyone planning a project to market biodiversity products:

1. The conservation impact of marketing biodiversity products is greatest when integrated with community development, scientific research, education, and policy work.
2. International marketing of biodiversity products brings together two or more very different cultures and economies. To succeed, projects must be carefully designed to accommodate the distinct needs of these disparate worlds, and good communication among all parties is a must.
3. Community-level enterprise development must be geared to the pace and level of development found locally.
4. Biodiversity products must be profitable for every player in the economic chain in order to create the incentives needed to succeed.
5. The establishment of local enterprises for biodiversity products should be supported with loans rather than grants wherever possible. This encourages local counterparts to approach the endeavor with focus and a sense of ownership.
6. Local processing—as distinct from simple collection activities—often increases financial returns to local people and further encourages them to protect their biological resources.
7. Producers of biodiversity products should explore opportunities in local and national as well as international markets.