



Sustainable Solutions

Building Assets
for Empowerment
and Sustainable
Development



FORD FOUNDATION



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The Ford Foundation is a resource for innovative people and institutions worldwide.

Our goals are to: Strengthen democratic values,
Reduce poverty and injustice,
Promote international cooperation, and
Advance human achievement.

This has been our purpose for more than half a century.

A fundamental challenge facing every society is to create political, economic, and social systems that promote peace, human welfare, and the sustainability of the environment on which life depends. We believe that the best way to meet this challenge is to encourage initiatives by those living and working closest to where problems are located; to promote collaboration among the nonprofit, government, and business sectors; and to ensure participation by men and women from diverse communities and at all levels of society. In our experience, such activities help build common understanding, enhance excellence, enable people to improve their lives, and reinforce their commitment to society.

Asset Building and Community Development Program

The Foundation's Asset Building and Community Development Program supports efforts to reduce poverty and injustice by helping to build the financial, natural, social, and human assets of low-income individuals and communities.

Environment and Development Affinity Group (EDAG)

The Environment and Development Affinity Group is an association of Ford Foundation program staff whose mission is to promote global learning and mobilize change in the field of environment and development. It promotes a theory and practice of development worldwide that is compatible with the sustainable and equitable use of environmental assets, including the protection, restoration, and enhancement of environmental quality, and respect for diverse cultural values and vitality. Members of the EDAG support research, convening, peer learning, advocacy, and networking to improve the effectiveness of the Foundation's grantmaking in the environment and development field.

Toward a sustainable future...

As we take stock of achievements since the 1992 “Earth Summit” in Rio de Janeiro, the Ford Foundation’s Environment and Development Affinity Group (EDAG) celebrates the creative efforts of people and communities worldwide who are developing and implementing working models for a sustainable future.

Foreword

The 14 initiatives highlighted in this publication illustrate that the global movement for social equity, environmental justice, and sustainable development is growing.

We are proud to share the exemplary work of our partners, who are making a difference and charting a new course for our communities, nations, and world. These case studies demonstrate that in many different rural and urban communities, a long-term approach to restoring and protecting natural assets can lead to new livelihood opportunities and renewed social vitality. The reports make clear that a pivotal step in building a positive future is the full participation of all people in the fundamental decisions that affect their daily lives.

We believe that these forward-looking initiatives will grow and multiply. This form of community based sustainable development will thrive especially where governments, civil society, and the private sector create enabling policies and new institutional and financial arrangements that make it possible for these courageous efforts to flourish. 🌱



Signs of Progress

The World Summit on Sustainable Development provides a unique opportunity to renew our vision for a future in which all human communities pursue social justice, equity, and economic opportunity while maintaining a sustainable relationship with the earth. But vision is not enough to fully realize our hopes. What we all want is progress, significant movement in the right direction. What we want specifically are new models of sustainable community and economic development—innovations that work and serve as examples for scaling up.

That is what the 14 studies presented here offer. They are dispatches from the front lines of sustainable development—from the peanut farmers of rocky, dry Karnataka in India; from the *seringueiros*, rubber tappers of Brazil's western Amazon; from members of the Ahousaht First Nation in Canada's lush Pacific coast; from the Shangaan people living along the Save River in Zimbabwe, adjacent to national parks with elephants and other wildlife; and from the fishing communities along Balayan Bay and its stunning sanctuaries of marine diversity in the Philippines. They are stories of creative and committed individuals: Frederico Baños, a Zapotec Indian coffee grower in remote rural Mexico; Lynn Jungwirth, community leader in a small town in northern California's forestland; Arnoldo Garcia, wounded during El Salvador's Civil War and exiled, only to return as a champion of "integrated development"; Marina Silva, born of a rubber-tapper family and now a senator in the Brazilian Congress, where she is widely recognized as the strongest voice for sustainable development; Shanthamma, a landless laborer and member of a Women's Association in an Indian village; and Gibson Makulele, a leader of the Makulele community, which has reclaimed its ancestral land in South Africa.

Most importantly, these are cases of progress. Here you will find community-based efforts that are opening new development paths to empowerment, sustainable livelihoods, sound environmental management, social equity, and an improved quality of life for all. They involve innovative methods for managing wildlife, watersheds, and forests, for tapping markets for recycled materials, agricultural commodities, environmental services, and ecotourism, and for monitoring environmental quality. And they are moving toward substantial scale. Some are still small and emerging: the Purépecha Indians sustainably manage 12,000 hectares (28,800 acres) of pine and oak forests in Mexico's Michoacan state; the four marine sanctuaries of Balayan Bay support

These are stories from the front lines

of sustainable development...

small-scale fishing and resort businesses; the “bucket brigades” of California engage hundreds of community residents in testing and monitoring emissions from oil refineries and chemical plants. Others, meanwhile, have grown quite large:

- 2.8 million families in India protect and manage 14 million hectares (33.6 million acres) of forestlands;
- a coffee-producer cooperative network in Mexico, with 16,000 farmers, is one of the world’s largest suppliers of organic and Fair Trade coffee;
- 40,000 *zebaleen* workers in Cairo, Egypt, collect and recycle a third of the city’s municipal waste;
- 600,000 residents of the state of Acre, in western Brazil, are governed by an elected administration that puts sustainable development at the core of its public policies and investments.

Taken together, then, these stories reinforce the objective of the 2002 World Social Forum in Porto Alegre, Brazil to demonstrate that: *Another world is possible!* In every case, it is the genius of community that makes this so — a deep local knowledge of the ways of the land, an enduring desire to preserve cultural identity while forging partnerships, a powerful passion for greater social and economic justice, and the sheer energy of community mobilization. These are elements of the “social soil” from which the innovations emerge. They are also the key to overcoming the challenges these innovations will face in the future.

Finally, each of these stories reflects an approach to sustainable development that is a hallmark of the Ford Foundation’s grantmaking. They involve building the natural, social, human, and financial assets that low-income people, families, and communities need to improve quality of life.

The Asset-Building Approach

Most people are familiar with the concept of an asset and think first of financial assets such as savings, or ownership of businesses, land, or housing. The Ford Foundation takes a more comprehensive view of assets, what they are, and how they can be mobilized to reduce injustice and generate sustainable development. We see assets as a broad array of resources that enable people and communities to exert control over their lives and to participate in their societies in meaningful and effective ways.





“Assets” from this perspective are the enduring resources that individuals and communities can acquire, develop, or improve, and that they can then transfer across generations. They include:

- *Financial holdings* of people, no matter how low their income level, such as savings, homeownership, equity in businesses, and access to community funds or forms of philanthropic capital;
- *Natural resources* such as forests, wildlife, land, livestock, and marine wealth that can provide communities with sustainable livelihoods and that are often of significant cultural value;
- *Environmental services* such as the ability of forests to cleanse, recycle, and renew the air and water — as well as harbor the biodiversity — that sustain life;
- *Social bonds* and community relations that provide the social capital and civic culture of a place, as well as the webs of interpersonal and intergenerational relationships among individuals that help break down the social isolation of the disempowered and provide a base of security and support; and
- *Human assets* of individuals such as the traditional knowledge and marketable skills that allow people to contribute to their communities and to obtain and retain employment that pays a living wage.

The Power of Assets

Control over assets gives people the independence necessary to resist oppression, pursue productive livelihoods, and confront injustice. Even when they own few tangible goods or financial resources, people possess intrinsic resources such as knowledge, creativity, diligence, and inner strength. And groups of people share common resources such as community-based organizations, cultural values, and practices. These strengths and attributes also have been called assets by the proponents of people-centered and community-based development.

At the Ford Foundation we extend the concept of building upon the existing assets of people and propose that assets become a starting point for achieving sustainable development. We believe that it is important to help disadvantaged people develop, accumulate, and protect additional assets that will enable them to be more effective participants in economic, social, and political life.

Traditional strategies for alleviating poverty have often focused on distributing food, housing and medicines, or on providing temporary income subsidies. There are times when this may be critical, such as when survival is threatened. But increased consumption, especially consumption that is limited to survival levels, cannot assure

Control over assets gives people the independence necessary to resist oppression, pursue productive livelihoods, and confront injustice.

a reliable path to empowerment, good livelihoods, and sustainable development. Nor can increasing income alone establish economic and social security unless it is also used to build a firm asset base. Assets of the sort we describe here offer paths to empowerment and sustainable development because they are not simply consumed; rather, they are “stocks” that endure and can be used in many ways to generate economic and social benefits, while also fostering resilience and improved quality of life.

The Importance of Natural Assets

Much of the world's population depends on livelihoods derived from natural resources: land, forest, water, and the air we breathe. The continued degradation and diminution of these resources threaten the economic and social security of individuals, communities, and countries, as well as the intricate web of ecological, social, economic, and cultural relations that binds the global community. As farmers lose the ability to produce crops and raise livestock due to environmental degradation and insecure land tenure, as communities dependent on forests see them destroyed, as drought parches previously productive areas, urban centers swell with millions of destitute migrants who join the growing ranks of the underemployed.

“Natural assets are the wealth on which human well-being—and survival itself—ultimately depend,” explain James Boyce and Manuel Pastor in “Building Natural Assets.” These assets exist in the daily environment of many urban dwellers, as well as in rural and wilderness areas, and help to determine the quality of life and the social fabric of the community.

The challenge is to transform natural resources into assets that sustain global economic viability and provide a healthy environment for future generations. This happens only as the poor and disenfranchised become true stakeholders in their societies. Transforming natural resources into assets depends on individuals or communities securing access to them, whether individually or collectively. To be productive, a resource must be managed properly, enriched, and harvested responsibly. It should also be the kind of resource to which





production processes can add value. And it should be passed along in an ecologically resilient and productive condition that ensures its viability for the next generation.

Deriving income from natural assets depends upon many factors:

- Secure tenure rights or well-articulated and well-protected rights of access to natural resources.
- Technical information, ranging from production technology to marketing data, to develop sustainable livelihoods on the basis of those assets.
- Effective access to the financial capital and to the local, national, or international markets to convert those assets into products that generate sustainable livelihoods.
- Access to social support organizations that facilitate these asset development processes.

Asset building also requires changes in the “big picture,” the context in which communities and nations build their paths to sustainable development. We need international agreements that balance the flow of benefits between the global “South” and the “North” and that correct for the massive consumption of resources in the industrialized North. We need fresh thinking about institutional arrangements, policy frameworks, and new coalitions for change. Public-private partnerships are essential to increase the value of products harvested and produced in sustainable ways. Success in sustainable development depends on the local stakeholders being truly empowered to manage their resources and participate in important decisions about their lives.

The communities in the 14 stories presented here are pursuing many different ways to secure tenure rights and then to take advantage of them. They are using different strategies for obtaining technical information, accessing markets and capital, and building social support. This diversity yields lessons about how to achieve progress and has implications for the future of sustainable development.

We explore these lessons in depth in *New Paths to the Future*, the concluding section of this report, which starts on page 92. First though, join us at the front lines around the world, where success is tempered with challenge—and another possible future is being charted.

A brief word about our reporters: They are as diverse as the stories. Some are engaged in the work they describe, others study the work to analyze and help communicate its lessons. Some report with the fluidity of a journalist, others with the careful parsing of a scholar. Some focus on individuals who are making a difference, others explore the “macro” level of the story. This diversity is also a strength—for the field of environment and development is still evolving and it needs many voices as well as many innovations. 

Sustainable Solutions

1 Foreword

2 Introduction: Signs of Progress

8 Communities Mobilize To Control and Build Natural Assets

9 **San Juan Nuevo, Mexico:** A Purépecha Community Conserves Its Forests While Creating Wealth

15 **Los Angeles, United States:** Communities Armed with Buckets Take Charge of Air Quality

22 **Karnataka, India:** A Community Pools Its Resources to Restore Lands and Livelihoods

28 Building Natural Assets As Community Assets

29 **Eastern Amazon, Brazil:** The Xikrin Reclaim Their Forest and Culture

35 **Balayan Bay, Philippines:** Community Marine Sanctuaries Restore Natural Assets

40 **El Salvador:** Post-War Villages Rebuild Social Bonds and Natural Assets

46 **Limpopo Province, South Africa:** The Displaced Makulekes Recover Community Land and Wildlife Assets

52 Using Markets To Build Natural Assets and Financial Assets

53 **Cairo, Egypt:** *Zebaleen* Develop Incomes and Community from an Overlooked Urban Asset

57 **Oaxaca, Mexico:** Organic and Fair Trade Coffee Growers Connect to Global Markets

63 **Hayfork, United States:** A Community's New Enterprises Restore a National Forest

68 **Southeastern Zimbabwe:** The Mahenye Manage Wildlife for Revenue and Economic Infrastructure

74 Building Natural Assets At Scale

75 **Gujarat, India:** A Nation's Communities Protect and Manage Their Forests

81 **British Columbia, Canada:** The First Nations Reclaim a Temperate Rain Forest

86 **Acre, Brazil:** An Amazon State Forges a Sustainable Future

92 New Paths to the Future

95 Ford Foundation Support for Partners

96 Notes & References

Credits & Contact Information



MOBILIZING COMMUNITIES TO CONTROL AND BUILD THEIR NATURAL ASSETS

A Purépecha Community Conserves Its Forests While Creating Wealth

San Juan Nuevo, Mexico



The Purépecha settled in these mountains of Michoacán thousands of years ago.

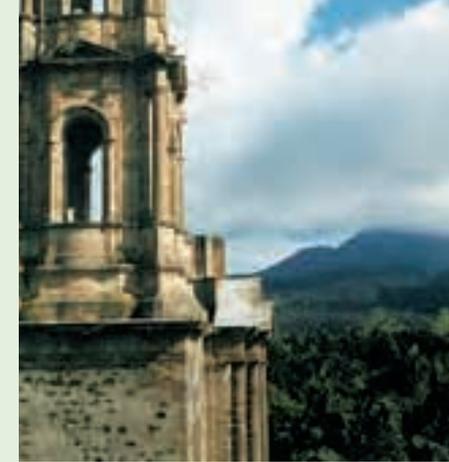
The view is spectacular from the cone of the Paricutín volcano in the Mexican state of Michoacán. Directly below the volcano are the still barren lava flows left by a 1944 eruption that emerged in the middle of a farmer's cornfield. Most of the rest of the vast panorama is taken up by agricultural fields and avocado groves, but in the center of the view is a large forested area covering the slopes of an older volcanic mountain range. There are at least two miracles in this landscape. One is the spire of the church of the former village of San Juan, now sticking out of the lava

flow that destroyed the rest of the village. The second is the community forest enterprise (CFE) that the *comuneros*, community members, have erected themselves, drawing on the richly productive forest area given to them by the Mexican government to replace lands lost to the volcano.

A Potent Blend

The Purépecha Indians of San Juan Nuevo have used the natural assets of their pine and oak forests to catapult themselves into a global model of community management of forests for timber production. An annual production of some 85,000 cubic meters of timber from some 12,000 hectares (28,000 acres) of forest has allowed them to build a highly integrated and diversified timber business. As an enterprise based on the common property forest holdings, all *comuneros* in San Juan Nuevo have a stake in the assets that have been acquired. In addition to its two sawmills, San Juan Nuevo has established a drying kiln, a molding and furniture factory, a pallet and crate factory, a chip mill, and a pine resin distilling plant. From its moldings factory, San Juan Nuevo now exports some 20 percent of its production to the United States. Its furniture factory supplies high-end designs to two of Mexico's leading department store chains; the feasibility of launching a new line of Mexican rustic furniture is being studied.

A central factor in San Juan Nuevo's success is how the community has been able to blend strong indigenous traditions with an entrepreneurial orientation and a culture that emphasizes higher education



The surviving church spire.

By David Barton Bray

David Barton Bray teaches at Florida International University in Miami, Florida. From 1989 to 1997 he was Foundation Representative for the Inter-American Foundation in Mexico. He conducts research on community forest and ecosystem management in Mexico.

MOBILIZING COMMUNITIES TO CONTROL AND BUILD THEIR NATURAL ASSETS

for its young people. The strength of San Juan Nuevo's human capital is exemplified by Juan Nusico Morales and Adolfo Chávez López. Recently, Juan served a three-year period as the *comisariado* of San Juan Nuevo, a kind of mayor with responsibility for overseeing the affairs of the community and its CFE. Meanwhile, Adolfo served a term as president of the Oversight Committee, a checks-and-balances committee with substantial responsibilities of its own. Juan and Adolfo have much in common, but there is also much that could separate them. Both are Purépecha and both are *comuneros* of San Juan Nuevo. Both grew up working in the forests alongside their fathers as resin tappers. But Juan, in his early 50s, has only a third-grade education and has worked for many years as a chainsaw operator in the CFE. Adolfo, on the other hand, is one of more than 40 *comuneros* from San Juan Nuevo who have pursued university educations. He has completed most requirements for a forestry degree from Michoacan University.

In many places in the developed and developing world, the gap between a manual laborer with a third-grade education and a university-trained forester would be so large as to be insurmountable. But Juan's sustained and intelligent interest in the affairs of his community as a member for 15 years of the Community Council, an advisory body based on indigenous practices, convinced his fellow *comuneros* that he had the wisdom and the vision to lead them as *comisariado*. The same people also elected Adolfo to his position on the Oversight Council, even though at age 29 he was unusually young for such a high responsibility. These two Purépechas from different generations and with different educational attainments nonetheless forged an



effective team that continues to steward their ancient community toward the future.

890 workers and their families use selective harvest techniques for their forest products.

Developing the Forest Enterprise

The emergence of the CFE of San Juan Nuevo is based on a series of ingenious social and organizational innovations within a common property framework. San Juan Nuevo is classified as a *comunidad indígena*, or indigenous community, under Mexican agrarian law. In *comunidades indígenas* the forest is regarded as an indivisible common property, i.e., a common-pool resource or a jointly held stock. However, community control of this shared asset has been compromised over the years. In the 1940s, the principal value of the common property was the resin in the trees. This value was preserved by a logging ban put into place in the Meseta Purépecha in 1944 and not lifted until the early 1970s. Resin-tapping cooperatives that had formed in the 1930s encouraged individual *comuneros* to divide the forest into individual plots for the development, harvesting, and commercialization of this non-timber forest product. This individual appropriation of flow from the common stock was fairly quickly carried over to timber extraction. In the 1960s



Whole families participate, even on weekends, to plant new seedlings.

and 1970s, as the value of the forest land rose for both resin and timber, *comuneros* began behaving as if their individually held communal lands were private property in other ways as well. Many sold timber off their lands, although this was illegal. Some used their possession of the land to have official ownership papers drawn up. Although technically illegal, this resulted in apparently legal documents of ownership. Some of these lands were eventually sold to outsiders. These sales resulted in a patchwork of lands within communal boundaries that were held as private property by both *comuneros* and non-*comuneros*. Throughout this period, community leadership structures were too weak to challenge the situation. In this way, some 4,000 hectares (9,600 acres) of communal land were *de facto* privatized.

This situation held until 1976 when, with the end of the logging ban, new federal government policies that encouraged inter-community organizations and community forest management stimulated the organization of the *Unión de Ejidos y Comunidades de la Meseta Purépecha Luis Echeverría Álvarez* (Luis Echeverría

Álvarez Union of Ejidos and Communities of the Purépecha Plateau), of which San Juan Nuevo became a member. In 1979, through the Union, the community gained its first logging permit. However, due to mismanagement in marketing, the Union did not return any profits to San Juan Nuevo after a year or two of operations. This created great restiveness in San Juan, and drove it to break away from the Union and establish an independent forest enterprise by 1981. The earlier effort at top-down organizing inspired a more grass-roots effort by a group of young, educated *comuneros* who had begun to realize the value of their forest resources. As they contemplated running their own forest-based enterprise, San Juan Nuevo was able to recruit a *comunero* who had been employed at a state-owned Michoacan pulp mill, and thus knew how to run a forest business.

The young *comuneros'* first challenge was to build a communal enterprise on the base of a *de facto* privatized forest stock. Their solution must be regarded as brilliant. Instead of trying to completely reassert communal own-



The community has been able to blend strong indigenous traditions with an entrepreneurial orientation.

This effort at top-down organizing inspired a more grassroots effort by a group of young, educated *comuneros* who had begun to realize the value of their forest.

This sign welcomes visitors to a community managed forest enterprise.



ership, the leadership decided to accept the status quo. The land had been divided up, “parcelized,” and there would be no turning back. But they stopped short of regarding it as full private property. Instead, they built the communal enterprise on the basis of a parcelized forest. In this new institutional arrangement, *comuneros* agreed to give up their individual rights over the flow of timber, while retaining possession of the stock of trees and other resources in the forest. However, they had to agree to allow their stock to be inventoried by the community enterprise and to conduct no

land use that would conflict with the forest management plan. In exchange for allowing this level of management, parcel holders had their possession acknowledged by the payment of a stumpage fee when the parcel was logged, just as if it were private property.

The clarification of rules of access to the forest stocks and flows was greatly assisted in 1991 when San Juan Nuevo was finally formally recognized as a *comunidad indígena*. Before this time, it was possible to hold private lands within the community and also be a *comunero*. After 1991, community authorities were able to establish new rules on the relationship between a *comunero* and communal land rights. After 1991, if you insisted on holding individual land titles within communal lands, you were not considered a *comunero*

and therefore had no access to communal benefits from the forest enterprise. San Juan Nuevo defines this system as “family possession in a communal regime”; it features the ceding of rights to the communal regime, but compensation is commensurate with the size of the forest stock possessed. Since 1991, San Juan Nuevo has invested major resources in recuperating the lost communal land through a variety of means, from suing individuals who it says are illegally occupying communal lands to buying back lands.

Building A Natural Asset

San Juan Nuevo’s organizational innovations are built on a rich natural asset. Its forests have very high rates of productivity and do not have the very steep slopes that characterize many Mexican forest communities. The forests of San Juan also contain a high degree of biodiversity, which is being ever more carefully stewarded by management practices. Recent studies by the Ecology Institute at the National Autonomous University of Mexico have shown that San Juan harbors 610 species of vascular plants, 101 species of birds, and 39 species of mammals. Its land cover includes about 3,000 hectares of oyamel fir (*Abies religiosa*), an increasingly rare species in Mexico, and about 800 hectares of cloud forest. San Juan’s 18,438 hectares (44,000 acres) of forest also include 10,614 hectares of production forest; 1,200 of plantations, now planted with mixed native species that attempt to replicate the natural composition of the forest; and 488 of completely protected watershed. Since 1986, San Juan Nuevo has practiced the Silvicultural Development Method, which creates a mosaic of similar-aged stands. In 1999, San Juan Nuevo received certification for sustainable forest management



Reforestation is a key component of the San Juan Parangaricutiro forest management program. Forest workers plant some 350,000 seedlings every year.

under the standards of the Forest Stewardship Council from the Smartwood program of the Rainforest Alliance, administered by the Mexican Civil Council for Sustainable Silviculture. This certification will help to position San Juan's forest-based products in the growing international "green" markets and could bring a price premium to the *comuneros*.

Economic and Community Impacts

Today, San Juan Nuevo's CFE has created a virtually full-employment economy. Nearly all of the 900 paid positions in the community enterprises are filled by *comuneros* and their children. They have created a balanced administrative system with oversight from traditional indigenous and agrarian structures, but also with a general manager of the CFE, who always is a *comunero* with substantial autonomy to administer the enterprise day-to-day based on good business practices. The current general manager, Ambrosio Rodriguez, notes that "good functioning of an organization is dependent on

having spaces of dialogue. By constructing consensus you limit divisions. All sectors of the organization are important."

In addition to the direct benefits that contribute to asset building at the household level, the enterprises' profits are used in ways that strengthen communal assets, and thus contribute to household assets. In the last two years, 50 percent of the profits has been spent in regaining communal land by decision of the General Assembly, a body composed of all *comuneros*. Around 20 percent has been invested in the enterprise, machinery, vehicles, and maintenance, and another 20 percent in new projects, irrigated peach and avocado orchards, research on peach production, a peach and avocado packing plant, as well as ecotourism and deer breeding. The remainder has been invested in roads and urban infrastructure and in computers for schools. In the last five years, the enterprises report net income of 54 million Mexican pesos (about US \$6 million) and an average annual profit of around 10 percent.

San Juan Nuevo has invested major resources in recuperating the lost communal land.

MOBILIZING COMMUNITIES
TO CONTROL AND BUILD
THEIR NATURAL ASSETS



Indigenous peoples such as the Purépecha can compete successfully in national and international markets.

San Juan Nuevo also emphasizes ongoing training of its *comunero* work force, using “quality circle” concepts to try and convince workers of the importance of doing quality work. This is not always easy. Some *comuneros* have an exaggerated sense of ownership that leads workers, for example, to waste wood because it’s theirs. To combat this, the training includes examinations of the cultural foundations of work ethics. Workers are asked the question, “Why do we want to do things better, to introduce efficiency and cost containment?” They are asked to reflect on the image of Japan 30 years ago when it was often associated with junk. What is the image of Japan today? What is the image of Indians? Lazy, drunk, paternalistic. Now think about the Purépechas of San Juan. What is their image today?

The CFE of San Juan Nuevo has faced many challenges, from land tenure to the North American Free Trade Agreement, which has generated new competition and lowered prices. Thus far, however, it has overcome them. A latent challenge is to incorporate more women into the workforce; only about 15 are currently employed.

Employing women would enrich the impressive human capital that San Juan Nuevo is constructing. In many community organizations, it can be difficult to find qualified administrators. But following the indigenous practice of rotation of community responsibilities, both Juan Nusico Morales and Adolfo Chávez López have moved on. Juan has returned to being a member of the Communal Council and tends his peach orchard, a citizen administrator returning to his livelihood. Adolfo now works for the Fundación Rigoberta Menchú in Mexico City as a community promoter.

The blend of indigenous and modern entrepreneurial practices that San Juan Nuevo has established is also being developed in hundreds of other CFEs in Mexico. Little wonder: this form of indigenous sustainable capitalism is showing that indigenous peoples such as the Purépecha can compete successfully in national and international markets, preserve modernized forms of ancient practices, and deliver a diverse and productive ecosystem to the next generation of Purépecha and to the world. ☺☺

MOBILIZING COMMUNITIES TO CONTROL AND BUILD THEIR NATURAL ASSETS

Communities Armed with Buckets Take Charge of Air Quality

April 12, 2002 began like any other Friday evening in South Los Angeles: heavy traffic rumbling down the local freeways, dense smog coloring the sunset, families and friends gathering to celebrate another week of hard work in one of the most polluted industrial landscapes of North America. And then

Los Angeles, United States

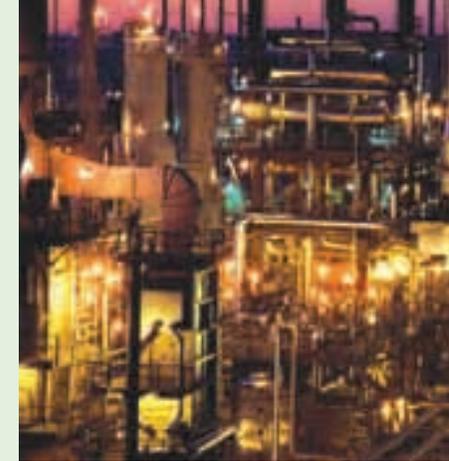
an all too familiar event: an explosion in the storage area of a firm called Productivity California caused a chemical fire. With sparks flying from fallen power lines, and flames and smoke

billowing into the air, 200 mostly Latino residents were evacuated while others were told to stay in their homes with the doors and windows closed.

Even as the fire reignited on Saturday morning, officials of the Southern California Air Quality Management District assured residents that tests of the air were “just fine.” Community members, however, did not need to rely simply on agency assurance. On Friday night, Communities for a Better Environment, a group well known for having helped area residents resist the placement of a power plant in the area, provided one worried individual with his own plastic “bucket” to test for air quality, especially for the presence of volatile organic compounds (VOCs) and sulfur. While these tests confirmed the assessment of the air authorities, they also confirmed a new development: armed with buckets, community members were ready and willing to take monitoring into their own hands.

Across the world, in South Durban, South Africa, air pollution standards are nonexistent, guidelines are nearly 40 years old, and local refineries – many of which are branches of multinational firms – are expected to regulate themselves. The combination is a mix that one community leader labels the equivalent of “asking a hungry dog not to eat a piece of meat you put in front of it.”¹ As clusters of cancer surface, organizers have been hungry for information and tools to protect community health.

Along came the buckets, in this case the result of a joint training effort instituted by a local non-governmental group, *groundWork*, and activists from California’s Communities for a Better Environment.



By Manuel Pastor & Rachel Rosner

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MOBILIZING COMMUNITIES TO CONTROL AND BUILD THEIR NATURAL ASSETS

Test results revealed benzene levels at eight times U.S. standards and xylene traces four times higher than those experienced in the U.S. during “upset” conditions. A few months later, Engen, a subsidiary of a Malaysian firm, agreed to \$70 million in pollution reduction measures for its Durban refinery. Emboldened, *groundWork* has begun training other communities in the region to map, monitor, and track toxic facilities. As MIT urban planners Dara O’ Rourke and Gregg Macey suggest in a pioneering analysis, the “bucket brigades” have provided a community capacity where governmental enforcement seems to have failed.²

This is their environment. They live it, they breathe it. They should be trusted to monitor it.

Denny Larson, Global
Community Monitor.

Bring on the Buckets

What are the bucket brigades? The concept began in Contra Costa County, across the Bay from San Francisco. The county is a hotspot of air pollution: it contains five major oil refineries, 12 major chemical plants, and many smaller ancillary operations abutting dense residential areas. In 1994, the Unocal refinery, “incentivized” by the prospect of company bonuses for maintaining continuous operation, was kept running past a scheduled period of maintenance. When a leak burst in a tower, company fire fighters called for a shutdown; management insisted that everything was safe. The result was a 16-day release of catacarb, a refinery catalyst that spewed down upon adjacent neighborhoods.

With 1,500 people falling ill and local authorities failing to identify or regulate the release, frustrated residents hired a legal firm to represent their interests. The firm hired an air monitoring expert to figure a cheaper way to take air samples. The method included a high tech capture bag and the usual expensive lab test, but also used a less expensive valve system and packaged the whole



arrangement in a modified five-gallon paint bucket.

The brilliance of the bucket was that it allowed community members themselves to test and monitor emissions. Refinery regulators traditionally arrive long after an accident and sometimes place themselves upwind. Community members directly in the way of plumes are,

**Staff members of
Communities for a Better
Environment conduct air
testing outside of a
Los Angeles refinery.**

The buckets "level the playing field". The method gives residents their own scientific evidence and provides them with the tools to defend and restore a healthy environment.

unfortunately, better positioned to do the immediate testing. Recognizing the potential for community organizing and empowerment, Communities for a Better Environment (CBE), a group rooted in the environmental justice movement, asked to take over the bucket sampling. CBE organizer Denny Larson designed training materials and devised an even cheaper way to produce the buckets, and CBE set about instructing community residents in their use.

The inherent scientific merit of bucket sampling was validated when the U.S. Environmental Protection Agency (EPA) decided to sponsor its use and work with CBE to develop a quality assurance program.³ However, the real success of the buckets is not the plastic, the valves, the bags, or the tests. Rather, it is the growth in community capacity to build, restore, and protect the social and environmental assets of those communities where the buckets have been used.

Assets are built and leveraged in at least three ways. First, the buckets provide a tool to "do something" – when a refinery has a release, communities do not have to passively accept the "all clear" judgment of a company, but can instead perform and evaluate their own results. This leads to social assets—an empowered community network able to take broader action to improve community outcomes on environmental measures.

Second, the strong social organization built around buckets can be leveraged to force other actors and institutions to also "do something." Specifically, organizers and residents have used the results from bucket testing to make government agencies do their job. Contra Costa residents report that agencies embarrassed by being "shown up" by bucket brigades now come more quickly, take samples closer to areas of release, and have devel-

oped more mobile tests to replace stationary samplers. Companies are also induced to improve their performance. As one organizer puts it, the refineries in Contra Costa County "were not going to monitor the air, absent some strategy to take control of monitoring." Good Neighbor agreements between the firms and the neighborhoods to improve company monitoring of their emissions have followed from community pressure.

Finally, the buckets help demystify and democratize science, fostering an ability to bring that body of knowledge and practice to bear in community thinking and action to build social and environmental assets. Communities often feel that science has been used against them. "Experts" from chemical companies and government agencies dismiss their concerns about risk while statisticians question whether cancer clusters can be attributed to other factors. The buckets "level the playing field". The method gives residents their own scientific evidence and provides them with the tools to defend and restore a healthy environment.

Moreover, as residents gain ground on the ins and outs of chemicals, they lose their fear of challenging the experts on other questions, including on the zoning decisions that place hazards right next to their houses. They also begin using other sources of data to challenge polluters and reassert their rights to the "commons" being denigrated by emissions. "Bucket brigades" for example, have used the Toxic Release Inventory, a publicly available database which contains self-reported emissions from refineries and other stationary sources, to link what is found in the buckets with facility emissions.

Of course, communities cannot simply take matters into their own hands: Azibuike Akaba, head of CBE's National Technical Assistance Program, suggests that



Communities for a Better Environment and the Liberty Hill Foundation team up to conduct a Bucket Brigade training.

MOBILIZING COMMUNITIES TO CONTROL AND BUILD THEIR NATURAL ASSETS



The buckets have given groups of engaged and committed activists a powerful way of taking action.

groups also “need the interface of a technical person” to assure that scientific standards are met, if only for maintaining credibility and public relations. They likewise need foundation and other support to ensure a steady stream of equipment, supplies, and salaries to support training and coordination. Combining these technical and financial resources with community knowledge and organizing can yield a creative mix that makes for good innovaton.

Buckets as Beginnings

The transformation from neighborhoods suffering deficits to communities deploying assets occurs in part because the buckets themselves are not a “stand-alone” tool: they are being used within the broader social movement for “environmental justice.” This movement is rooted in the recognition that communities of color and low-income groups in the U.S. bear a disproportionate burden of environmental hazards of an industrial society. The problem is particularly severe in California. Even controlling for income, communities of color experience much higher levels of both ambient air pollution and the associated cancer and respiratory risks.⁴

To challenge discriminatory practices in the placement of environmental hazards, justice advocates like California-based CBE have focused on helping communities both “tell their story” and pursue the policies necessary to stop hazardous siting and promote clean-up. In this sense, some of the greatest benefits of the bucket brigades are social as well as scientific: the buckets have given groups of engaged and committed activists a powerful way of taking action.

One community leader in North Richmond, California, Michelle Ozen, became involved with the



bucket strategy after a serious exposure in 1993. From her front porch, she could see the towers and hear the flare of the local Chevron plant, but when the release had ended she could not find a good source of information about the nature of the exposures to which she had been subjected. In response, she joined the bucket

Youth recording data and training on air testing techniques.



brigades as a “sniffer,” the person who detects a smell. Later she became a “sampler,” the person who carries the bucket and collects the air sample. After Sara Ells, the original “coordinator,” or person who oversees the brigade teams, could no longer play this role, Ozen stepped up to leadership. This passage from resident to activist is typical of how bucket brigades have helped to catalyze and mobilize neighborhoods.

The bucket brigade process can also help build new community bridges for multiracial leadership. In the U.S., it is frequently people of color who live closest to the refinery “fence line” and lead the fight for improved monitoring and enforcement. But toxic air respects no racial boundaries and the bucket process requires that neighbors work together as teams. They rely on each other and often create new ties across the usual divisions of race, ethnicity, and class. Since recent research suggests that intercommunity divisions can diminish local

power and make it easier to site toxic facilities, this bridge-building is an important plus for community health.⁵

In short, the development of diverse grassroots leadership may be the most important asset built by the bucket process. CBE lead scientist, Julia May, insists that deploying the buckets without also adopting a broader people-based agenda will yield information but not transformation. It is a view that privileges neither the scientist nor the resident, but instead seeks to build bridges among community, research, and policy worlds.

Buckets and Beyond

“Build a better mousetrap and the world will beat a path to your door” goes the old saying. Of course, the reality is that some other rodent control company, worried about losing pace in the competitive struggle, is likely to figure out what you did, build a nearly equivalent mechanism,

In the U.S., it is frequently people of color who live closest to the refinery “fence line” and who lead the fight for improved monitoring and enforcement.

MOBILIZING COMMUNITIES TO CONTROL AND BUILD THEIR NATURAL ASSETS



The brilliance of the bucket was that it allowed community members themselves to test and monitor emissions.

and strive to head off your customers before they make it to your shop. In short, while competition has well-recognized negative effects, including downward pressures on wages and environmental standards, one of the market's strengths is that it often leads to quick and broad replication of technological and organizational innovation.

There is no such automatic mechanism for community innovation. A group may find a new method of organizing, a new strategy for empowerment, or a new leverage point for policy change. But without the driving force of market competition, examples of excellence may go unrecognized, and community groups wind up working in isolation. As a result, the advantages of a new approach to organizing or advocacy may not spread to those who need it.

An unusual aspect of the bucket brigades is that spreading the word has been key since its origins. Early in the process, CBE leadership decided not to copyright the manual or patent the bucket, and to seek external funding for widespread dissemination. As a result, CBE launched a National Technical Assistance Program and has done training and transfer of the bucket technology in more than 20 communities in the U.S. and abroad.

Some of this has been done through regional networks of "EJ" activists: the Southwest Organizing Project, a key anchor organization of the Southwest Network for Environmental and Economic Justice, now runs its own bucket brigade in Rio Rancho, New Mexico. In other cases, new organizations have formed to implement the bucket strategy, often in collaboration with existing organizations concerned about refinery safety and other issues. Trainings have also occurred in Ohio, Illinois, Pennsylvania, and Alaska, as well as with members of the Indigenous Environmental Network based in Minnesota.



International trainings have included Ecuador and an extensive collaboration in Southern Africa.

As MIT planners Dara O'Rourke and Gregg Macey note in a detailed analysis, St. Charles Parish in Louisiana is one place where the buckets have taken especially deep root.⁶ This is perhaps unsurprising: the area is also host to a slew of refineries that boast records of dangerous explosions, continuing flare-ups that scat-

The bucket brigade process can also help build new community bridges for multiracial leadership.

ter sulfur dioxide, and “fugitive emissions” from leaky valves that go unrecorded by the usual methods. While residents of this largely African-American community had long been concerned, buckets were introduced in the wake of a release from a Shell plant in December 1998. When the state’s Department of Environmental Quality refused to take air samples, local residents called on CBE organizers attending a national conference nearby to implement the tests, which revealed the presence of chemicals that Shell had indicated had not been part of the release.

Residents were subsequently trained to use the buckets themselves and this became key to both playing the role of watchdog and creating a sense of individual and community empowerment; in the words of one resident, “Before then, we were just here, we didn’t exist... We started the bucket and started getting on TV, the newspapers, and that’s when people started coming in and really discussing things with us.”⁷ As in California, the higher level of scrutiny has induced state agencies to engage in better monitoring and caused the adjoining refineries to introduce a “Good Neighbor Initiative” that includes the promise of emission reduction, job training for local residents, and a fund for community improvements.

The Louisiana story illustrates two key facts. First, the buckets and the community empowerment they bring can become ways to increase other community resources, including neighborhood development funds and the purchase at fair prices of contaminated homes that are too dangerous to inhabit. The buckets also build human as well as social capital: people have to be trained to use them, to incorporate the resulting information with other data sources, and to interact in both collaboration and conflict with local authorities and

regional representatives of the U.S. EPA.

Second, as at the original site in California, the buckets do not work in isolation. The tool has to be part of a broader program of organizing, information, media advocacy, legal and administrative pressure, and most important, leadership development. Indeed, organizers warn that there are key steps prior to incorporating the bucket brigade strategy: insuring a sufficient funding base to maintain operations and continual training, developing organizational capacity for media and policy communication, making connections with technical personnel and labs who can help the process, and generally developing the full range of institutional infrastructure necessary for a campaign.

In short, the bucket brigade concept – certainly a success in its own right – should be seen as one piece in a whole new style of community work.

CBE remains committed to both dissemination of the buckets and this broader integrated approach to community organizing and advocacy. The buckets have thus offered a model of how to disseminate new tools, improve community and organizational capacity, and build assets among people often left behind in market and political dynamics. They have not only helped to empower local communities – building their capacity to challenge environmental injustice – they have been a vehicle for building new bridges: between community members, between communities and public agencies, between residents and scientists, and within affected communities all over the world. The growing global experience of the bucket brigades offers this important lesson for sustainable development: given the tools, communities can and will be stewards of their neighborhoods and beyond. 🌍🌱



MOBILIZING COMMUNITIES TO CONTROL AND BUILD THEIR NATURAL ASSETS



A Community Pools Its Resources to Restore Lands and Livelihoods

“If you had come here five years ago during this season, you wouldn’t have found me,” says Nanya Naik, a small farmer in the Gauribidanur *taluk* local administrative unit of Kolar district in Karnataka, India. “I used to go away for as long as six months of the year to Bombay, hauling loads at construction sites. I don’t have to do that any more. I can live together with my family and our land gives us enough to feed us through the year.”

Karnataka, India

Like many small farmers in this region, Naik was forced to migrate to distant cities in search of work. The rocky landscape of northern Karnataka, with its red sandy soils, is dry and drought prone. The local crops of peanut and millets yield poorly and often fail due to erratic rainfall. Few farmers have the means to invest in making their livelihood more secure and productive. Until recently, migration used to be the only way out of this predicament. As people left, the life of the land ebbed away too. Farmlands languished and livestock dwindled for want of regular care, and the village community lost its most active and dynamic members.

Nanya Naik is no longer forced to migrate because he joined the *Banjara Yuvak Ryoth Sangha* (Banjara Young Farmers’ Association), a self-help group formed with assistance from Outreach, an Indian rural development NGO. The Sangha advanced Naik a small loan, which he supplemented with family savings to bore a well to irrigate his five acres of land. Access to an assured supply of water has enabled Naik to shift from a rain-dependent crop of *ragi* and peanut that would not support his family through the year. Now he moves between rows of mulberry shrubs, harvesting leaves to feed his brood of ever hungry silkworms that yield a much higher income. Other farmers in his self-help group have taken loans to buy other farm inputs, livestock, and even to finance their children’s education. What is remarkable is that most of the loans that enable this new-found economic stability and prosperity are funded by the collective savings of poor farmers like Nanya Naik.



By Amita Baviskar

Amita Baviskar is a sociologist at the University of Delhi, India. Her research addresses the cultural politics of environment and development. Her publications include the book *In the Belly of the River: Tribal Conflicts over Development in the Narmada Valley*.



Women's self-help group meeting, where members put small amounts of their weekly earnings into a mutual fund.

Tapping Collective Strength

Although self-help groups have now become an established part of rural Karnataka where Outreach operates, and villagers fluently explain how they work and strongly endorse their benefits, getting started was an uphill task. Outreach field coordinator, H. Guruswamy, remembers the hostility and suspicion with which he was initially greeted in the area. Villagers had earlier been cheated by an NGO which had promised them a get-rich-quick scheme and then disappeared with their savings. Having burnt their fingers, people were wary of being involved in Outreach's proposals. This called for assiduous efforts to build trust among the community. Another challenge was the extreme poverty of the people Outreach wanted to work with. Most of them were Banjara Lambanis, a tribal community that had recently settled in the region. While some families had managed to secure rights to small patches of rocky land, many

others were landless. Since they moved around in search of work from season to season, it was difficult to organize them into groups that would meet regularly and build financial assets through the year. Their poverty also convinced people that they simply did not have the resources to improve their situation. Their first question to Guruswamy was, "What will you give us?"

Outreach began in 1992 with an ambitious idea. Instead of distributing developmental goodies among its clients, it would seek to realize poor rural communities' potential for creating assets themselves. Working with the conviction that villagers overlook their most powerful resource, their collective strength, Outreach's efforts have focused on trying to channel this resource for rural development. The primary tool that it adopted for this purpose was Participatory Rural Appraisal (PRA), a technique for community learning and planning pioneered by Robert Chambers during his tenure

The villagers' most powerful resource is their collective strength.

Farmlands languished and livestock dwindled for want of regular care, and the village community lost its most active and dynamic members.

Members of the Sangha Women's Association conduct a PRA mapping exercise.

at the Ford Foundation in New Delhi. The founder of Outreach, Jimmy Mascarenhas, a veteran development practitioner, started conducting PRAs with the villagers of Gauribidanur *taluk*, fostering a shared analysis of local resources, livelihoods, and economic potential. From this process emerged the first self-help groups of women who were willing to commit small amounts of their weekly earnings into a mutual fund. To allay anxieties about the safety of their money, Outreach insisted that the women

handle all transactions with the bank and with each other. Shanthamma, a member of the *Shree Shakti Mahila Sangha* (Women's Association) and a landless laborer who earns 25 rupees a day (half of a U.S. dollar), recalls with a laugh, "The first time I had to count out a thousand rupees and deposit it in the bank, my hands were trembling. I had never even seen so much money, let alone touched it." Since 1994, the 56 women's groups and 37 men's groups in the 36 villages of Gauribidanur *taluk* where Outreach works have collectively saved Rs 1.05 million (about US\$22,000). The achievements of the Sanghas seem all the more remarkable when one dis-

covers that some women struggle to put aside even the minimum weekly contribution of 10 rupees.

Bigger Dreams

As savings slowly accumulated, villagers in men's and women's self-help groups began to dream of larger possibilities than making small loans to tide over household crises. They began to plan investments for improving their lands. Outreach played two crucial roles at this stage. It helped self-help groups to come together as a *Mahasangha* or federation that could leverage credit from government banks. It also provided technical assistance in liaison with government institutions for land treatment, agriculture, horticulture, sericulture, and animal husbandry. The self-help groups pooled their own funds, supplemented by government loans and grants from donors, and decided which individual and collective proposals to support. The hilly terrain of the region has meant that land leveling and watershed development have been the most often proposed activities.

As Ram Reddy of the *Bapuji Ryotha Sangha* (Bapuji Farmers' Association) in Cholashettyhalli village walks around his fields, he proudly points to the low bunds (borders) that mark the contours of his undulating land. The bunds are planted with shrubs of *Pongamia pinnata* and *Cassia siamea* whose leaves are mulched as green manure. Small stone walls have been built to plug erosion in the existing gullies that appear like deep cracks running through the fields. These walls help to retain soil that is washed down by the rains, and, by slowing the movement of rainwater, they facilitate the percolation of moisture into the soil. Since this region may receive 5 inches of rain in one continuous spell (out of the average annual rainfall of 20 inches), the importance





Left: Formalization of an agreement between a member and self-help group on loan; right: small stone walls prevent further erosion in existing gullies.

of building structures that capture and contain water cannot be overstated. A seasonal stream that flows by Ram Reddy's fields now has water for longer periods in the year. Outreach put Reddy in touch with the state horticulture department so he could procure grafted mango plants. He used the water available to him to painstakingly irrigate each sapling in his mango orchard, carrying pots of water up from the stream. As his first crop of mangoes ripens in the sun, Reddy is already busy planning the installation of a small pump and irrigation pipeline.

The improvement of individual, privately owned fields is only one part of Outreach's watershed program. Villagers who have gained some benefits from soil and water treatment on their own lands are more motivated to work on *public* lands once they begin to perceive the need to address the watershed as a whole. Through PRA exercises, villagers identified which patches of degraded forests on the hill slopes led to soil erosion. They discussed which village irrigation tanks had silted up and

where new tanks could be on common lands. The development of such common property resources required that the *Mahasangha* negotiate with the local *panchayats* (elected government bodies in villages) under whose jurisdiction these public lands fall. With the *panchayat's* permission, the *Mahasangha* built a boundary wall circling around the hilly ridges in the area and stopped livestock from entering. The vigorous regeneration of the natural vegetation is already visible from miles away. These protected catchments not only help retain moisture but also provide much more grass for fodder than before. Villagers also regularly remove the accumulated sediment from tank beds, and farmers pay the transport costs to have this rich silt deposited on their fields.

While watershed development continues to be the mainstay of *Mahasangha* activities, Outreach is also encouraging farmers to take on the market from a position of strength. Several *Mahasanghas* now jointly purchase fertilizers and pesticides, taking advantage of bulk



Villagers in men's and women's self-help groups began to plan investments for improving their lands.

MOBILIZING COMMUNITIES
TO CONTROL AND BUILD
THEIR NATURAL ASSETS



Above: Looming as an income-generating enterprise.



Trenches act as temporary drains to prevent runoff and erosion.

discounts that they pass on to their members. They have started a cooperative to process crops and market produce such as wheat and silk cocoons, and recently launched a crop insurance scheme. While government organizations and banks have been reluctant to take on these tasks because of the high transaction costs of dealing with small farmers, the decentralized structure of the seven *Mahasanghas* in Gauribidanur *taluk* enables them to efficiently handle these exchanges.

Gauribidanur is one of seven field sites in the dry zone of the southern Indian states of Karnataka, Andhra Pradesh, and Tamil Nadu where Outreach is directly involved with organizing villagers. However, Outreach director R. M. Palanna, a retired forester, explains that the field sites are more than a way to help local villagers build sustainable and prosperous livelihoods. They also have a

powerful demonstration effect on other villages in the area and on outside visitors. The mission of this organization is to reach out not only to villagers, but also to governments and NGOs involved in rural development. Small NGOs may be strong on commitment, but sometimes lack the organizational ability to work systematically over the long term with communities. Government organizations are often too bureaucratic and hierarchical to respond sensitively and swiftly to their clients' needs.

As veteran exponents of Participatory Rural Appraisal, the Outreach staff has trained hundreds of rural development workers in the techniques of shared information gathering, analysis, and planning. New entrants into the Indian Administrative Service, students at the University of Agricultural Sciences, and officers of the National Bank for Rural Development are among those who have par-



I am now better off economically, but what is even more important is that I am more aware.

Adinarayan Naik,
a young Banjara farmer

ticipated in Outreach's PRA workshops, often held at its field sites. Villagers also participate in these workshops as PRA experts and resource persons. Through such exercises, Outreach has managed to steadily influence development workers' perceptions of small farmers—to see them as partners and leaders in a collective endeavor, rather than as targets for schemes imposed from above. The field sites act as models, inspiring people to unleash the potential that lies dormant in most of rural India.

To create a forum for sharing experiences and jointly intervening in public policy discussions, Outreach has helped create a network of 32 NGOs in south India. The network allows the organization to pass on its expertise in watershed development to other practitioners. As a leader in the field, Outreach strives to confront new challenges. Its biggest concern at present is to build assets for the poorest of the poor, the landless. While the enhanced productivity of local land-based resources means that local employment has increased and the landless are able to earn more and

save more, they still lack the power to demand more access to productive resources. Outreach staff believe that the poor must demand their rights and entitlements even more vigorously.

The experience of working collectively through the self-help groups and the federations has increased the confidence that villagers feel in dealing with the state and with other powerful actors. "I am now better off economically, but what is even more important is that I am more aware," says Adinarayan Naik, a young Banjara farmer. "I don't stand quietly with folded hands before a government officer. I can look him in the eye because I know that my group is behind me." These are probably the most powerful capacities that Outreach has helped to foster: the awareness of one's rights and the ability to undertake effective collective action for building sustainable livelihoods and landscapes. And these capacities are key to securing and improving land and other natural resource assets on which these communities can depend and build a sustainable livelihood. ☺

Above: Villagers build a bund, or small scale system for rainwater harvesting; left: community dam.



The Xikrin Reclaim Their Forest and Culture

Indigenous peoples in Brazil suffer harsh living conditions and endure a range of human rights violations fueled by racism and economic exploitation. With Brazil's ratification of a new constitution in 1988, numerous indigenous rights organizations and allied support networks joined forces to combat this historical oppression. These entities work to fight racism, protect land and resources, expand economic opportunity, promote political representation, and enhance the ethnic and cultural identity of indigenous

Eastern Amazon, Brazil



Ngrei-Bo Xikrin takes part in Brazil nut gathering.

peoples. Successful mobilization has strengthened federal legislation for greater constitutional protection and led to the official demarcation of over 1 million square kilometers of ancestral territories for sole use by indigenous peoples. With legal rights to these government-owned lands, indigenous societies are moving decisively to define and implement community and economic development strategies.

This case study illustrates a unique partnership between the Kayapó-Xikrin do Cateté (Xikrin), an indigenous people whose homeland lies within a mahogany-rich tract of the Amazon rainforest in the eastern state of Pará, and the *Instituto Socioambiental* (Socio-Environmental Institute, ISA) one of Brazil's most prominent sustainable development and rights NGOs. It describes the evolution of Brazil's pioneer indigenous experiment in sustainable forest management.

The Xikrin

The 700 individuals who today form the Kayapó-Xikrin do Cateté are but a fraction of the people's estimated population at the time of European contact around 1850. Interaction remained sporadic until the 20th century, when disease and violence against the Xikrin increased with European exploitation of forest resources. In 1930, 180 Xikrin were massacred in competition over Brazil nuts; the survivors retreated deeper into the forest. The Xikrin further diminished to only 100 people by the late 1960s. When anthropologists and missionaries moved to defend the community from illness and predatory trade relations, the Xikrin began slowly to recover. In spite of their near annihilation, ISA anthropologist



Coconut-size pods hold many Brazil nuts.

By Mary Witoszynsky

Mary Witoszynsky is a writer who has worked on sustainable development issues in Mexico, Zimbabwe, and Brazil, where she currently resides. In her book, *The Water Harvester*, Zephaniah Phiri describes his lifelong community development work based on resource conservation for family self-reliance among subsistence farmers throughout southern Africa.

Bep-Krokroti Xikrin weaves a palm-fiber basket for women's produce collection.



César Gordon says, “The Xikrin harbor no sense of victimization. They are proud risk-takers and adventurers with a clear vision of their own objectives. The Xikrin like to investigate outside novelties yet are strongly protective of their own cultural traditions.”

In the 1970s, Xikrin mahogany became a target of the commercial logging that was devastating the forest. Each tree toppled to feed market demand for this tropical hardwood took with it scores of surrounding trees and the immense biodiversity they support. Lacking access to the job market, the Xikrin entered a fiscal arrangement with the loggers under which payment would be made according to the number of trees cut. These were precarious earnings, however, as the loggers under-reported the volume of timber taken and paid well under market value.

Forest depredation continued and, in the late 1970s, the Xikrin began to work with indigenous rights advocates (who would later form ISA) to

The Xikrin harbor no sense of victimization. They are proud risk-takers and adventurers with a clear vision of their own objectives. Anthropologist César Gordon

have their 440,000-hectare (1 million acre) territory federally demarcated in order to remove rapacious loggers and protect their patrimony. The protection existed only on paper, however; and the logging, illegal under the terms of demarcation, continued unabated. Also around this time, the *Companhia Vale do Rio Doce* (Rio Doce Valley Company, CVRD), Brazil’s largest mining concern, expanded its Carajás iron ore operation adjacent to Xikrin territory. Under Brazilian law, state companies must compensate indigenous peoples affected by industrial activities. CVRD was required to contribute community support via the *Fundação Nacional do Índio* (National Indigenous Foundation, FUNAI), but these funds seldom reached the Xikrin.

The continuing abuse of the forest posed a growing threat to Xikrin survival. Forward-thinking community leaders therefore moved to develop a framework to halt predatory logging, establish reliable streams of income, secure cultural survival, and replace government paternalism with community self-reliance. In the early 1990s, the Xikrin turned to ISA for assistance in transforming rampant deforestation into a comprehensive community-based forest management plan.

First, ISA helped establish the Bep-Noi Association for the Defense of the Xikrin do Cateté (named in honor of a revered chief) as a mechanism to perpetuate the social, cultural, natural, and economic assets fundamental to a healthy Xikrin lifestyle. Founding the Bep-Noi Association was a masterstroke that “created a legal entity to receive and administer funds that would normally have been channeled through FUNAI or other government bureaucracies,” explains César Gordon. With the move on to expel loggers and reclaim the forest, Bep-Noi took an additional step, co-founder



Right: Chief Bep-Djare Xikrin supervises sustainable logging operations.

Karangré Xikrin says: “Our women suggested we try a management plan. Everyone agreed.”

A plan was structured around four principles:

- *Sustainable use and protection of forest resources*
- *Generation of periodic, continuous communal income based on sustainable extraction*
- *Protection against territorial invasion*
- *Promotion of the plan as a model for sustainable development across the Amazon region*

A New Approach to Forest Use

“When we began this venture,” says Nilto Tatto, ISA executive director and co-founder of Bep-Noi, “few Brazilians knew about sustainable forest management. The Xikrin had a traditional system, but it was no longer viable under contemporary socioeconomic conditions.

Working with the Xikrin, we brought together lawyers, anthropologists, technicians, geographers, and a sustainable forestry manager from Costa Rica. The program began to take shape.”

Challenges arose every step of the way. Foremost among these was the volume of contradictions: between forest predation and forest conservation; between world market demands for indigenous products and the unavailability of financing for indigenous market activity; between indigenous goals for self-reliance and the government legacy of indigenous isolation and paternalism.

A major objective was to add flexibility to laws that permitted only subsistence use of natural resources in indigenous territories. With the massive support of ISA geographers who prepared detailed Geographic Information System (GIS) maps of Xikrin forest



Above: A duo perform a stylized dance at a community celebration.



Body painting is a routine aspect of Xikrin culture.

resources, ISA attorneys helped to set the Brazilian legal precedent for the establishment of indigenous rights to pursue sustainable resource management as a viable economic activity. As ISA attorney Fernando Baptista explains, “We took the legal position that usufruct rights cannot be interpreted against the benefit of the Xikrin. We argued for sustainable use rights to guarantee Xikrin survival.”

In 1996, FUNAI and the *Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis* (Brazilian Institute for Environment and Renewable Natural Resources, IBAMA) authorized the development of a sustainable forest management plan for the Xikrin territory. ISA then assembled a multidisciplinary survey team that included the *Instituto de Manejo e Certificação Florestal e Agrícola* (Institute for Management and Certification of Forestry and Agriculture, IMAFLORA), *Instituto do Homem e Meio Ambiente da Amazônia* (Institute for Man and the Environment in the Amazon, IMAZON), the *Universidade de São Paulo* (University of São Paulo, USP), a Costa Rican forestry engineer, Carlos Montoya, Xikrin experts, and ISA technicians. Xikrin territory was mapped in all aspects: altitude differentials and waterways that signal diverse ecotones; archeological, residential, and farming areas; ceremonial, fishing, and hunting grounds; flora and fauna. Equipped with this detailed socioenvironmental inventory, sustainable harvest potentials were calculated in accordance with Xikrin income requirements. This enabled the team to prescribe harvesting techniques designed to limit collateral damage to biodiversity in the vicinity of each felled tree.

Meanwhile, Bep-Noi and ISA administrators developed a business plan to raise overall program support funds. This involved intense, lengthy negotiations with a

variety of organizations such as FUNAI, the World Bank, and CVRD. Today CVRD is a private mining company no longer under government obligation to compensate the Xikrin, but it continues its funding and remains an active partner in this groundbreaking sustainable development program.

Approved in 1999, the Xikrin plan was the first sustainable forest management program developed by indigenous people in Brazil. Under the plan, a parcel of 44,000 hectares (100,000 acres), one-tenth of Xikrin territory, is designated for sustainable resource extraction and further subdivided into 30 units of approximately 1,400 hectares each. Based on survey data, Xikrin forest recovery capacities were determined to require 30 years for full regeneration. The plan thus calls for each subunit to be harvested once during a rotating 30-year period. Subunit #1 was first harvested in 2000 and will be left untouched until 2030, with all additional subunits harvested in yearly succession.

When fully operational, the plan allows for a sustaining annual harvest of 7,000 cubic meters of wood. Income from the sale of each harvest is distributed to community members by Bep-Noi in accordance with Xikrin tradition. “With our management plan,” says Chief BepKaroti Xikrin, “we can sit down and discuss which trees to cut. It’s not like with the lumber companies that constantly kept us running here and there. With our project, we move carefully; that’s how work should be done.”

In spite of achieving these milestones, market access remains problematic. A Dutch timber merchant contracted to purchase the first sustainable mahogany harvest, but bureaucratic funding and permitting delays caused the deal to fall through. Meanwhile, Xikrin leaders aimed to secure the long-term income stream required by a

Approved in 1999, the Xikrin plan was the first sustainable forest management program developed by indigenous people in Brazil.



Naming rituals chart the lives of all Xikrin.

community recovering from devastating depopulation, while remaining within planned harvest limits. Bep-Noi directors correctly reasoned that timber certification authorized by the Forest Stewardship Council (FSC) would command higher market prices. The FSC, an international nonprofit organization, sets standards to which forest stewards must adhere in order to receive certification of sustainable forest management, which gives their products special standing in consumer markets. IMAFLORA, the Brazilian organization that certifies sustainable forest management practices, was invited to evaluate the Xikrin forest management plan in 2000. Although the plan fulfilled fundamental FSC requirements for sustainable harvests and respect for local cultural integrity, there was yet another hurdle: the Xikrin needed financing sufficient to cover all forest management operations for three years in advance.

Financial support from the CVRD, the Ford Foundation, the Norwegian Program for Indigenous Peoples, the Brazilian Environment Ministry, and the G7 Pilot Program for the Brazilian Tropical Forest enabled

the Xikrin to schedule a follow-up IMAFLORA evaluation in mid-2002 that is expected to bear fruit. FSC certification is so all-encompassing that it will apply not only to timber, but to all potential forest products – palm hearts, honey, essential oils, medicinal plants – that may be developed in accordance with the Xikrin management plan.

Without highly restrictive logging permits based on sustainable extraction, Brazil's depleted mahogany reserves are currently off limits to commercial harvest. The Xikrin possess the first of only two such government licenses. However, another aim of the forest management plan is to diversify harvested species. This reduces survival pressure on favorites such as mahogany and cedar and allows them to regenerate. Meanwhile, the Xikrin can still supply market demands with alternative species. The Xikrin harvest inventory places priority on 20 trees with uses that range from civil and marine construction to flooring, plywood, furniture and toys.

A major partner in the commercialization of Xikrin timber is Brumila Norte, which mills, dries, and pack-

Another aim of the forest management plan is to diversify harvested species.



The Xikrin celebrate their first harvest.

ages the wood for shipment. Florivaldo Vieira Souza, a Brumila executive, believes that “the Xikrin management plan should be extended to other indigenous areas.” He adds that “there is nothing to keep these principles from being applied to non indigenous areas. Such programs can make it possible to have a supply of raw materials in one region for perpetuity. It can prevent the industry from engaging in nomadic exploitation.”

Illicit logging is an ongoing concern due to the sheer magnitude of the Xikrin undertaking and to the weakness of government protection. Prohibitive security costs make it impossible to monitor a half-million hectares of wilderness, and Xikrin inspections routinely reveal trees tagged for cutting by clandestine operators who will likely never be brought to justice. Another obstacle is the lack of cost-effective transport; the current road to the sawmill is impassable during the rainy season. An improved route now under construction will help cut costs by delivering the wood to another mill 100 kilometers closer to the community.

In 2000, the harvesting and business plans at long last came together and the Xikrin earned the distinction of being the first indigenous community in Brazil to write a successful chapter in the chronicle of sustainable forest management. The first low-impact harvest of 580

cubic meters of tropical hardwoods netted the Xikrin R\$89,000 (about US\$45,000).

But what to do with the money? Celebrate! In October 2000, members of the two Xikrin villages of Pukatingró and Djudê-kô gathered together the many partners in this monumental struggle to commemorate their joint success with a celebration of thanksgiving. Guests of honor included an array of ISA staff members, federal environment minister José Sarney Filho, justice minister José Gregori, FUNAI president Glênio Alvarez, IBAMA president Marília Marreco, CVRD executives, and journalists from around the country.

In his address to this august assemblage, Chief BepKaroti Xikrin said, “My people are now very happy. Our lives will improve and we will teach the young what we are learning.” As a flat-bed truck groaned under the tonnage of sustainably harvested logs, dozens of Xikrin in full traditional regalia – warriors and wives, elders and youngsters – danced and chanted around the vehicle before sending it on its historic journey down the remote dirt road to the global marketplace. As justice minister Gregori joined the dance, warrior Wakonti Xikrin was overheard to say that, “I believe this project will go on because both the white people and the Xikrin are happy.” 🌀

**My people are
now very happy.
Our lives will
improve and we
will teach the
young what
we are learning.**

Chief BepKaroti Xikrin



Community Marine Sanctuaries Restore Natural Assets

Only a few meters from the shore of Balayan Bay, in just five meters of water, a snorkeler can feel lost, becoming enveloped instantly in a seemingly endless school of silver jackfish moving like a single organism. Anyone familiar with these *talakitok* would feel disoriented for another reason. As pelagic fish, jacks are known to range freely in the sea, mostly in deep water. What is this particular school doing around a single shallow reef in the Philippines?

Balayan Bay, Philippines

“They know they have food here, and won’t become food themselves,” explains dive instructor and marine conservationist Chen

Mencias. “Here” is the most popular marine sanctuary in heavily fished Balayan Bay, several hours south of Manila by land. Like the three other legally declared sanctuaries in the bay, this refuge is in front of a resort for divers. These protected ocean spaces close to the coast are off limits to fishing, but not diving. Fish that venture outside the clearly marked sanctuary boundaries are fair game for the several thousand fisher folk who live along the bay’s shores.



The home of the 2,000-strong school of jackfish is a small cove with a breathtaking array of sea life. Just last year, divers here saw a manta ray and a whale shark, the largest and perhaps gentlest shark on the planet. As filter feeders that feast on plankton, both creatures were further proof that the ecosystem here has an unusual concentration of food. With the recent sighting of a black-tip shark, a predator, the entire food chain (sans humans) is now represented at the Dive and Trek Reef Sanctuary, named after the resort that maintains it. Just seven years ago, divers recall, this same place contained hardly any fish. Then it was declared a sanctuary by municipal ordinance.

Marine scientists are puzzled about why this rich biological diversity can be found in such a tiny place. Legal protection from fishing does not adequately explain why the jacks prefer to stay or why filter feeders visit so close to shore. One clue, though, is provided by several dozen giant clams that were seeded in shallow depths here as an experiment by recreational divers for the last five years. These clams, the endangered *Tridacna gigas*, were originally cultured for food, but were then transplanted to the sanctu-

By Howie Severino

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Village members meet to discuss sanctuary plans.

ary for conservation purposes. They happen to spawn by the millions, providing food for many other species. Thus, a marine sanctuary protected by law enabled an experiment in clam conservation – and the safe habitat for clams became a magnet for other sea life. As a result, the Dive and Trek Sanctuary is now a model that could revitalize fishing grounds elsewhere in this archipelago of 7,000 islands. Meanwhile, the Marine Ecosystem Council, an NGO that promotes marine protection, advocates giant clam seeding as a marine enhancement technique for other places, not just dive spots.

A recent survey of reefs in Balayan Bay showed that the four sanctuaries had higher fish density and species richness than any of the eight non-sanctuary survey sites.

Out of a Philippine population of 80 million, the roughly 25 million fisher folk are among the poorest of the poor; they depend on marine resources for family incomes and protein. So anything done to improve their livelihoods and diets alleviates poverty. Marine sanctuaries permit the restoration of natural resources and ecosystem viability that can create widespread benefits, for both luxury resorts and subsistence communities.

The success of sanctuaries in Balayan Bay has been a boon for the local economy. Scores of traditional fishermen have become boatmen for dive operators, which reduced pressure on the marine resources. “Divers give us a reason to protect the reef,” says Ronnie de Castro, a local boatman who has been able to send all eight of his children to school from his earnings in the diving business.

Before diving began to thrive here in the 1990s, fishing featured a no-holds-barred approach, with little notion of

Divers give us a reason to protect the reef.

Local boatman, Ronnie de Castro

preserving the resource for the future. Dynamite and cyanide were common fishing methods. Underwater, the destruction in some places is still evident.

As resorts here have flourished and appealed even to non-diver visitors, they have created other tourism-related jobs. But the resorts cannot employ everybody. Many of those who remain traditional fishermen have seethed with resentment. “Our fishing grounds bring tourists joy, but we gain nothing,” says Gaudencio Mendoza, a community leader in Barangay Santo Tomas, a village on Maricaban Island in the bay.

Unlike traditional community-initiated marine sanctuaries elsewhere in the Philippines, tourist resorts were involved in creating and maintaining the sanctuaries in Balayan Bay. They then lobbied the local government to legally recognize the preserves. The sanctuaries provoked opposition from local fishing communities because they were perceived as a means to carve out space in the sea for tourists where fisher folk were banned. Indeed, the four legally declared marine sanctuaries in Balayan Bay are well-known havens for divers, while they are off limits to fishers. In three of the sanctuaries, the municipal ordinance that created them banned diving as well, but that activity is generally tolerated. Meanwhile, the ban on fishing is nearly always enforced.

The resort operators who helped to start the most successful of the sanctuaries did not establish a dialogue with nearby fishing communities or consider their role and the effect on their livelihoods, according to Chen Mencias, the marine conservationist and dive instructor. “There was no consultation with other users,” she says. “Fishermen complained that the resorts wanted to own the ocean.”

Left: Gaudencio Mendoza, leader of a community organization that proposed creation of the sanctuary to the village governing council; right: local leaders display their fishing nets.



The original intent of the sanctuary approach to conservation – to help rehabilitate fishing grounds – seems to have got lost in the resentment. However, people in the fishing village of Santo Tomas in the island municipality of Tingloy are bent on changing that. They are on their way to establishing their own *community*-initiated marine sanctuary in Balayan Bay – at Pulang Buli, a well-known dive spot that local residents call Batalang Bato.

This is quite a change for Santo Tomas. For years, this community of about 1,800 watched dive boats weigh anchor just off their shore so divers could explore Pulang Buli, where extraordinary colors are created by abundant soft coral cover and schools of fish called anthias. None of the residents were employed in tourism, but they had fished in the same reef for generations—until the last two years. “We hardly have any catch,” says Urbano Umali, as he stands in front of his home repairing a net. “The tuna that used to be abundant are now rare.” Other fishermen here lament that they would fish all day and come home with only a kilo

of fish. To catch anything these days, residents say, they have to travel long distances.

For years, villagers in Santo Tomas and neighboring communities used dynamite as a fishing method; they often threw the homemade explosives from shore, that’s how rich their home fishing grounds were. Some of the men also squirted cyanide into the reef to catch aquarium fish alive. Sold live, they fetched a higher price than food fish. The cost of this long abuse of the sea is now being painfully felt.

Despite their desperation, or perhaps because of it, community leaders speak today as if they have undergone a spiritual conversion. “We are all experiencing extreme hardship, so we have to act for our grandchildren,” says Gaudencio Mendoza, head of a community organization called *Samahan Tungo sa Kaunlaran ng Santo Tomas* (Group For the Progress of Santo Tomas), which proposed creation of the sanctuary to the village governing council. Within this year, the councilors are expected to enact a municipal ordinance making the sanctuary official and binding. Meanwhile,

The fish know they have food here and won’t become food themselves.

Chen Mencias, conservationist

residents have eliminated all illegal practices. Men here also volunteer to serve on the community sea patrols that apprehend large boats that use banned methods or enter municipal waters. (Under Philippine law, commercial fishing boats are prohibited from plying seas within 15 kilometers of the shoreline, unless medium-sized boats are expressly allowed by local ordinance.)

Unlike other sanctuaries in the bay, the refuge at Pulang Bay will enforce a ban on diving as well as fishing. "Careless divers destroy coral and disturb the breeding grounds of fish," Mendoza explains.

"Pulang Buli is clearly overfished," according to a 2001 reef survey report on Balayan Bay by the Coastal Conservation and Education Foundation. "A scheme for relieving fishing pressure on this reef would

enhance total fish catch on the reef and the adjacent shoreline." Batalang Bato is a recognizable landmark in the sea, a wide and jagged rock protruding from the surface. Plastic buoys will soon be anchored to mark the 30,000 square meter sanctuary around it.

Already, even without a municipal ordinance creating a legal mantle for the sanctuary, Santo Tomas residents are trying to put it into effect. "We don't even do spear fishing there anymore," swears Mendoza. "But we had to discuss this sanctuary with each household."

If anyone will pose a serious challenge to Santo Tomas's sanctuary, it probably will not be the resorts but the adjoining village of Talahib, which has lodged a written protest against their neighbor's project. "They think

we will fence off the sanctuary and own all the fish inside," says Pedro Enriquez with the amused incredulity of the recently enlightened. "We keep telling them the fish will go in and out, and you can still catch any fish once it leaves the sanctuary. But we need to set aside a place where they can breed."

Santo Tomas leaders hope a series of public hearings and meetings will clear up any misunderstandings. Then the municipality can adopt the ordinance that will formalize the sanctuary.

As with other fishing communities, Santo Tomas residents had previously entertained the notion that marine sanctuaries were conspiracies to discriminate against impoverished fisher folk. They didn't change their attitude overnight. If people here underwent a form of spiritual conversion, a community organizer named Danny Ocampo could be credited as being the environmental missionary. "He convinced us we should do this for our future," says Urbano Umali, who is a village councilor and fisherman.

Ocampo has been living here for two years, first doing marine research for an NGO called Sulu Fund for Marine Conservation (now the Coastal Conservation and Education Foundation), then organizing the community for marine protection. Like many professional organizers, Ocampo is careful to credit the local residents. "The idea for the sanctuary came from them," he stresses.

All the local leaders interviewed in the village speak of Danny with the kind of respect accorded someone who succeeded only after paying his dues. "We gave him a hard time before we believed what he was saying," says Mendoza.

"In the beginning, some people here were saying, 'Why did you let him stay here? We're all going to lose

If people here underwent a form of spiritual conversion, a community organizer named Danny Ocampo could be credited as being the environmental missionary.



Community education on the benefits of establishing a sanctuary.



Sunset on Balayan Bay.

our livelihood,” recalled Pedro Enriquez, the village chief.

Ocampo credits a field trip he organized for opening the community’s eyes. He took a small cross section of Santo Tomas – three fishermen, three women, and a youth leader – to the island of San Salvador in the province of Zambales to visit a long-established sanctuary organized by another fishing community. There they had a chance to interact with a highly respected community leader named Tyo Andoy.

“They all remembered what Tyo Andoy told them,” Ocampo says. “What would you rather have – a vast ocean where nothing is prohibited and you catch nothing, or a small part of it where you can’t fish, but you know there will be plenty of fish elsewhere?” The visitors from Santo Tomas also learned how the San Salvador community’s fish catch had grown as residents enforced the sanctuary rules.

Echoing Tyo Andoy’s words to their neighbors like a mantra, the Santo Tomas delegation convinced their own community about the benefits of establishing a sanctuary.

Success in Batalang Bato could have the same replicating effect on other communities as the San Salvador

sanctuary had on the residents of Santo Tomas. This could be crucial in the Philippines, an island country with rapid population growth, where positive examples of the use of marine resources are in short supply. Across over 7,000 islands, more than 400 sanctuaries have been declared, but only 15 percent are properly enforced, according to the environmental organization Haribon Foundation.

Marine sanctuaries are one conservation measure whose benefits can spread far beyond the project area, as fish and corals are able to reproduce undisturbed and replenish the rest of the reef. For what a community invests in setting up a sanctuary, the ecological and economic returns are potentially enormous. In Balayan Bay, where both fishers and resort operators have realized the value of sanctuaries, enforcement of marine protection has become a community responsibility, with little involvement by government enforcers. These sanctuaries have become more than havens for sea life. They are also refuges for a community’s hopes, where people can stake a claim on behalf of succeeding generations as well as their own. 🌊

When a community invests in setting up a sanctuary, the ecological and economic returns are potentially enormous.



Post-War Villages Rebuild Social Bonds and Natural Assets

A decade has passed since the brutal civil war ended in El Salvador. The roots of the conflict – social and economic exclusion of the majority population – still plague this small and densely populated country. However, the 1992 Salvadoran Peace Accords provided new spaces for participation and collective action by the poor and expanded forms of land redistribution initiated in the early 1980s. This

Bajo Lempa and Chalatenango, El Salvador



combination of programs, focused on social and natural assets, has spurred some promising results and lessons for sustainable development in rural communities.

In 1992 Arnoldo Garcia arrived in the lower coastal region of El Salvador, where the Lempa River empties into the Pacific Ocean from its headwaters in Honduras, Guatemala, and El Salvador. This region has been visited by one disaster after another for decades: prolonged civil war, Hurricane Mitch, periodic floods, the earthquakes of 2001, and environmental abuse by the handful of landowners who controlled most of the area. Few individuals and communities escaped this adversity. Yet, in this post-war context, the strength of community empowerment is helping to renew the land and economy.

A disabling wound had prevented Garcia from continuing as a combatant in the war, and he had been exiled in several countries until the Peace Agreements allowed him to return, though he did not return to his native area. Instead he moved to the Lower Lempa, a large delta region with once-fertile soils. Large sugarcane, cotton, and livestock plantations, controlled by 10 owners, had long dominated the landscape. Few services were available in the small communities and there were no passable roads, recalls Garcia, now a community leader. The majority of the residents were illiterate. The water table had been contaminated by agrochemicals. The people were dispirited; the terms of the Peace Agreements meant that bitter enemies would be living side by side. “After so many years of war, there were doubts, uncertainty, fear, even resistance,” Garcia says.

There was also an immense desire for change. “People felt they deserved better, after so much suffer-

By Wim Gijsbers

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Yet, in this post-war context, the strength of community empowerment is helping to renew the land and economy.

ing,” says Miguel Ángel Lasfuentes, an advisor with the *Fundación para la Cooperación y Desarrollo Comunal de El Salvador* (Cooperation and Community Development of El Salvador, CORDES), a Salvadoran NGO. “But at the same time we had to show that only we can remake our life for ourselves. Fortunately most of us were aware of that.”

Today, 1,800 families occupy the zone, spread out across 17 small villages. Nearly all of them grew up elsewhere, but as beneficiaries of the Land Transfer Program mandated by the Peace Accords, they received a plot here. They created a new process, the *sistema económico y social* (economic and social system, SES) to rebuild their lives, promoting “integrated development” of the land, community, and economy in a way that is unparalleled in El Salvador. The communities defined the region’s development course. From the beginning, the need to stimulate agricultural productivity was clear. The SES’s strategies emphasized organic production of crops, a sales relationship with the Fair Trade market (a socially responsible international wholesale system), diversification of the economy, and democratic decision-making. People used a mix of organizational forms to advance their strategies: cooperative, family, and individual production units.

Garcia, now the elected president of the SES, notes that its impact in the region is obvious. “Eight years ago there were no fruit trees in the yards, now there are many. We are improving both the ecosystems and basic services.” In addition to restoring the condition of natural assets, the SES has helped to build social and human assets in the villages. “Instead of having only two or three persons involved in this process, all the communities of the SES are participating,” he points out. “We lack resources, but we feel strong because of the flow of lead-



ership that we have managed in the communities. We have schools in almost all the Lower Lempa communities, including middle schools and even a high school. Illiteracy in this region has dropped from 60 percent to 23 percent.”

An important indicator of success is what is not happening: few of the youth in the region are leaving to seek economic opportunities elsewhere. This is a rarity in El

A boy born after the civil war beside an old bomb fragment now used as the village bell.



This plaque commemorates school construction.

We had to show that only we can remake our life

for ourselves. Fortunately most of us were aware of that. Miguel Ángel Lasfuentes

Salvador's rural areas, which are losing their youth to emigration, especially to the United States. While other rural villages depend heavily on financial support sent back by their emigrants, the families of Lower Lempa rely almost entirely on their own economic activities.

Nuts Sustain the New Life

The Lower Lempa area is still polluted. This was evident after Hurricane Mitch in 1995, when residual chemical fertilizers ascended with water from the saturated ground. In addition, the Lempa River carries garbage from Honduras and picks up sewage from San Salvador, the nation's capital. However, the condition of the soil has improved significantly, thanks to the use of organic production methods. The basis of the new agricultural development is the cashew nut, which was being cultivated in the town of Monte Cristo, on an island at the mouth of the Lempa, long before the war. The families that arrived there after the war found the cashew fruit trees abandoned but in good condition. Now there are 160 producers in the area, on the island and mainland. They also own a processing plant that employs 68 people, a number that could triple with larger production. The nut is certified as organic, and it is sold in the Fair Trade market in England, United States, and Belgium.

Fredi López is a cashew grower in Monte Cristo and president of the processing plant. "A Dutchman sowed the cashew here in the '60s, but during the war he left," López says. "Before the war, we cultivated corn, beans, sesame seeds, and rice. But these products never fetched as much as the cashew, which has a good price." Growers can also use the fleshy "false fruit" that is attached to the nut, López says. "We began to gather the seed collectively, while CORDES advised us regarding the organic fer-

tilizers and the control of pest infestations."

The cashew seasonal production (of four months) generates 1,400 sacks of 100 pounds each. The *Sistema Agroindustrial de Marañón Orgánico* (Agroindustrial System for Organic Cashews, SAMO), the processing plant, buys them at 200 colones (about US\$23) per sack. The growers don't take advantage of the false fruit yet, but they are experimenting with it, preparing jelly, marmalade, raisins, wine, and honey. "Almost everybody sells directly to SAMO, in order to exclude the middlemen," López says. "As a producer, I am a source of employment for others. We all serve each other." Access to the Fair Trade market has been important, he says. "In El Salvador nobody cares whether our cashew is organic or conventional. Fortunately we know a market that does care. We are also producing organic sugar, for which interest exists in Spain, and organic milk. We take the environment into account as a part of our productive life. Moreover, all the families have a latrine, where we separate the excrement from the urine, to use as fertilizer. The vegetables are the only product which we still can't grow without chemicals."

Common Property Management and Environmental Services

While communities in the Lower Lempa have created an integrated development initiative, in the mountains of Chalatenango Department along the border with Honduras, another development process is under way. Even though this region suffers from accelerated environmental degradation, grassroots organizations have come together and opened new avenues for building community livelihoods while ensuring the stewardship of natural resources.



Above: cashew trees;
right: cashew nut and
the “false fruit.”



Chalatenango has a long history of marginalization. Massacres by the army there met with peasant rebellion. It was the scene of a large exodus of refugees, but also of well-organized displaced people who remained. After the Peace Accords, the area continued to be excluded from the mainstream development programs that favored investment in urban areas. In this context of marginalization, strategic alliances have arisen without precedent in the province. Most of these have come together in the Environmental Committee of Chalatenango (CACH), which includes groups that had been declared enemies, such as the soldiers in the local army detachment and excombatants of the FMLN, the opposition force during the civil war.

This pattern of coalition building is repeated in sub-regions of the province, such as in La Montaña, where the first formally legal association of municipalities in the country, outside of the metropolitan area of San Salvador, was established. Seven municipalities are members of the association, including mayors elected from both major

opposing political parties—four from ARENA (the ruling party) and three with FMLN, now an opposition party. ARENA’s Israel Antonio López, the mayor of La Laguna, explains: “We have left our political banners aside. A large part of the mountain forests has been destroyed already, so please let’s stop cutting trees. I don’t understand much about the environment, but we are living in it and if we don’t take care of it, it can make us poor. So, we are trying to organize a process of territorial planning.”

The forested mountains in the center of this zone are strategically important for the provision of water to a significant part of the nation. The 15 streams within these forests nourish five important rivers; four of these discharge into the Cerrón Grande hydroelectric dam reservoir, the most important source of electricity for the country. The massif also has potential for ecohistoric tourism, for many sites within the mountains bear witness to the civil war. Moreover, ownership of the mountaintop was redistributed to excombatants as a result of the Land Transfer Program established through the Peace Accords.

The condition of the soil has improved significantly, thanks to the use of organic production methods.



Mountain top in Chalatenango;
right: preparing for eco-
tourism in Monte Cristo.



Excombatants who received mountaintop land have grouped together in the Committee of Land Reform Beneficiaries of La Montaña (CORBELAM).

The most important negotiation of the Municipal Association with the national government has been for construction of a road to connect the seven municipalities to each other. This will enhance communication, services, and economic exchange among the communities and should give the communities' 50,000 residents better access to one another and to markets. CORBELAM has declared the summit of the mountain, which has a rare dense forest, a protected area. The area is watched over by a small hamlet at 1,650 meters (5,000 feet) above sea level, also named La Montaña, founded here after the war. Because of the traditional practice of burning farmlands before the planting season, protecting the forest is not easy. These fires annually destroy hundreds of trees in this area alone. People in the community are aware of their important role as "forest managers," but for the time being this voluntary work does not produce any revenue. Of the 35 families that settled down here after the war, only 14 remain;

almost all the youth have left for the United States.

In this context, the community – together with CORBELAM and CACH – has begun to promote ecotourism in the area, as well as the concept of payments for environmental services (especially water provision and scenic beauty) that could compensate their families for forest conservation. The national government, supported by the World Bank and the Global Environment Facility (GEF), has shown interest in pursuing the proposal.

The emerging situation in Chalatenango could set an important precedent in El Salvador, says Roberto Aguilar of CACH. "With the environmental services, we want to give a regional vocation to this area, mainly for the conservation of water resources. The seven municipalities are turning to an alternative development scheme, based on preservation of the environment. If they don't do it, there will be no water in the near future."

According to the nongovernmental research institute PRISMA (Salvadoran Program for Research on Environment and Development), the existence of new institutional arrangements for environmental management based on a consensus building and participatory

**Pumping water for
cattle trough.**



model is the most notable aspect of what these communities are developing in Chalatenango. This model integrates local organizations with a subregional and wider departmental structure through a departmental environmental management plan led by CACH. It has spurred innovative processes of environmental and social management, from new agricultural practices on hillsides to innovative strategies to generate income while managing common natural resources, such as the promotion of ecotourism by the La Montaña community, the association of land reform beneficiaries (CORBELAM), the Municipal Association of La Montaña, and CACH. These are significant efforts to construct a new model of democratic sustainable development.

Comparing the very different situations of Bajo Lempa and Chalatenango, PRISMA notes in an unpublished report: "In Bajo Lempa, the natural asset – the land – has much greater potential for agricultural production than in La Montaña where the levels of degradation, the quality of the soils, and the steep hill-

sides make agricultural production – on its own without an added value of environmental services – unprofitable. In Bajo Lempa, social capital was of vital importance for building community participation and access into European alternative markets, while the conditions of the land allow for a much faster development in the short term. In contrast, in La Montaña, building on the natural asset will unavoidably require a longer process before improving rural livelihoods. A large part of the strategy behind initiating payments for environmental services is to revalorize rural spaces and recognize their key role for sustainable national development."

The main lesson from these post-war experiences, according to PRISMA, is that poverty alleviation and environmental restoration can mutually reinforce each other, but that there are some important prerequisites: expanding access to land, strong social capital formation and accumulation, and a positive policy environment and investments that permit communities to realize the full potential of these natural and social assets. 🌱

The seven municipalities are turning to an alternative development scheme, based on preservation of the environment. If they don't do it, there will be no water in the near future.

Roberto Aguilar

The Displaced Makulekes Recover Community Land and Wildlife Assets



Land and wildlife are assets critical to the livelihoods of millions of South Africans. Under apartheid, black people were often removed forcibly from the lands capable of generating the greatest wealth and resettled in lands that left them impoverished. This is the story of the Makuleke community, which sought and obtained the return of its ancestral lands under the post-1994 land restitution program in South Africa and is now building those assets into sources of sustainable livelihoods for its members.

Limpopo Province, South Africa



The success of the Makuleke land claim in 1998, which resulted in the restitution of ownership of land that lies within South Africa's Kruger National Park (KNP), was a landmark case that fundamentally challenged previous notions of conservation. Under apartheid, nature conservation areas were reserved for white South Africans through the forced removals of black people from their ancestral lands. Since South Africa's transition to democracy, attempts have been made to redefine conservation to correct the wrongs of the past.

The successful land claim and the subsequent land-use plan, in the form of a "contractual park," owned by the Makuleke and jointly managed by them with the South African National Parks (SANParks), is groundbreaking because it marries concepts previously considered antithetical – conservation and community development. These developments are explored below, largely on the basis of interviews with Makuleke people.

The Land and the Community

Before its removal, the Makuleke community occupied 26,500 hectares (63,000 acres) of land in Limpopo Province, of which 4,500 hectares were in the western section of the Madimbo Corridor known as Mabiligwe, and 22,000 hectares in the Pafuri district inside Kruger National Park.¹ The biological diversity of the Pafuri section of the park is important because it has tuberculosis-free buffalo and lions, as well as an assemblage of wetland species along the Limpopo River system. Prior to the removals, the

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Landscape of the Makuleke region of the Kruger National Park; opposite page: a gate officer of the Kruger National Park.

Makuleke community had established an independent political, social, and economic lifestyle. Also, owing to the wealth of natural resources in the area, it was self-sufficient in food.

In 1969 the Makulekes were forcibly removed to an area called Ntlaveni, close to the western portion of the KNP and south of the road that leads to the Punda Maria gate entrance into the KNP in Limpopo Province. The removal reduced them to poverty and dependency on cheap wage labor in industrial Johannesburg.

Present day Makuleke consists of three villages, with a total population of approximately 10,000. Most of the men work in Johannesburg. A few of the women work as domestic workers in nearby towns; this is limited, however, by their own household responsibilities. Some families are very poor and have no cash income; an average family of 7 to 10 people survives on the pension

of an elder in the family, which is valued at just ZAR 620 per month (about US\$60). The area has four primary schools and one high school. Transport is limited to taxis that do not service all the villages due to poor roads. Few people have cars, and shopping is done in nearby villages and towns.

Building Community Programs and Facilities

The Makuleke community members were understandably antagonized by the human rights violations during their forced removal. But these feelings appear to be subsiding as a result of the success of their land claim and because, since restitution, they have established a number of projects intended to build material and nonmaterial assets in the community. However, these projects face many challenges, including securing funding for equipment and materials, building the necessary institutions,

It is an empowering educational tool, as Makuleke youth learn about the scientific aspects of managing conservation.



Two trained Makuleke game guards using a Cybertracker.

developing management skills, and marketing products and services. Although many of the projects are still in their infancy and it is difficult to quantify their benefits and the number of people involved, some assessment has been attempted.

Training projects are the oldest and have shown some successful results thus far. The community started a training program in 1996 to develop skills among the youth so that they could eventually take over the management of the land returned to the community. In conjunction with a branch of Technikon South Africa, the nation's network of technical colleges, the community training center offers business management, tourism, and conservation training to some 26 students.

Students have been trained to use a "Cybertracker," a device that tracks and collects data on animals. The Cybertracker is also an antipoaching aid because its global positioning system detects the movements of intruders into an area. It is an empowering educational tool, as Makuleke youth learn about the scientific aspects of managing conservation. Other students are being trained in the management of bed and breakfast accommodations at the South African College of Tourism. The trained youth will fill positions in a luxury lodge project that has been planned.

A job creation project that has been successful is the Working for Water Project in the Makuleke region of the Kruger National Park. It is a national Department of Water Affairs and Forestry project and includes a hugely successful invasive vegetation control and social development program. It employs 33 people in the Makuleke portions of KNP who earn ZAR 30 (US\$3) per day. Other projects that have yet to be tested involve tourism development in that region of the park.

In 1998 the Makulekes had their ancestral land restored to them; they own a substantial section of the park. The contractual park agreement between the Makuleke and the SANParks granted the community the right to co-manage (with the Kruger National Park) and commercialize their portion of the park for their own benefit. In 2001 a Communal Property Association (CPA), the legal entity to which the reclaimed land was handed, finalized a concession to a Johannesburg-based company—Matswani Safaris—to construct and manage a luxury lodge in the park. Although construction started in April 2002, the development of a landing strip and some other infrastructure is still pending approval of the Joint Management Board (JMB), the managing body of the contractual park, which consists of the CPA and representatives of the KNP park management.

The total value of the lodge that is presently under construction is between ZAR 10 and 15 million (US\$1 million to \$1.5 million). A key result of this development of business assets is job creation. It will also generate income for the community from several fees: a lease fee for the site of the lodge, as yet undetermined; 8 percent of gross earnings of the lodge concession; and a fee for traversing the land in game drives. In addition, 2 percent of gross earnings go to a social development fund that is earmarked for education of Makuleke youth.

Hunting Revenues

A trophy-hunting project has also contributed positively to livelihoods in Makuleke. The Makuleke region of the KNP is a contractual park where hunting is allowed. The trophy-hunting project started in 2000 when the CPA gave a renewable contract to a local professional hunting company, Wayne Wagner Safaris. The quota for hunting



Left: a Makuleke craftsman; right: mothers of children that attend the primary school clearing a project area of bush.

was determined in a general meeting of the community and reviewed by the JMB. In 2001, the hunting of a small number of impala, zebra, buffalo, and elephant was allowed. After some negotiation, the hunting of eland and nyala was also permitted.

The trophy-hunting project affords the Makulekes a tangible material benefit that is enjoyed by the *entire* community, in that the “venison” acquired from a hunt (meat of legally slain wildlife) is equally distributed to every household. However, some Makuleke are of the opinion that these community wide benefits are not substantial enough.

The income generated by this project in 2000 was used to purchase a much needed car for Chief P. J. Makuleke. Previously, the chief had to rely on borrowing the cars of others. The fact that the chief owns a car is a manifestation of asset building that the community is proud of. The income for 2001 was spent on partial completion of a cultural interpretation center (discussed below); on operating costs of the CPA office, and on the purchase of a motor vehicle for the use of the Executive Committee of the CPA. The total estimated value of the trophy-hunting

quota for 2002 is approximately ZAR 1.8 million (about US\$180,000).

Thirty-six community members were initially employed in the construction of a multipurpose cultural interpretation center that, when completed, will be used as bed-and-breakfast accommodation for tourists, for community gatherings such as cultural festivals, and for other catering purposes. It was funded by a grant from the national Department of Public Works (DPW). Skilled laborers on the project earned ZAR 50 (US\$5) per day and unskilled laborers earned ZAR 30 per day. Government funds proved to be insufficient, because the Makuleke had submitted a proposal that underestimated the costs. Despite injections of revenue from income generated by other projects, the building remains incomplete. The Makuleke are submitting new business plans to the DPW for additional funding.

A women’s facilitation group project started in 1998 but has not enjoyed much success. It was meant to address the gender imbalance in the community. Women were encouraged to function as active community members and participate in decision-making and in the man-

The role of individual community leaders was critical; they were visionary, competent, and hard working.



Far left: senior builder who supervised community projects; left: a resident rehearses for employment at the cultural center.

An undisputed achievement of the Makulekes is the lessons they learned during the land claims and land-use planning processes.

agement of the Makuleke portion of the KNP. However, the funding cycle is over and although attempts are being made to secure other funding, nothing concrete has emerged as yet. Similarly, a cultural entertainment project trained the youth in activities such as drama, choral singing, and traditional music; but these skills have been used only on an ad hoc basis, and accessing start-up funds has been a problem.

It is clear that the projects have had varying degrees of success. However, an undisputed achievement of the Makulekes is the lessons they learned during the land claims and land-use planning processes.

Negotiation Skills as Crucial Resource

Throughout the land claim and development planning processes, the community's biggest nonmaterial resource was its ability to face intra-community and extra-community conflict. This helped to change and shape the community's governance structures and practices from traditional to modern institutions with clear rules and regulations. The role of individual community

leaders was critical; they were visionary, competent, and hard working. Ultimately it was the creation of appropriate institutions and the dedication of Makuleke leadership that allowed the community to successfully deal with conflict, ensuring the success of its land claim.² There were four key individuals in the community's leadership structures: Chief P. J. Makuleke, Livingstone Makulele, Lamson Makulele, and Gibson Makulele. They were always present during decision-making processes. They also drew in secondary leaders that included women, youth, and people in civic organizations. This created a flexible leadership system, which still functioned if an individual was replaced. This extended participation, combined with the assistance of the Friends of Makuleke (FOM), a group of supportive professionals, facilitated effective problem solving.³

Four consultants form the FOM, and they were key to helping the community to manage the external pressures that it faced. They provided the community the skills and resources to enable it to lodge the land claim and subsequently to implement development plans and

Work scene from the construction site of the luxury lodge; far right: Makuleke students studying at the training center.



projects.⁴ They are still active in Makuleke community development.

Negotiation is a significant community that is used in development planning processes. This ability to adapt, negotiate, and resolve conflict developed during the land claims process. As observed by Gibson Makulele, “Although people have differences, they have learnt to negotiate in (the JMB meetings),” and this is evident in fundraising for capital, training, empowerment, and job creation. Development of both the luxury lodge and trophy-hunting projects are good examples of the negotiation procedures that characterize meetings of the JMB.

Key Challenges

The art of negotiation is integral to the structure and functioning of a contractual park. “There are no full rights; it is a negotiation process with the Kruger National Park,” says Gibson Makulele. “We cannot decide for ourselves what game to hunt. There is sufficient plains game in the park, but the KNP representa-

tives on the JMB say these are rare species and therefore, in their opinion, they should not be hunted. Cybertracking helps keep records of wildlife, which become a negotiation lever from which to argue. We are learning to stay with the art of negotiating to continue to develop healthy relationships with the KNP.”

The Makuleke community faces additional challenges as it continues down the path of marrying conservation and community economic development. It must gain access to more start-up capital; learn how to market its products; develop and maintain good management practices (especially for tourism and conservation efforts); ensure women meaningful employment and leadership opportunities; strengthen existing institutions, such as the CPA Executive Committee; and improve Makuleke representation on the JMB. Most essentially, though, the Makuleke must find new ways to conserve the biological diversity of their reclaimed land while generating more economic benefits and equitable distribution from those natural assets.⁵ 🌱

The art of negotiation is integral to the structure and functioning of a contractual park.

NATURAL ASSETS AS
FINANCIAL ASSETS



USING MARKETS TO BUILD NATURAL ASSETS AND FINANCIAL ASSETS

Zebaleen Develop Incomes and Community from an Overlooked Urban Asset

Cairo, Egypt



Every day thousands of residents of Cairo known as the *zebaleen* collect about 3,000 tons of the city's household garbage. They transport, sort, and recover the waste, then recycle or trade 80 percent of it through microenterprises that generate jobs and incomes for some 40,000 people. By producing handmade crafts from rags and paper, they have elevated recycling to an aesthetic level. Their expertise has saved the city from burning or dumping into unmanaged sites millions of tons of municipal waste.

Their methods for handling plastics, paper, cardboard, glass, metal, fabric, and bones are constantly being revised as they upgrade and diversify their recycling know-how. Over the course of five decades, the *zebaleen* have created what is arguably one of the world's most efficient resource recovery systems—yet the continuation of this intricate relationship among community, environment, and livelihood is far from assured.

The *zebaleen* began to emerge as collectors-recyclers in Cairo in the late 1940s as farmers from southern Egypt migrated to the city and lived on its physical, social, economic, and institutional fringes. As Cairo grew to its current 14 million residents, the number of collectors-recyclers expanded. They were directed by local authorities to move out to the edge of Cairo. Some of them have living memories of the horror of evictions and a city that never regarded their work as valuable. Today they live and work in five enclaves surrounding the city. There, they maintain ties with their rural origins by hanging on to their animal breeding trade. They preserve community organization by intermarrying and living in extended family situations; kinship ties predominate.

The *zebaleen* collect and dispose of about a third of Cairo's waste, most of it from more affluent neighborhoods, at no cost to the government. From every ton, they create seven or eight jobs, with women and adolescent girls holding half of the jobs. They have invested money earned from recycling in their trade and in building homes in the settlement, which they spend years to complete. They have invested



By Laila Iskandar

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Working with the private sector, government, donors, and international agencies, she has built coalitions on social development issues, notably in the case of the garbage collectors of Mokattam.

The *zebaleen* collect and dispose of about a third of Cairo's waste, most of it from more affluent neighborhoods, at no cost to the government.

in a fleet of trucks, to meet the municipality's requirements, and in workshops, buying machines for the recycling industries. And they have developed links to markets outside the settlement, expanding the scope and range of their activities in the trading of primary materials and recycling industries. They are now a large economic force and a vital part of the nation's informal economy.

Plastic sorted into different bags and stacked alongside a home.

In Mokattam, the *zebaleen's* principal enclave, 700 families own collection enterprises, 200 own and operate small and medium scale recycling enterprises, and 120 own trading enterprises. Scores of supporting maintenance workshops and community-based service businesses such as barbers, tire repair shops, auto mechanics, and tool repair shops, dot the neighborhood. These microentrepreneurs have invested an estimated 2.1 million Egyptian pounds or L.E. (about US\$608,000) in trucks, plastic granulators, paper compactors, cloth grinders, aluminum smelters, and tin processors.¹

The average monthly wage for the waste-handling worker in Mokattam ranges from L.E.360 to L.E.450 (about US\$104 to \$130). The highest paid workers are those in the recycling industries, while the

lowest paid are in the collection and transportation of waste. Even the lowest paid earn more than the average wage in the informal economic sectors in Greater Cairo.²

As the *zebaleen* have generated income, they have established community-based organizations and improved the infrastructure of Mokattam. They installed a water and wastewater system, paved roads, and built schools. Wastewater trucks emptied out septic tanks, outpatient clinics were established, microenterprise recycling industries were launched, garbage collection was motorized, health programs were implemented, income-generating projects for girls and women were implemented, and day care centers cropped up in the neighborhood. In the 1980s, they began to enroll increasing numbers of their children in school, especially girls, and reduced the neonatal mortality rate, then the highest in Egypt, to the lowest in the nation. These developments reflect the *zebaleen* community's growing capacity to access, invest

The **environmental benefits** of the *zebaleen* waste recovery and recycling system include:

- uncontaminated organics sorted for the production of a higher grade compost;
- production of new materials from existing ones;
- protection of land from being used as unsanitary landfills;
- protection of the air from the uncontrolled burning of garbage; and
- recovery of 80 percent of the materials that city dwellers discard in their consumption patterns (the remainder is transported to an unmanaged open dump on the outskirts of the city).





Left: Plastic being cut into small pieces before it is recycled; right: after the plastic is cut into pieces, it is cleaned in large tubs of water and detergent.



in, and accumulate a wide range of assets needed to secure their livelihoods and boost their ability to participate in Cairo's economic and social life.

In short, the *zebaleen* have used an overlooked environmental asset—urban waste—to create financial assets—wealth—and have used those assets, in turn, to invest in essential community infrastructure, education, and other services.

They developed this system at great financial and personal cost. They were never paid for the service of climbing up and down multistory buildings in Cairo to collect waste. They have worked under difficult conditions that are hazardous to health, particularly for the women who sort the garbage: their waste sorting space is adjacent to their living space; they manually sort putrefied household waste and hospital waste that includes clinical waste mixed with kitchen waste; until the mid-1980s they lacked a water supply; their children had to walk as many as two hours to fetch water. While the livelihoods of the *zebaleen* community have improved dramatically, living conditions have not made

a similar quantum leap. Women and adolescent girls still sort through rotting filth manually. Hospital waste still arrives mixed with kitchen waste. Health hazards from broken glass, syringes, and sharp metal still exist. Burst sewage pipes constantly threaten the population's health.

The *zebaleen* have also had to overcome barriers imposed by their modern urban context, which often has not recognized their contribution to the city's life. In 1990, for example, municipal authorities decided to require the collectors to use motorized trucks, rather than donkey carts, to transport waste. But they extended no assistance to the *zebaleen* to assist in the conversion to the new system: no credit to purchase the trucks, no driving lessons, no education in understanding road signs or basic Arabic. To cope with this, the *zebaleen* adjusted. They rented trucks and used bigger cloth containers to collect garbage from several buildings and store it at street corners, in anticipation of a truck's arrival. They acquired the capital to purchase trucks by selling gold belonging to their

In short, the *zebaleen* have used an overlooked environmental asset—urban waste.

For the *zebaleen* the risk is clear: in a bidding war with corporations, they could lose access to the environmental assets they have converted into economic and social assets.



Run by a local NGO, this informal school highlights recycling in its lessons.

wives or daughters, pooling cash savings among brothers, selling remaining small plots of land or houses in their ancestral village, or by getting credit from loan sharks in the neighborhood. They taught their sons to drive.

More recently, the *zebaleen's* small scale, family-owned businesses of door-to-door collection and recycling have been perceived to be a backward system that lacks modern equipment and hygienic practices—despite the fact that they possess the longest waste management track record in Egypt. And this is creating new risks for the sustainability of the *zebaleen* foothold on trade and livelihood.

Allies of the *zebaleen*—partners from the private sector, experts, donors, and alternative trading organizations—have proposed national-level strategies for solid waste management based on the practice of the *zebaleen*. Meanwhile, some nonprofits are institutionalizing the know-how of the *zebaleen* and transferring it. But there is still a big gap in the understanding of the municipalities, the public, and the media: they look favorably on a new breed of garbage collectors—technology-intensive multinational waste management corporations. The growing trend in Egypt's solid waste sector is to privatize services by contracting with such firms. For the *zebaleen* the risk is clear: in a bidding war with corporations, they could lose access to the environmental assets they have converted into economic and social assets.

The urban context of development in Egypt pulls in different directions—one drawing from the experiential base of traditional models of living, such as those created by the *zebaleen*; and the other from a predominant, and somewhat questionable, global paradigm which is

not connected to the local practice. The latter model has led the authorities to pursue a policy of moving the *zebaleen* activities further out of the city, claiming that this will turn *zebaleen* neighborhoods into cleaner living environments while still allowing the waste sorting, recovering, trading, and recycling to occur. But such relocations increase the distance the *zebaleen* must travel to the residential and commercial places they service, which increases the cost and difficulty of the services. Because the authorities do not compensate them for these changes, many *zebaleen* are forced out of the business, while others reduce their services. Some are forced to discard nonrecyclable materials over the side of their trucks as they head to the faraway new locations, earning the entire *zebaleen* sector a bad reputation. Authorities have then stepped in, contended that the entire sector is operating inefficiently, and put up for bid the right to service entire neighborhoods. This creates an opportunity for private-sector companies or multinational firms to win the work. Thus, the *zebaleen* sector is becoming destabilized and disempowered, and is losing jobs.

This privatized and globalized development approach fails to allow people to invent and construct their own realities by building incrementally on tried and true culturally indigenous patterns of living. This trend should be re-examined and redirected. Egyptian society—all societies—need ways to build on their own rich diversity and local knowledge. The *zebaleen* experience demonstrates the strength and vitality of community knowledge as an incalculable resource for building environmental, financial, and community-based assets. It should not be discarded as if it were merely more urban waste. 🌱



Organic and Fair Trade Coffee Growers Connect to Global Markets

At a time when coffee has never been more popular, coffee growers have never been more desperate. Even as the large market of American coffee drinkers is learning to distinguish between mochas and macchiatos, the world price of a pound of beans has fallen to historic lows, making it simply no longer worth the money for many small farmers to harvest their crops.

Globalization is largely to blame. With Vietnam and Brazil flooding the market with cheap plantation coffee, a race to the bottom threatens to trample the likes of Frederico Baños, a bashful Zapotec Indian who tends 10 acres in a forest high in Mexico's Sierra Madre Sur (the Southern Sierra Madre). Yet today, globalization also offers a lifeline, as niche markets develop in industrialized countries for sustainably produced coffee, aiming to please not just the palate but also the heart.

Oaxaca, Mexico



Baños, 42, has no formal education and knows little of the world outside his small town, a six-hour drive from touristy Oaxaca City. He took the gamble this year to aim for those markets, supported by a recent powerful international trend toward certification of natural products. His most urgent goal is to get his coffee labeled as organic, which requires him not just to forego agricultural chemicals, but also to actively preserve the forest canopy under which he tends his coffee. The distinction could double his income, making it possible for him to afford to keep farming. Meanwhile, it could contribute to saving some of the last scraps of Oaxaca State's besieged forests.

Additionally, Baños aspires to sell his coffee through "Fair Trade Certified," a rapidly emerging market in the United States and Europe. Its central concept is simple: that family farmer organizations get a just and fixed price for their crops, in good times and in bad. Coffee importers pay \$1.26 for a pound of conventional Fair Trade coffee, and \$1.41 for organic Fair Trade coffee—while the average world price for conventional beans hovers around 50 cents, and just over \$1 for organic coffee.

Seeking certification as an organic grower is "the only hope I have," says Baños, who, with five young children and a passion for his land, refuses to consider emigrating.

By Katherine Ellison

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In its 13 years, the CEPCO network...has won respect from coffee importers and development specialists outside Mexico for its community development projects and principles.

With the coffee crisis now in its fourth year, the ranks of Mexicans who share that viewpoint are thinning, sometimes with tragic consequences. Last year, 14 would-be immigrants, most of them disheartened coffee producers, were found dead in the Arizona desert. Thousands of small growers have simply abandoned their crops, leaving berries to rot on the trees.

Baños chose instead to join a local cooperative that belongs to the *Comisión Estatal de Productores de Café de Oaxaca*, (State Committee of Oaxacan Coffee Producers, CEPCO). CEPCO offers its small-farmer members some key advantages. It eliminates exploitative middlemen, known as “coyotes,” who previously were the only option isolated growers had to get their coffee to markets. It arranges agricultural training, giving critical help to farmers interested in switching to organic methods. It has also offered social services, such as a credit union, a life insurance scheme, and programs to help farmers’ wives start small businesses, including raising pigs or selling household goods.

In the recent hard years, CEPCO, funded 70 percent by coffee income, has been kept afloat by its Fair Trade proceeds. “Fair Trade is absolutely fundamental to us,” says Josefina Aranda, an anthropologist who founded CEPCO with her husband, Miguel Tejera, in 1989.

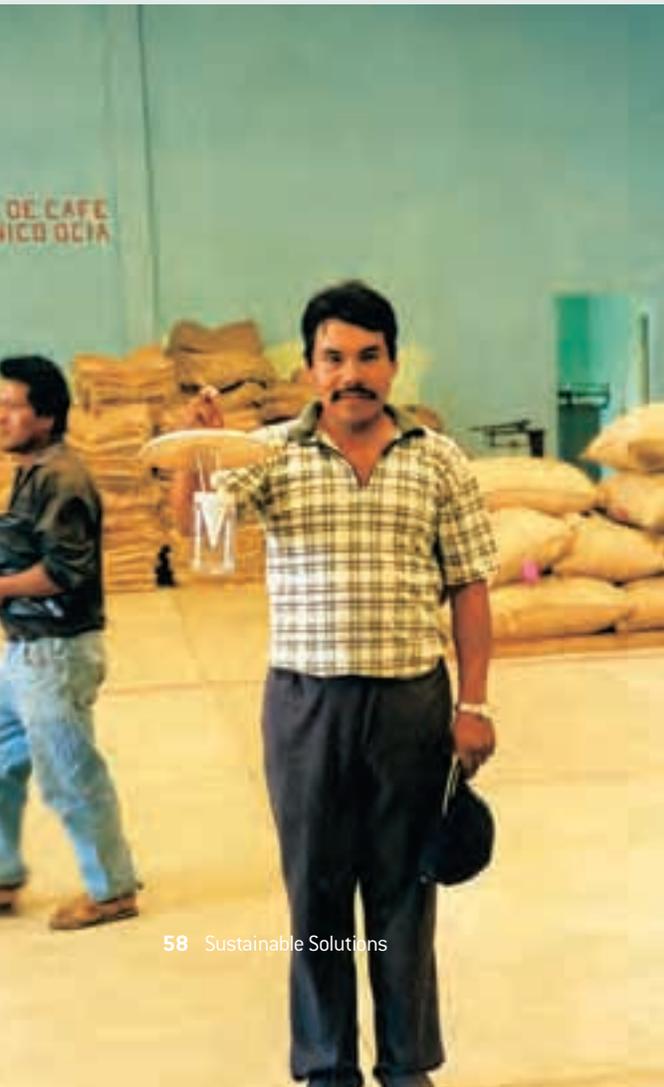
CEPCO’s Challenges

In its 13 years, the CEPCO network, comprising 46 co-ops, has won respect from coffee importers and development specialists outside Mexico for its community development projects and principles. Among other rules, it insists that member groups maintain internal democracy and financial accountability. Supplying 3.2 million pounds of coffee last year – down from an annual average of 8.5 million pounds in the 1990s – CEPCO remains one of the world’s largest suppliers of organic coffee, as well as one of the largest participants in the Fair Trade program. It expects this year to sell 75 percent of its product at Fair Trade prices.

But CEPCO is in deep trouble. Its membership has fallen from 23,000 farmers three years ago to 16,000 today, in large part due to the numbers of coffee producers quitting their fields. Founder Tejera says only 3,600 of CEPCO’s members have completed the difficult, three-year process that qualifies them to sell certified organic coffee. An additional 2,800 plan to do so, but 9,500 more are still growing conventional coffee – meaning they can’t make ends meet. “People are in despair,” says Aranda. “As hard as they work, they can’t raise the prices.”

Struggling against this trend, CEPCO’s leaders are working hard to try to expand their sale of organic and Fair Trade coffee. They’re also pursuing certification for “shade-grown,” or “bird-friendly” coffee, but eventually

Coffee producer displays self-made pest-management device—16 are used per hectare.





In addition to producing coffee, these women will train for new farming projects; right: drying and selecting coffee beans.



hope to avoid consumer confusion over a profusion of labels by figuring out how to get a single certification – simply as sustainable coffee.

The Fair Trade Certified concept was forged through the work of the Max Haavelar Foundation in the Netherlands and TransFair International in Germany, two groups that joined in 1998 as the Fairtrade Labeling Organizations International (FLO). FLO's U.S. affiliate is TransFair USA, an Oakland, California nonprofit. Worldwide, FLO works with 300 cooperatives in 22 countries, encompassing 550,000 family farmers.

TransFair USA's founder is Paul Rice, who in the 1980s worked for Nicaragua's Sandinista Ministry of Agriculture. Eventually he decided the most effective way to help the poor was to help them be smarter players in global markets. He got his MBA at the University of California at Berkeley and went into business in 1999. In that first year, TransFair USA certified 3 million pounds of coffee for the U.S. market. By the end of this year, Rice says, that amount will have tripled or quadru-

pled. His group has already moved into certifying tea and plans soon to start with chocolate. Transfair supports its work in part by charging roasters and retailers 10 cents a pound to license them to sell certified Fair Trade merchandise. (This helps pay for regular financial inspections, which ensure that Fair Trade revenues are truly reaching the farmers, Rice says.)

More than 100 coffee companies now sell Fair Trade Certified beans in the United States.

The larger firms have been induced to pay the higher prices to co-ops by a carrot-and-stick combination. The carrot of social responsibility and brand recognition proffered by TransFair has been made much more tempting by use of the stick, in the form of threatened protests led by Global Exchange, a nonprofit also based in Oakland. Starbucks, for instance, agreed to offer certified coffee in their 2,700 outlets only four days before planned demonstrations by Global Exchange. (Even so, the outlet still buys fewer than 1 million pounds of Fair Trade coffee—a mere 1 percent of the coffee it purchas-

The growing markets for organic coffee provide a strong incentive for Oaxaca farmers to preserve what is left of their state's high mountain forests.



es each year. Starbucks officials, however, contend they pay generally higher prices than other firms for the bulk of their coffee.)

Maxwell House, Folgers and Nestle, which together represent about half of U.S. coffee sales, have also felt heat from advocacy groups, but Rice complains that their executives still won't take his calls.

Environmental and Economic Impacts

Whether the gamble taken by TransFair and CEPCO pays off could have fateful consequences not just for Mexico's struggling coffee farmers but for its environment. The growing markets for organic and "shade-grown" or "bird-friendly" coffee provide a strong incentive for Oaxaca farmers to preserve what is left of their state's high mountain forests, which provide habitat for toucans, eagles, and other rare creatures. These farmers have come to realize as never before that the forest is an asset worth managing wisely. Not only does a forest's shade protect their beans from sun and frost, but with customers in industrialized nations increasingly anxious over global deforestation, sustainably managed coffee crops can produce significant profits. Urged on by organic certification groups, some growers have begun reforesting hillside areas to extend their canopy coverage.

"We've stopped cutting down trees as we used to do, and now we're growing oxygen!" boasts Tolentino Martinez Perez, regional leader of Frederico Baños' co-op, Zapotecos del Sur.

Particularly in spring – when *campesinos* clear their cropland in the traditional manner, by setting it on fire – the long journey from Oaxaca City to Baños's home can make anyone cherish pure air. The road is brown and dusty, the sky hazy and the landscape parched,

with dry riverbeds and denuded hillsides.

It's three hours by fairly good roads to Miahuatlan, the closest city, after which one must travel another three hours on a pot-holed dirt road that turns impassable when it rains. Relief finally comes with a rise to about 4,200 feet above sea level, the path twisting through patches of lush pine and Inga trees. Santa Catarina Loxicha, a town of 6,000 (about half of whom are working elsewhere as migrants) is a clutter of low brick homes, mostly perched on the side of a steep canyon. Many elders still speak Zapotec; old women wear their long hair in braids and old men and children tend burros loaded with firewood. A black hose brings water from a nearby spring into backyard bins. Townspeople say they eat chicken just once a week, though beer and mescal are ubiquitous.

Baños's 82-year-old grandfather, Emiliano Agudo Rubio, was the "son of a single mother," as he described it. Confronting prejudice made him a particularly determined town leader, who eventually saved enough money to build one of the community's biggest houses, with room enough to rent to visiting schoolteachers. That income helped Baños and his family withstand the coffee crisis until recently, but last year he decided he had to change his ways. Like many local farmers, he'd been paying about 10 percent of his income to a "coyote". To eliminate that expense was the main reason he joined a local cooperative.

Going Organic

The cooperative recently decided to sell exclusively organic coffee, its leaders assuming, as CEPCO has, that it's the only viable option. To be sure, most southern Sierra farmers had all but completely stopped using

**These farmers
have come to realize
as never before
that the forest
is an asset worth
managing wisely.**



Taking a break in the processing of bean-yielding cherries; right: making compost.

chemical pesticides and fertilizers by the 1990s, encouraged by visiting agronomists. But they still faced a lot of extra work before they could earn certification as organic farmers. Baños, for instance, had to learn how to make compost from ripe coffee berries, ashes, leaves, and burro dung, and to apply it painstakingly to his trees by digging little trenches behind them. “The compost alone takes many extra days of work each month,” he says.

Another hardship for the mostly illiterate farmers and their co-op leaders is the sheer volume of necessary paperwork. Zapotecos del Sur is certified by the Oaxaca chapter of the Organic Crop Improvement Association, based in Nebraska, which requires each grower to provide documentation, including a map of his land and a month-by-month plan of action. Each must also pay a share of the more than 4,100 Mexican pesos yearly certification fee (US\$450) for the group, plus extra costs for yearly inspections.

In return for their extra work, however, the certified

organic producers can get substantially more money for their beans. Once he passes inspection, Baños may be able to net as much as 90 cents per pound, due to extra revenues from the organic and Fair Trade markets, according to TransFair’s Rice. That could earn Baños a maximum annual income of about 11,100 pesos (US\$1,200).

Organic coffee farmers whose co-ops sell through the Fair Trade market receive a share of the additional revenues ensuing from the higher Fair Trade prices at the end of every year, as Rice tells it. In Mexico, CEPCO, which sells coffee on behalf of its member co-ops, has returned to the co-ops themselves 5 cents per pound of the higher Fair Trade prices it receives. Baños’s co-op used that money to send four representatives to Oaxaca City this year for meetings and agricultural trainings. Other co-ops have spent their CEPCO returns to build bakeries, or in one case, to buy a truck, according to Rice. Farmers who switch to organic methods get an additional benefit, since they can also expect a higher

In return for their extra work, the certified organic producers can get substantially more money for their coffee.

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NATURAL ASSETS AND
FINANCIAL ASSETS



Completion of inspections
for certification as
organic producers.

**There's a strong and
growing, but latent
demand for social
responsibility.**

Paul Rice, founder TransFair

yield per plant. The extra payoff for the environment, meanwhile, is clear from a tour of Baños's coffee fields, an hour's hike down the canyon. The air is cool and clear and filled with birdsong, underneath a canopy of more than a dozen species of trees.

Challenges in the Global Market

Back in the United States, Mike Ferguson, marketing communications director for the Specialty Coffee Association of America, says shooting for niche markets is a hopeful strategy for farmers like Baños, who now must confront what has developed into a structural, rather than cyclical, crisis. Sales of specialty coffee have risen dramatically in recent years, from \$7.5 billion in 1999 to \$10.7 billion last year. Organic coffee is the fastest growing segment of that increase.

It is also essential that farmers and co-ops such as CEPCO keep improving the quality of their beans, say Ferguson and other experts. "Quality is ultimately

what's going to turn things around," Ferguson adds, explaining that a good-tasting coffee is the product of several factors, including altitude, climate, and how the beans are sorted and dried.

Rice, at TransFair, says Fair Trade, which has grown so quickly, must grow even faster to make a substantial difference in the lives of farmers like Baños. The biggest obstacle it faces, he says, is in educating consumers about where their coffee comes from – getting coffee drinkers to imagine the face of the person who has picked the beans. "My sense is there's a strong and growing, but latent demand for social responsibility," Rice says. "I don't think we're dealing with a fixed pie of consumer demand. Fair Trade is a powerful tool for growing the pie."

At his rough kitchen table, while his wife and daughter slap tortillas near an open fire, Frederico Baños is asked if he ever imagines the face of the person who drinks his coffee. "I haven't ever done so," he tells his foreign visitor. "But now I'll imagine it's you." ☺

USING MARKETS TO BUILD NATURAL ASSETS AND FINANCIAL ASSETS

A Community's New Enterprises Restore a National Forest



“It was raining money, and we had no buckets.” That was Lynn Jungwirth’s assessment of government programs to help small timber-dependent communities readjust their economies when timber harvests on national forests in the United States dropped dramatically in the early 1990s. Lynn, the daughter of a logging family and mother of two school-age children, decided to shift her community service activities from school issues to sustainable development.

Hayfork, California



Most of Jungwirth’s neighbors in the remote forest community of Hayfork, California would have said that money was just drying up around them. With stores closing and poverty rising, it was hard to see how job-retraining money would help; there were simply no jobs to be had. When the sawmill closed, some residents sought to bring in a private prison as a source of employment. But Jungwirth realized that jobs reliant on an outside organization would just perpetuate the area’s problems. She felt that with a little investment in people and the land, new local businesses could be home grown, not imported. With the hope that stewardship of the land would provide the foundation for a new, diversified forest-based economy, Jungwirth, along with some visionary neighbors and a growing number of colleagues nationwide, started down a path that has redefined the options for forest-dependent communities in the United States.

Hayfork, population 1,800, sits in the center of 1 million acres of national forest land, over 70 winding mountain miles from the nearest large town or major highway. In many ways, Hayfork typifies small forest-dependent communities in the American west. It is physically isolated, relatively poor, and lacks control over the natural resources on which it depends. Unemployment is high – about three times the rate in California. Poverty is common and increasing; over 70 percent of Hayfork’s children live below the poverty line.

In the 1980s, Trinity County, in which Hayfork is located, was one of the most timber-dependent places in the Pacific Northwest. Over 30 percent of wages came from the timber industry; and schools, stores, and local government all relied on forest income. Local people were not getting rich, but children thrived in a community where mill workers, Forest Service employees, and their spouses were in town

By Cecilia Danks

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USING MARKETS TO BUILD NATURAL ASSETS AND FINANCIAL ASSETS



A Hayfork gardener at the Trinity Community Fair. The banner reads, "A new idea to preserve an old way of life."

to coach Little League, organize church groups, and lead Scout troops. The fate of local workers, however, was in the hands of big companies or government agencies. The federal government, primarily the U.S. Forest Service, controlled over 70 percent of county land. Out-of-county owners held 99 percent of the private timberland. The Hayfork sawmill, the largest employer in the county, was owned by a large, nonlocal corporation.

Timber has been heavily harvested in the Hayfork area, as in much of the Pacific Northwest. Cutting peaked in the late 1980s amid cries from environmentalists that logging was pushing sensitive species toward extinction. In the early 1990s, in response to environmental degradation, changing societal values, and court injunctions, the Forest Service began changing its focus from timber production to ecosystem management. Ecosystem management implies managing for the health of all species and for the integrity of ecosystem functions. Commodities such as timber become byproducts of treatments to enhance the ecosystem – not the main objective of forest management.

The shift to ecosystem management resulted in a dramatic drop in timber cutting across the Pacific Northwest. Timber harvests in the Trinity National Forest decreased nearly 90 percent. As timber flows ebbed, the Hayfork sawmill was closed and dismantled as part of corporate consolidation. To help communities such as Hayfork, the government offered economic readjustment monies for retraining displaced timber workers and diversifying local economies. But for a remote rural community with few local assets, government programs seemed hard to access and their outcomes uncertain. Wouldn't retraining as truck drivers or copy machine repairmen still require families to move out of their community to find work?



Community training in forest restoration.

Some residents, like Lynn Jungwirth, saw a new future in the fire-scarred mountainsides that surround Hayfork. These pine and fir forests were in need of restoration due to both fire suppression and logging. Historically, frequent, low intensity fires had prevented the build up of woody fuels, i.e., the dense brush and small-diameter trees that burn most intensely. But with the removal of large fire-resistant trees and the growth of the forest understory unchecked by fire, the forests became more flammable than ever. Catastrophic forest fires near Hayfork in 1987, 1999, and 2001 added to the urgency to reduce forest fuels. In addition, the forest's unthinned plantations—stands of single species of trees—and eroding roads left from decades of clear-cutting needed attention. Overall, Hayfork's forests merited special attention because they are located in a global hotspot of biodiversity. If the government would reinvest in the forest and the forest communities, some Hayfork workers felt they could reinvent themselves as stewards of the forest.

Training and Technology

To help keep workers near home, Jungwirth created her



Small-scale, portable mill; right: field worker trainee.

first “bucket” for capturing and growing resources: the nonprofit Watershed Research and Training Center, a novel, community-based experiment in training displaced workers. Forest restoration would require people with an understanding of ecosystems and a diversity of technical skills, from the ability to use Geographic Information Systems (GIS) to post-fire rehabilitation activities in the forest. The center developed a training program that built on workers’ field experience and provided additional skills and scientific background needed to assess ecosystems and implement restoration projects. The program incorporated business skills and entrepreneurial mentoring so that local workers could start their own contracting companies.

Restoration is expensive. But if the by-products of restoration, such as small diameter wood, have commercial value, then the sale of those by-products could help pay for restoration work. Roger Jaegel, a retired Forest Service manager and lifelong Hayfork resident who directed the training program, saw that the Watershed Center could play a valuable role by researching and demonstrating the procedures and capital investments



needed to remove, mill, and market small diameter trees. With trainees as field workers, Jaegel and other center staff tackled the problem step by step. Extracting small material from the forest without damaging the residual stand is difficult with conventional logging equipment. Therefore a group of trainees and a local welder designed their own low-cost, low-impact yarder – a machine that moves logs suspended on cables. Once the small trees were removed, however, there was no capacity to process them in Hayfork. After studying the options, the center purchased a compact sawmill and a pole peeler. With this equipment, the center was able to add value to the logs, as well as a few more local jobs, before they left the valley.

The Watershed Center also explored economic options for underutilized nontimber forest products (NTFPs). Through microloans to entrepreneurs, the center stimulated the collection, processing, and marketing of invasive species, such as mullein, an herb used for respiratory illness – the harvesting of which contributes to restoration. The center has also involved local NTFP harvesters in research on sustainable harvest techniques for native species of plants.

Lynn Jungwirth, along with some visionary neighbors...started down a path that has redefined the options for forest-dependent communities in the U.S.

If the government would reinvest in the forest and the forest communities, some Hayfork workers felt they could reinvent themselves as stewards of the forest.



A Hayfork yarder in action.

In all of these efforts, the Watershed Center favored local experimentation over consultants' feasibility studies. They put control of information in the hands of the local community by starting a GIS center and socioeconomic monitoring program, rather than just buying maps and data. This approach had multiple community benefits: it provided information on potential options and also resulted in locally owned equipment, new skills, and locally visible, concrete models of sustainable livelihoods.

New skills and technologies, however, were not enough. Government policies needed to change if communities such as Hayfork were to make a living restoring the forests around them. Studies by the Watershed Center showed that 93 percent of Forest Service timber and field contracts went to large, urban-based companies outside of the county. The scale and contract specifications of most projects effectively excluded small local businesses from competing. The center led efforts to design "stewardship contracts", which combined diverse ecosystem management activities into packages appropriate for small contractors.

Networking and Partnerships

The Hayfork community recognized that it had limited authority and resources to change its situation by itself. Early on, the Watershed Center sought out groups facing similar problems to share learning and together tackle issues requiring joint approaches.

Marketing is difficult for small isolated manufacturers, but can be addressed through collaborative effort. The Watershed Center joined with like-minded groups and manufacturers in the Pacific Northwest to form the Healthy Forests, Healthy Communities Partnership. By marketing under a single label, rural members could bet-

ter reach urban consumers and tell the story behind their high quality forest products.

Because national forests respond to federal government directives, Lynn Jungwirth found that to help Hayfork she had to go to Washington, D.C. As a former school board member, Jungwirth was familiar with local politics, but educating national politicians was new to her. Fortunately, she had some help. In 1996, she worked to form the Communities Committee of the Seventh American Forest Congress as a national-level voice for the newly emerging U.S. community forestry movement. Composed of grassroots groups, academics, and NGOs, the Communities Committee meets regularly to identify national needs and priorities. The Committee urged their Washington-based members to help rural communities access policymakers. They instituted Community Forestry Week in Washington, an annual event in which grassroots practitioners like Jungwirth meet key federal players and learn to give testimony before Congress. As a result of these efforts, parts of six federal laws now address community forestry concerns such as stewardship contracting, forestry cooperatives, contracting preferences, and forest fuels reduction.

Next Steps

Back at home, Jungwirth, Jaegel, and others continue to focus on creating sustainable forest-based livelihoods in Hayfork. Good sales of flooring made from small diameter trees and the success of a for-profit furniture factory suggest that they are on the right track. Small forest-based businesses may be able to thrive in Hayfork, but would-be entrepreneurs still face challenges. Without local kilns to dry the sawn lumber and milling equipment to shape it, flooring and furniture stock are processed

Nationwide, forest communities are shedding their identity as timber-dependent and stepping forward as forest stewards.

out of county. Start-up capital is in short supply, and there are no buildings suitable for light manufacturing. Business expertise is always needed. Talented woodworkers have good ideas and a willingness to work hard, but setting up the books and getting loans for equipment are daunting tasks for them.

The next stage in Hayfork's already underway development is to develop a county-owned business incubator, with industrial workspace, equipment for rent, and in-house business advice for entrepreneurs. This would remove many of the barriers that local processors are facing. As businesses grow, they would be able to fledge from the facility and make room for new start-up companies. At mid-2002, the incubator building has been built and the second-hand kilns will soon be installed. The incubator could become a key income-generator in the Hayfork Valley. And unlike the sawmill that closed in 1996, it will be locally controlled.

Hayfork's Asset-Building Approach

Watershed Center Board chair Bob Mountjoy was thrilled to read a recent report on asset-building approaches to address poverty. "That's what we've been doing!" he said proudly, pleased to find a label for the center's strategy. The training program has developed human capital, and the investments in technology and the business incubator are finally putting manufacturing assets into local hands.

The center's work illustrates several aspects of asset building. Restoration of forest systems through watershed protection and fuels reduction, for instance, represents an investment in natural assets. Some of this restoration work is paid for by the sale of the small-diameter wood removed as a by-product of restoration

treatments. By finding markets for these previously "non commercial" trees, the center is expanding the range of forest products that generate revenues, thereby growing the "asset pie." And by helping small local businesses to obtain this restoration work and its by-products through stewardship contracting and national legislation, the center hopes to capture this economic opportunity for enterprises and workers in poor forest communities. In short, the center is both increasing the value of the natural asset and steering it into certain hands; it is both growing and redistributing the natural asset.

The Results?

Seventy percent of the Watershed Center's trainees have found work in their field within a year of graduating. Five groups of graduates have formed their own contracting businesses. New markets for small diameter materials have been proven and sales of these products from center projects are helping to cover costs of training and field treatments. Fifteen people work regularly at the furniture factory, and the incubator is expected to house up to six new businesses. The center's asset-building model is showing great promise in Hayfork.

Nationwide, forest communities are shedding their identity as timber-dependent and stepping forward as forest stewards. Newly proposed community forestry legislation includes funding for restoration, greater access to forest resources for small contractors, and the establishment of regional community forestry training centers like the Watershed Center to help communities benefit from these measures. These efforts can restore and enhance natural assets and allocate benefits to the people who need them most. ☺☺





The Mahenye Manage Wildlife for Revenue and Economic Infrastructure

Although driven from their land, the Mahenye people of Zimbabwe have found a way—through the renowned CAMPFIRE program—to regain control of natural resources and their lives. The Communal Areas Management Program for Indigenous Resources (CAMPFIRE) combined two features: the inclusion of local people in wildlife management and a concern with building the material and community assets of these people. The trailblazing community of Mahenye provides a case for understanding the effects of this endeavor and the continuing challenges it faces.

Southeastern Zimbabwe



The term “community” has spatial, sociocultural, political, and economic facets to it. Spatially and socioculturally, Mahenye is a ward that covers 210 square kilometers in southeastern Zimbabwe and is inhabited by 3,646 Shangaan people.¹ Although they share a common language and history, these people are internally differentiated along lines of age, gender, education, and economic status. Politically, the ward is a layer of governance between the district and village levels. It has its own institutions of local governance that allow people to collectively manage their natural assets. However, these institutions are subordinate to those at the district and national levels. Economically, Mahenye people share mutual interests in and control over local resources such as land, wildlife, and labor. This control is nonetheless exercised within the context of the government and the tourist market. Building local capacities and partnerships with external stakeholders is a key aspect of Mahenye’s efforts to enhance and leverage its human, natural resource, and financial assets for long-term community benefit.

The Place and Its Ecology

Mahenye ward is situated on the southern tip of Chipinge District. It is a narrow wedge of land between the Gonarezhou National Park (GNP) and the international boundary with Mozambique. Mahenye has two tourist lodges.

Population density in Mahenye ward is 20 persons per square kilometer, compared to the district and

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Wildlife remains an important natural asset that generates income for the people of Mahenye.



national averages of, respectively, 43 and 30 persons per square kilometer.² Mopane and combretum woodlands cover much of the ward, and, along the Save River, dense riverine forest supports a broad array of floral, fish, and avian species. Erratic rainfall patterns constrain locals from intensive livestock keeping and cultivation of crops such as maize, sorghum, millet, cotton, and groundnuts. Consequently, wildlife remains an important natural asset that generates income for the people of Mahenye.

Origins and Challenges of CAMPFIRE

In 1966, the colonial government removed Shangaan people from their ancestral homes to make way for the establishment of the Gonarezhou National Park. Some of these people settled in Mahenye while others moved to Sangwe communal land in neighboring Chiredzi district and Mozambique. Throughout the nation, the use of wildlife by blacks was criminalized. Hunting rights became the preserve of resident whites and visiting sport hunters. As a result, the history of communities surrounding the national parks and officials from the

Department of National Parks and Wildlife Management (DPNWM) was, until recently, a history of conflict.

The turn-about in the tense relationship between parks officials and communities surrounding national parks throughout Zimbabwe is traceable back to Mahenye. During February 1982, the elected councilor for Mahenye arranged a meeting with the GNP warden to discuss problems of crop raiding by wildlife and poor relations between parks officials and the community.³ The warden invited Clive Stockil, a successful rancher and safari operator, to provide translation. Stockil grew up in the area and speaks fluent Shangaan. As a result, he understood the crucial role of wildlife in the livelihoods of local people. At the meeting, community elders recounted their eviction from the park and settlement in drought-prone Mahenye. They argued that they could not harvest sufficient crops to sustain their lives because GNP animals crossed the Save River to eat their crops. If GNP officials could control “their” animals, then local people would grow crops and there would be no poaching.⁴

Left: working toward the development of a road; right: this caterpillar will help shape the road.

As a result of involvement in the CAMPFIRE project, the people of Mahenye are building community capacities and assets that are enabling them to confront political and economic exclusion.



People receiving their dividends.

As a private rancher, Clive Stockil knew that white farmers were benefiting from wildlife utilization on their ranches under provisions of the Wildlife Act of 1975, which gave proprietorship over wildlife to them. Stockil brought out the idea that, given a chance, wildlife which crossed the Save River from the park to Mahenye could be “owned by the community” in much the same way it owned cattle. The meeting resolved that if the government issued a permit to a private safari operator to hunt wildlife for a fee and if a portion of that fee was given to the community, then the community would be willing to tolerate a measure of crop damage and work with GNP officials to reduce poaching.

The DNPWM offered Mahenye a one-year trial. Under this arrangement, Stockil received a permit to shoot two elephants; and by August 1982, his clients had succeeded in doing so. Chief Mahenye, following traditional customs, distributed the elephant meat. This reaffirmed the idea that wildlife could once again belong to the community. Later that year, GNP officials found much less evidence of poaching in the park. That decline was one of the most immediately felt benefits of this experiment in wildlife management. The prototype soon triggered a sea change in the thinking of the DNPWM and culminated in the formulation of the CAMPFIRE concept.

The Mahenye community continued to enjoy meat from annual safari hunts, but the money from permit fees took time to find its way back to them. Legally, the ownership of wildlife was still vested in the state; proceeds from hunts went to the national Treasury Department and would be released only through the Ministry of Local Government and the Chipinge Rural District Council (RDC). To access the money, Chief Mahenye wrote a proposal requesting that the money be used to build a school

and buy a grinding mill. Between 1982 and 1986, safari revenues from Mahenye had accumulated at Treasury while bureaucrats tried to agree on the best possible way forward. Within Mahenye itself there was growing suspicion that the idea of community wildlife management was a trick used to reduce poaching or line officials’ pockets. Councilors from other wards in Chipinge RDC asserted that wildlife revenue should be divided equally among all wards, but the councilor from Mahenye argued that wildlife was Mahenye’s “cattle” and that they bore responsibility for its management. If cattle revenues were to be shared equally by all wards, then Mahenye would do the same with wildlife money. In the end, council agreed that proceeds from wildlife should go to Mahenye.

By 1986, the idea that communities could manage their own wildlife resources had taken root in the DNPWM, and other interested stakeholders were drawn into the implementation of CAMPFIRE. These parties and their respective mandates were as follows: the Centre for Applied Social Sciences, University of Zimbabwe (socioeconomic applied research), World Wide Fund for Nature (ecological research, monitoring, and advisory services), Zimbabwe Trust (training of ward and village wildlife committee members, game scouts, and guards as well as CAMPFIRE coordinators in councils), Africa Resources Trust (external policy monitoring and advocacy), the Ministry of Local Government (overall administration of rural district councils to whom appropriate authority over wildlife has been devolved), and the DNPWM (technical advice on wildlife management to communities). These stakeholders created linkages with communities such as Mahenye, but resisted the temptation to exert undue influence over the community



Fence monitors at work talk with game guards.

itself. Together, they are now helping the communities to manage their wildlife assets.

In February 1987, Z\$37,461 (about US\$7,500) were presented to Mahenye community in the form of a check for the purpose of constructing a school and teachers' accommodation and buying a grinding mill. Chipinge district was the *first* council in Zimbabwe to commit itself to the principle that proceeds from wildlife should go to the "producer" communities. Under Mahenye's CAMPFIRE project, the distribution of money from tourism resulted in a positive change of community attitudes to wildlife and of parks officials toward community members. Local people began to see the park as a reservoir of wealth and became protective of their newly found natural asset.

Building Community Assets in Mahenye

As a result of their involvement in the CAMPFIRE project, the people of Mahenye are building a range of community capacities and assets that are enabling them to con-

front political and economic exclusion. Community institutions reflect Mahenye's growing strategic political capacity, while materially based assets include safari hunting, two tourist lodges that generate income and employ a number of locals, and the development of infrastructure.

The CAMPFIRE project connects to both new and traditional leadership structures. Politically, a hereditary chief and an elected councilor lead the community. In addition, an elected CAMPFIRE wildlife committee is a strong focal point of community pride in its ability to plan, manage wildlife, and use revenue from tourism to build more assets. The committee comprises two women and five men. It employs local field staff that monitor wildlife, poaching, and hunting activities of safari hunters. GNP officials work together with the wildlife committee to set quotas for huntable species. The committee diversified the community's economic asset base by accepting tourist lodge development. This resulted in the signing of a lease agreement between

By 1986, the idea that communities could manage their own wildlife resources had taken root in the Department of National Parks and Wildlife Management.



The newly built clinic.

Zimbabwe Sun Limited and Chipinge Rural District Council for the establishment of the Mahenye and Chilo Lodges. Mahenye Lodge accommodates 16 guests and Chilo has room for 28. Between 1991 and 1997, the committee received revenues from wildlife-related enterprises, as shown in Table 1.

Fluctuations in the revenue derived from hunting safaris were closely linked to the reduction in number of elephants shot. After a 1992 drought, elephants were moved to other areas and culled. While the hunting quota was four elephants per year, the actual number of elephants shot declined to just one per year during the period 1993-1996. This loss of revenue was offset by the gradual increase in money derived from tourist lodges. Revenues from hunting safaris and lodges are enabling

further investments in the asset base of Mahenye.

The wildlife committee has distributed the revenues equitably. As Table 2 shows, the money was divided under four headings: household payouts, administration, management, and projects.

The disbursement of tourism payouts plays the vital symbolic role of reinforcing the idea that wildlife belongs to the collective community at the same time as it benefits individual households. In times of droughts, this money assists households to buy food.

The wildlife committee also designed a land-use plan. The community set aside a wilderness area that has watering points for wildlife. The long-term goal is to buy wildlife and keep it in the area so that money from photographic safaris can be paid to the community directly. Moreover, the committee drafted and helps to enforce by-laws to discourage poaching, indiscriminate use of flora, and lighting of *veld* fires. Offenders are brought before the chief and extreme cases are referred to the police. In summary, Mahenye has functioning institutions that govern relationships between local people and their access to natural resources.

Another key asset that is a direct spin-off benefit from wildlife is the development of marketable skills that reflect new employment opportunities for locals at the lodges. During 1997, for example, 11 out of a total of 18 staff at Mahenye Lodge were recruited locally. However, only three staff were women. At Chilo Lodge, 27 of the 42 staff were local. Again, only three were women. Staff from outside Mahenye tends to be better educated and trained than locals, and they occupy managerial positions at the lodges.

The other asset arising from Mahenye's involvement in CAMPFIRE is the development of infrastructure in the

The disbursement of tourism payouts plays the vital symbolic role of reinforcing the idea that wildlife belongs to the collective community.

TABLE 1

Tourism Revenue of Mahenye Ward 1991-97

(Note: The exchange rate depreciated in 1996 to US\$1 = Z\$9.8.)

Year	Hunting Safari (Z\$)	Lodge Revenue(Z\$)	Total (Z\$)
1991	68,800	-	68,800
1992	180,000	-	180,000
1993	158,000	-	158,000
1994	163,736	-	163,736
1995	138,445	5,940	144,385
1996	138,495	140,484	278,979
1997	188,740	429,804	618,544

Source: Adapted from Murphree (2001:189)

Another key asset that is a direct spin-off benefit from wildlife is the cultivation of marketable skills that reflect new employment opportunities for locals at the lodges.

form of a road, the supply of electricity, and the construction of school buildings. The people of Mahenye point out that the construction of tourist lodges in the community led to improved road transport.⁶ Some shops at the business center plugged into the electricity provided at Chilo Lodge and now serve ice-cold beverages. The local police post, community-owned grinding mills, school, and health clinic also have access to this electricity.

The Challenges Ahead

Today, the key challenges faced by the Mahenye community are in its relationships with the outside world. First, the people of Mahenye would like the devolution of “appropriate authority” of government to be extended from the district to ward and village levels. Wards and villages as “producer communities” of wildlife do not have full rights of proprietorship.⁷ In the Mahenye view, the devolution of such authority to the ward level would empower them to enter into contracts with private sector enterprises such as Zimbabwe Sun Limited and safari operators. Revenues derived from these and other tourism-related ventures would go to the community directly and not to the district council. The council now takes some of the wildlife money on the basis that it provides roads and other forms of infrastructure. But this support does not always occur, and communities like Mahenye feel the money could be put to better use if it remained at the ward level.

Second, revenues from wildlife are dependent on local and international safari hunting and on tourist bookings at the two lodges. Thus, Mahenye’s financial resources hinge upon the lodge owners’ success in marketing the area as a viable tourist destination. The proposed establishment of a wildlife transfrontier link-

ing three national parks—Gonarezhou in Zimbabwe, Kruger in South Africa, and Gaza in Mozambique (GKG Transfrontier)—could help to strengthen Mahenye’s position as a tourist attraction. But the transfrontier proposal also threatens the very inner essence of the CAMPFIRE project. To date, there has been little or no involvement of local communities in its design and Mahenye community members fear that the GKG Transfrontier might be an old form of exclusion cast in a new way. This is awakening memories of alienation arising from the establishment of the Gonarezhou National Park. It remains to be seen how—or if—the Mahenye people will benefit from the GKG Transfrontier. ☹️



Resting after the completion of a bridge.

TABLE 2

CAMPFIRE Revenue Distribution in Mahenye Ward, 1992-97

(Note: The exchange rate depreciated in 1996 to US\$1 = Z\$9.8.)

Year	Household Numbers	Household Payouts(Z\$)	Management (Z\$)	Administration (Z\$)	Projects (Z\$)	Total (Z\$)
1992	484	87,120	10,850	30,600	51,430	180,000
1993	581	80,178	27,962	26,860	23,000	158,000
1994	647	81,229	27,380	35,367	19,760	163,736
1995	751	78,855	28,930	29,920	6,740	144,445
1996	768	140,544	36,700	49,761	51,974	278,979
1997	770	340,499	58,260	129,536	57,320	588,594*

*Chipinge RDC deducted some money for a lease rental advance. Source: Chipinge RDC Annual Reports on CAMPFIRE (cited in Murphree, 2001: 189)



A Nation's Communities Protect and Manage Their Forests

Over the last one and half decades, India has witnessed a revolutionary change in its forest management policies and practices. Acknowledging that forest degradation cannot be curbed without active involvement of the communities who depend most on forests, the National Forest Policy of 1988 called for large-scale people's participation in the management of India's forests. This policy accepted that democratizing access to natural assets like forests could be used effectively to reduce poverty and empower communities, and could lead to better environmental protection. Toward this end, the Government of India passed a landmark order in 1990 to formally introduce Joint Forest Management (JFM) in the country. Under JFM, local communities enter into an agreement with the national forest department to jointly protect and manage forest lands adjoining villages. Today, over 63,000 village-level institutions all over the country, involving 2.8 million families, are protecting and managing more than 4 million hectares (33.6 million acres) of forest lands.¹

Gujarat, India



The Case of Malekpur Village, Gujarat

Nestled in the picturesque and rugged foothills of the Aravalli ranges in the western Indian state of Gujarat, Malekpur is a small tribal village located in the Bhiloda *taluka*, or local administrative unit, of Sabarkantha district. Over the last 15 years, it has emerged as a standout example of Joint Forest Management. Community initiatives have revived highly degraded forests around the village and built numerous other assets that provide sustainable livelihood options to the local people and improve their overall quality of life. Malekpur has a total population of 717, comprising 147 households.² Of the village geographical area of 342 hectares (777 acres), 167 hectares are reserve forest area owned by the forest department, and the rest is mainly agricultural land.

The inhabitants of this village (and of the region in general) have shared an intimate relationship with forests since time immemorial. They depend on the forests for many of their subsistence needs such as small timber, fuel wood, fodder, food, and medicine. The forests also have a unique importance in their



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Under Malvan, families living in and around the foothills had protected forest patches in the vicinity of their houses and used them to meet their daily requirements.



Degraded forest of the Malekpur region.

social and religious lives. Agriculture and animal husbandry are the two major income-generating activities in this economically backward area, and a high correlation exists between the health of the forests and the well being of the local people. Villagers depend on the forest for their fuel wood and fodder for livestock; destruction of the forest reduces milk and agricultural production, which in turn reduces incomes.

Belonging exclusively to the *Dungari Garasia* caste, the tribals of Malekpur (and of this entire region) comprise a number of different clans, which are further made up of different *gotras* (ancestral lineages). The fact that the name of each *gotra* derives from the name of a tree indicates the close sociocultural and religious links of the tribals with the forests. The members of each *gotra* worship a particular *gotra-vriksha* (lineage tree) after which it is named, and never cut or damage those trees. For example the tribals belonging to the *Piplahen* and *Aamaliyara* *gotras* worship the Pipal (*Ficus religiosa*) and Aamli (*Tamarandis indica*) trees, respectively.

Origins of Forest Degradation in Malekpur

The genesis of forest degradation in Malekpur can be traced back to colonial times, when the British introduced the *jagirdari* system of feudal lords in India. During this period, most of the indigenous community forest management systems of the region, such as *Malvan* and *Pada Pratha*, were systematically dismantled by shifting ownership of forest lands from local communities into the hands of private landlords. Under *Malvan*, families living in and around the foothills had protected forest patches in the vicinity of their houses and used them to meet their daily requirements. In the *Pada Pratha* system, village communities had managed forests, either collec-

tively or individually, by equally dividing the forest area among the tribal clans according to population and number of houses³. After the forests surrounding Malekpur were taken over by the Vijaynagar *jagirdar*, all customary management traditions eroded over time.

The *jagirdari* system was abolished in the 1960s by the government and all forest lands were nationalized. At this time, most of the trees were cut by the *jagirdars* themselves to liquidate the assets before handing over the land. The growing human and cattle population of the region exerted tremendous pressure on the few remaining forests of Malekpur. Though under the new regime the forests were owned by the state and administered through the forest department, in reality they were no different from open-access resources. In the free-for-all pil-laging that ensued throughout the 1970s and the early 1980s, almost all the forests of the region were wiped out.

The Impact of Forest Destruction

The destruction of this valuable natural asset severely affected the tribal population in Malekpur. Large-scale degradation of forests led to heavy soil erosion during the monsoons and caused substantial damage to agricultural lands. Over 10,000 hectares (24,000 acres) of fertile agricultural fields and forests were converted into unusable wastelands. The region also experienced a severe drought during 1985-1987, which further reduced agricultural production and heightened the misery of the villagers. Lacking sufficient fuel wood and with income from non-timber forest produce (NTFP) drying up, the villagers found it hard to meet even their basic sustenance needs. The unavailability of fodder impacted the health and milk production levels of their cattle, making the animals more of a liability than an asset. Combined with a totally

A Jhanjharmata Tree Growers Cooperative Society meeting in progress.



depleted natural asset base, the drought left the tribals of Malekpur staring poverty in the face.

Birth of the Tree Growers

In this grim context Malekpur villagers decided to come together to regenerate their degraded forest land. In the beginning, 67 households came forward to form an informal forest protection group. The group was named after the village deity, *Jhanjharmata*, and was officially registered as the Jhanjharmata Tree Growers Cooperative Society (JTGCS) in 1986. Recalling the lush forests that existed in the region 30 years earlier, JTGCS started its work by focusing on the village itself. Aided by the Vikram Sarabhai Centre for Development Interaction (VIKSAT), a local NGO, it started to build a comprehensive portfolio of natural assets on village private lands (as well as gardens, fodder development, and biogas programs), and began weaning the tribals away from the forests by creating alternative sources of fodder, fuel wood, and small timber.

One of the key individuals behind the formation of

the JTGCS was Siddharajbhai Solanki, an academic from Gujarat Agricultural University. Originally an inhabitant of this region, since the early 1980s he had been constantly encouraging the villagers to revive their traditional farming and resource management practices. Together with VIKSAT, he organized numerous meetings in Malekpur to motivate the villagers to regenerate their degraded forest lands.

Building Natural Assets on Village Private Lands

Under the Vikas Bagh (Homestead Garden) program, 36 horticulture plots comprising more than 100 fruit, fodder, and fuel wood species were developed by the farmers of Malekpur on their private lands.⁴ A nursery was also established in which 23 farmers raised 168,000 saplings over a five-year period. These saplings were distributed among the farmers to develop block and peripheral plantations in the village. A specific fodder development program was also initiated, in which over 120 farmers agreed to cultivate *pioneer jowar*, a fast growing fodder species, on small portions of their agricultural land. Villagers simulta-

Today, over 63,000 village-level institutions all over the country, involving 2.8 million families, are protecting and managing more than 14 million hectares of forest lands.



Through their decade-long forest protection efforts, the people of Malekpur have dramatically changed their lives for the better.

neously launched a biogas program to provide an alternative to fuel wood; a total of 20 biogas plants were set up.

Regenerating Degraded Forest land

Though the JTGCS had been informally protecting the forest land around Malekpur, in November 1990 it formalized its work by constituting a forest protection committee. With the promulgation of the formal state government resolution on JFM in March 1991, the JTGCS subsequently received official recognition to carry on its activities. First, it banned free grazing and tree cutting in the entire 167 hectares (300 acres) of forest land. Luckily for the villagers, apart from the 45 hectares where plantation work had already been started by the forest department, the remaining 122 hectares had sufficient underlying rootstock. With constant protection, the degraded forests slowly started regenerating, as coppice shoots began emerging from the rootstock. The entire community participated in forest protection on a rotational basis by forming *vara*, relay groups of four or five community members. As the system of rules and regulations stabilized, the JTGCS later appointed two paid watchmen to take over this process.

However, intervillage conflicts posed serious challenges to the villagers. In the earliest days of protection, they used to put up a live cactus fence to reduce the intrusion of cattle from neighboring villages. But realizing that physical fencing could at best be a short-term solution, the JTGCS wrote to the *sarpanches* (leaders) of neighboring villages to educate them about the protection activities initiated in Malekpur, and urged them to cooperate in the process. In July 1992, JTGCS members confiscated a herd of cattle which had intruded into their forest from the neighboring Vejpur village. However, the owners of



Tree plantation tended by villagers.

the cattle forcibly took back the animals. The JTGCS members subsequently filed a police report, and the court ordered the cattle owners to pay a fine. This ruling boosted the confidence of the JTGCS and sent a strong message to neighboring villages that Malekpur was serious about JFM.

Over time, the JTGCS moved from forest protection to forest management, undertaking a number of technical interventions such as cutback operation, pruning of *timru* or cheroot leaves, and fodder management with the help of the forest department. It also developed practices to ensure the sustainable collection of fuel wood and fodder.

Impact of JFM in Malekpur Village

JFM not only rebuilt the forest assets in Malekpur, but also created new natural assets on private land. In the process, it helped the villagers to simultaneously build other forms of assets—financial, physical, human and social—which have had numerous positive impacts.

Natural Capital: Today the barren forest lands of Malekpur have transformed into dense green forests with over 35 different species of trees. The regenerated vegeta-

A member of the Jhanjharmata Tree Growers Cooperative Society addressing a public meeting in Malekpur Village.



tion has led to improved groundwater recharge and to a sharp rise in the water table. Further, the improved natural habitat has facilitated the return of wildlife and other diverse bioforms. In 2000-2001 alone, 80,000 kilos of fuel wood and 100,000 bundles of grass worth 360,000 rupees (about US\$7,500) were collected from the JFM area.⁵ The building of natural capital through JFM has thus helped local villagers to sustainably meet their basic fuel wood, fodder, and small timber requirements.

Financial Capital: JFM also created substantial wealth in Malekpur. In the aggregate, lower soil runoff and higher water availability improved the annual agricultural production by Rs. 200,000-300,000 (about US\$4,000-6,000).⁶ Greater availability of fodder encouraged the villagers to buy 45 high yielding milch buffaloes, increasing the milk production from 30-50 liters per day to around 300 liters per day. This has led to a substantial increase in village income. The sale of non-timber forest products under JFM also enhanced

income levels. For instance, the average revenue generated per annum through the collection of *timru* leaves grew from Rs. 2,500 in 1986-1988 to Rs. 100,000 in 1999-2001, a 40-fold increase.⁷

Physical Capital: JFM helped build many physical assets in Malekpur as well. A lift irrigation system was installed to provide 45 acres of agricultural land with assured irrigation throughout the year. In 1999-2000, an investment of approximately Rs. 700,000 (about US\$14,500) was made under which field bunds were developed for 85 farmers. Four leaf cup machines and four hand pumps were also installed in the village. Further, a primary school building was constructed, and books, musical instruments, and sports kits were purchased for the village children. An all-weather road to Bhiloda, site of the main market, has also been constructed recently.

Human Capital: One of the most beneficial impacts of JFM has been the development of human capital in

With constant protection, the degraded forests slowly started regenerating, as coppice shoots began emerging from the rootstock.



Villagers simultaneously launched a biogas program to provide an alternative to fuel wood.

Malekpur. Both women and men members of the JTGCS have gained in confidence and become aware of their rights. There has been significant leadership development within the village. The active participation of women has helped ensure that their priorities are well taken care of. Also, as children no longer have to graze cattle or go for fuel wood collection, almost 100 percent of them attend school.⁸

Social Capital: Perhaps the most important impact of JFM can be seen in the improved social environment of the village. Before JFM, villagers were concerned about the welfare of their own families only. But now people consider common village interests. By ensuring the representation of all caste groups, women, and landless poor in the JTGCS, and by establishing equitable benefit-sharing mechanisms, JFM has ingrained the concepts of social and environmental justice into the minds of the villagers. One of the most enduring impacts of JFM has been the improvement of relations between villagers and the forest department. In the early 1980s, the villagers could never have pictured themselves visiting the office of the forest department, so fearful were they of the

agency's power. Today, however, there is an atmosphere of openness and trust between the people and the department.⁹ To promote "people-to-people" contact outside the boundaries of Malekpur, the JTGCS has also inspired more than 50 villages in Bhiloda *taluka* to undertake JFM. This ripple effect has culminated in the formation of a *taluka*-level federation of these villages to strengthen the JFM process further.

Conclusion

Malekpur has emerged as a model JFM village today. Through their decade-long forest protection efforts, the tribals of Malekpur have dramatically changed their lives for the better. Initiated at a time when they were facing abject poverty, their success in implementing JFM has exploded the myth that democratizing natural assets for poverty reduction is a recipe for environmental damage. The numerous tangible and intangible assets they have built provide them with multiple mutually reinforcing benefits and have truly set them on a path of economically progressive, socially equitable, and environmentally sustainable development. 🌀

Biogas plants reduce dependence on forests.

The First Nations Reclaim a Temperate Rain Forest

There is a photograph taken in August 2000 of a tree being cut down in the lush Pacific coastal rain forests on the west coast of Vancouver Island, Canada. Joe Campbell, a member of the Ahousaht First Nation, is one of several tribal members pictured saying a prayer near the old-growth cedar. Minutes later, as that tree came crashing down onto the soft forest floor, the hopes of people like Joe soared.

Joe is a Nuu-chah-nulth Indian. As close as he'd ever come before to logging was when he trained as a carpenter in his youth, although he soon got hired as a tribal administrator and has been one ever since. But there he was in the woods that summer's day at the turn of the century, giving his

British Columbia, Canada

blessing to a remarkable new forestry venture on his tribe's traditional territory. Remarkable, because environmentalists who had bitterly fought logging in Clayoquot Sound for decades, stood alongside their long-time forest industry foes; and all sides applauded as Joe's people cut down an old-growth tree. And even more remarkable for the fact that, for the first time in living memory, Joe's people had a real say in how their forests were managed.

"Our belief is that everything is one, and that's the way we should manage it," Joe says today. Everything is one. Or in Joe's native language, *Hishuk-ish ts'awalk* (He-shook-ish-sa-walk). Everything is one. That idea is at the core of the principles and values that guide the operations of Iisaak Forest Resources, a tiny native-led forest products company that embodies a radical experiment in how Canada manages its forests.

In Joe's language, *Iisaak* (E-sock) means respect. Put another way, the company's name is Respect Forest Resources. For Joe Campbell and his people, that means "we want to go logging, but be sensitive to all areas." It means planning not for maximum volume of wood cut, but for minimum impact on the forest. It means putting as much value on the social and ecological benefits that accrue from logging as the economic ones. It also means that Joe Campbell is now in the logging business – as Chair of the Board of Iisaak Forest Resources.



By Ian Gill

Ian Gill is the founder and president of Ecotrust Canada. He lives in Vancouver and Tofino, British Columbia, with his partner Jennifer and their three children, Jasper, Fergus, and Lucy. He is a former television broadcaster and newspaper reporter, author of two books, and a dedicated conservationist.

**BUILDING NATURAL ASSETS
AT SCALE**



“I’ve never logged in my life,” Joe says with a laugh. “I kinda had to learn quick.”

Joe’s tribe, the Ahousaht First Nation, is one of five Nuu-chah-nulth nations that are shareholders in Iisaak (the others are the Hesquiaht, Tla-o-qui-aht, Toquaht, and Ucluelet Nations). He and his fellow tribal members have had to learn a lot about running a forest company in a very short time, but what they had long known all too well was that their forests were being ransacked, their people were falling deeper into poverty, their salmon resources were dwindling before their eyes, and they were powerless to do anything about it.

With the formation of Iisaak Forest Resources, the tribes on Vancouver Island’s West Coast have an opportunity to exert new-found power and to radically alter the social, economic, and ecological landscape of their territory.

Iisaak’s operating area is in Clayoquot Sound. It is a place of spectacular beauty, and international infamy. Beauty, in that it contains some of the richest temperate rainforests left in the world. Coastal temperate rainforests like those in Clayoquot Sound accumulate a greater volume of organic matter per hectare than any other forest type in the world – more even than tropical rainforests. Clayoquot measures 260,000 hectares (624,000 acres) in total land area, but just as important are its estuaries, its intertidal zones, and the dynamic force of the Pacific Ocean, whose nutrient upwellings produce an abundance of marine species that once made these coastal tribes some of the most prosperous in the world. And this is truly a rainforest – in 1995, Clayoquot Lake recorded 646 centimeters (about 250 inches) of rainfall, the wettest place in North America that year. The area teems with birdlife, and boasts huge trees – some more than 1,000



years old. In recognition of these and myriad other values, the area was declared a UNESCO Man and the Biosphere Reserve in 2000.

Clayoquot Sound might have been logged, unnoticed by the world, except that in the 1970s, ironically, a logging road gave Canadians access to the area; and many of those who followed it fell instantly in love with the place.

Joe Campbell says a blessing before a logging operation.

With the formation of Iisaak Forest Resources, the tribes on Vancouver Island's West Coast have an opportunity to exert new-found power and to radically alter the social, economic, and ecological landscape of their territory.

Gradually, opposition to the encroachment of industrial logging grew from a local rumble to an international roar. Clayoquot became Canada's black eye; and that infamy reached its zenith in 1993, when thousands of Canadians travelled to Clayoquot Sound to stare down industry, workers, the government, and the police – to face arrest and imprisonment rather than see the last of the rainforest valleys desecrated by industrial logging. In all, more than 800 people were arrested for trying to block logging roads during the long, hot summer; and soon after British Columbia conducted the largest mass trials in Canadian history.

Years before that, environmentalists and some Nuu-chah-nulth tribal members had joined forces to oppose logging in key areas of Clayoquot Sound. They notched some minor victories, and the protests of 1993 convinced British Columbia to protect even more of the sound's valleys from logging. More important, the government was forced to acknowledge that First Nations had a legitimate stake in how resources in their territory were managed, and how the benefits were shared. This was the seed from which Iisaak would grow.

Canada's indigenous peoples are called First Nations, but in fact they have typically been last in line for the benefits of Canada's development as a nation. When the United Nations measures the best countries in the world in which to live, Canada consistently ranks at or near the top. Apply the same measures only to Canada's First Nations, and they come out in 63rd place.

In Clayoquot Sound, the First Nations comprise about half the permanent population of around 5,000 people (there is a massive influx of tourists during the summer). But the indigenous peoples have been forced

to live on tiny reserves that account for less than 0.5 percent of their traditional territories; they actually own almost none of their traditional lands. Unemployment varies from 60 to 85 percent on reserves, many times above the national average. All this, against a background of incredible ecological and economic abundance.

In the early 1990s, British Columbia First Nations began to negotiate modern-day treaties with the governments of Canada and British Columbia. Backed by a series of landmark court rulings in their favor, they began to claim aboriginal rights and title to lands that had never been ceded in treaties. Their claims and their growing militancy coincided with the increasing ability of environmental groups to capture public sentiment for protecting Canada's forests – and the international marketplace's nascent demand for sustainably harvested wood.

Iisaak Forest Resources is a product of all those forces – and, to many people's surprise, of one other key ingredient: the willingness of a major industrial forest company to experiment with a way of doing forestry that is anything but conventional and anything but industrial. The firm is Weyerhaeuser Company (Weyco), and in North America, they don't come any bigger. But Weyerhaeuser had astutely recognized that it had lost its "social license" to log in Clayoquot Sound, so as it closed its operations in the area after the summer of 1993, it began negotiations with the Nuu-chah-nulth First Nations that eventually led to the creation of Iisaak.

There are many joint ventures between forest companies and native tribes in the B.C. woods, but most are structured to favor the companies' uninterrupted access to the timber, with dubious benefits to local people. Iisaak is different. The natives own 51 per cent of the



Iisaak forester and her First Nations assistant.

**BUILDING NATURAL ASSETS
AT SCALE**



**Peter Campbell, son of
Joe Campbell.**

company, Weyco the balance. The natives have three board members, Weyco two. The British Columbia government created a special tenure to allow the new company access to harvestable areas (almost all B.C. forest lands are Crown, or publicly owned, lands which are leased to forest companies in return for a tax known as “stumpage.”) After years of planning and plenty of sunk costs, Iisaak logged 10,000 cubic meters of wood in 2000. Flying over the harvested areas, you can barely see where they were logged. Contrast that to the days when companies took more than 900,000 cubic meters of wood a year out of Clayoquot – scraping steep hillsides bare, choking salmon streams with silt and debris, and leaving huge, ugly scars on the land.

“In the past, clear-cutting was what happened in Clayoquot, and that was not acceptable,” says Anne Atleo, Chief of the Ahousaht First Nation. “We wanted to change that, [and with Iisaak] we have a say now in how it’s going to operate, and we’re able to tell the world, ‘This is how we think logging should happen.’”

Iisaak’s emergence was timely—not only because Canada’s forest practices have needed dramatic reform for decades, not only because environmentalists were winning the battle for Canadians’ hearts and minds, and not only because First Nations had been denied access to their own territorial resources for too long and were finding their footing in treaty-making. The company also came into being just as global consumers of wood products were demanding to know where their wood came from, and in some cases were even prepared to pay a premium to ensure it was sustainably harvested.

Iisaak was quick to recognize that it could benefit from an eco-certification, and it sought and achieved Forest Stewardship Council (FSC) sanction as a com-



pany that embraces the highest standards of forest management and takes into account community benefits and ecological integrity in its operating area. FSC certification also served to meet the concerns of the local and international environmental organizations, and of Canadian citizens more broadly, who had protested against logging in Clayoquot Sound in 1993.

**Selective harvesting
contrasts with past
clear-cutting.**

Historically, timber cutting in indigenous forests has taken place with only token consultation with local people, and often against their expressed wishes. So having a real say in what happens on the land is a radical departure from convention.

With certification they could be reasonably confident that Iisaak's forest management practices would be as sustainable as possible and monitored continuously by independent auditors. Getting FSC certification followed naturally from standards that were already a hallmark of the company.

"First Nations' values are the values we follow," says Ted Kimoto, a Weyerhaeuser member on Iisaak's board. "We want to leave as much for future generations as we take out of the forests."

Iisaak plans to log 35,000 cubic meters of wood in 2002, having not logged at all in 2001. Some environmentalists have begun to grumble at that level of logging, while some holdouts from industrial logging claim that the company logs way too little to be viable, and that it won't create enough wealth from the woods. In an investment plan published in April this year, Iisaak acknowledged the need to "find the zone of 'tolerable tension'" between its conservation and economic values.

The tension will only get worse if the company's financial performance doesn't get better. By early 2002 it had spent \$2.3 million Canadian (about US\$1.5 million) and had lost \$550,000 a year (US\$400,000) since start-up in 1999. It anticipates positive cash flow in 2002. Joe Campbell says there will be no cash distribution to shareholders until 2004, although he claims his people benefit already from numerous local spin-offs from the company's \$3.5 million per year in spending and contracting that is steered toward First Nations suppliers. Iisaak employs three First Nations members out of a full-time staff of six, and is expected to generate the equivalent of 25 more jobs locally during the summer season.

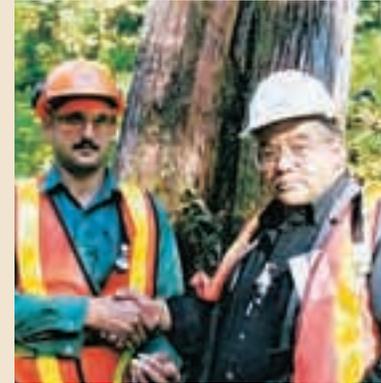
Will Iisaak succeed? And in doing so, can it create a way to value conservation, while creating long-term economic benefits? Linda Coady, a vice-president of Weyerhaeuser and the company's other member on the Iisaak board, says that "for a long time people thought the only way to 'save' forests like the ones in Clayoquot Sound was to make it all a park." But First Nations don't want all their territory tied up in parks, and people need to make a living in forest-dependent communities. "There has to be a different way through, and that's what Iisaak is trying to find."

Back in the woods of Clayoquot Sound, Iisaak's loggers don't say a prayer for every tree that gets logged. But in a place where the stakes are so high, in a place the whole world is watching, it is an article of faith that Iisaak has to succeed - not just for the Nuu-chah-nulth, but for all First Nations in British Columbia, and for indigenous people everywhere.

For Joe Campbell, an unanticipated benefit of Iisaak is that his people are finally starting to find a voice. "We have a lot more freedom of speech, to say what we really feel," he says, and to be heard. Historically, timber cutting in indigenous forests has taken place with only token consultation with local people, and often against their expressed wishes. So having a real say in what happens on the land is a radical departure from convention.

Other First Nations are listening, too and watching Iisaak closely, evaluating whether it holds promise for their communities to find a different way through.

"If we succeed, no, I should say *when* we succeed, it's going to be huge for all our people," says Joe Campbell. ☺☺





An Amazon State Forges a Sustainable Future

⚡ **The shantytowns that dot the outskirts of Rio Branco**, capital of the western Amazon state of Acre, appear no different from marginalized communities in most Brazilian cities. They stand as living symbols of failed development policies that often relegate small-scale rural producers to an existence devoid of health care, education, or economic opportunity. But in striking contrast to the rest of Brazil, more than 1,200 migrant families here have returned to the forest, once again taking up small-scale agriculture and extractive activities.

State of Acre, Brazil



This turnaround began in 1999 when the *Governo da Floresta* (Government of the Forest, or GF), the newly elected state administration, enacted its first piece of legislation, the Chico Mendes Law, named in honor of Acre's legendary social activist. The law is the cornerstone for a cycle of social benefits that liberated rubber tappers from a legacy of debt peonage and breathed new life into the state's stagnating rubber market. It has sparked a 200 percent jump in production by paying *seringueiro* (rubber tapper) families a fair price on a reliable schedule. Revenues generated by rubber sales are reinvested in the once languishing rubber infrastructure (docks, processing plants, etc.) and also serve to secure federal matching funds for in-state development. By making viable the extractive activities on which Acre's forest peoples depend economically and culturally, the law is helping to revitalize rural communities.

Together with the Chico Mendes Law, new *centros de florestania*, forest community centers, are filling the historical gap in rural social services, such as the technical assistance and extension needed to support sustainable forest economic activities. Health services are expanding with a string of well-equipped clinics whose staff blends traditional with western health-care practices. And a major infrastructure project to provide water for indigenous communities is slated to generate 450 new jobs.

Across the state, the youth of Acre are enjoying dramatic upgrades in education, with over 100 new schools and improved teacher training; enrollment is up by over 20 percent. The GF program has helped refurbish the satellite campuses of the *Universidade Federal do Acre* (Federal University of Acre, UFAC) and provides incentives for state staff to continue professional development. Together with the inflow of new

By Mary Witoszynsky

Mary Witoszynsky is a writer who has worked on sustainable development issues in Mexico, Zimbabwe, and Brazil, where she currently resides. In her book, *The Water Harvester*, Zephaniah Phiri describes his lifelong community development work based on resource conservation for family self-reliance among subsistence farmers throughout southern Africa.



Low-impact timber harvesting is designed to leave a minimal footprint.

high school graduates, this has tripled university enrollment. As GF leadership notes, “It’s impossible to make lasting changes without a profound and radical transformation in education.”

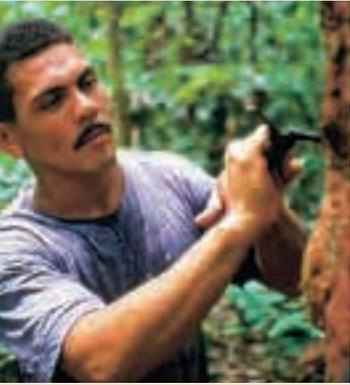
Thanks to Chico Mendes and the thousands of families who fought to protect the forest, 90 percent of the woodlands covering Acre’s 153,150 square kilometers remain intact. *Governo da Floresta* planners have given top priority to sustainable management of this rich biodiversity while rationalizing resource development to provide the greatest social benefit. State secretaries worked closely with UFAC researchers to establish the groundbreaking *Zoneamento Ecológico-Econômico* (ZEE), Brazil’s most comprehensive ecological-economic zoning plan. The ZEE is a strategic planning instrument that couples scientific surveys with economic analyses of carrying capacities for a variety of land and resource uses. Rather than simply being site- or resource-specific, however, the ZEE

is statewide in scope. “Such detailed planning was demanded by businesses that needed clear rules for investment,” says Acre Planning Secretary Gilberto Siqueira, “and our communities – indigenous peoples, rubber tappers – needed clear guidelines in order to live in peace.” Under GF administration, Acre secured US\$180 million from the Inter-American Development Bank for ZEE implementation and more recently collected R\$40 million (about US\$17 million) from the Brazilian National Development Bank, whose leaders suggest that the overall GF development model be extended throughout the Brazilian Amazon.

The Will of the People

Acre’s peaceful revolution is the result of a long struggle for social justice, democracy, and sustainable development. The *Governo da Floresta* continues to confront historical challenges such as inadequate funding, limited

Thanks to Chico Mendes and the thousands of families who fought to protect the forest, 90 percent of the woodlands covering Acre’s 153,150 square kilometers remain intact.



A seringueiro tends to his sustainable forest trade.

infrastructure, a dearth of professionals, low income and education levels of the populace, geographical isolation from major national and global markets, low valuation of primary products, and pressure from political elites who have long benefited from predatory exploitation of natural assets and have considerable resources to affect electoral outcomes.

“Not long ago,” says Governor Jorge Viana, a forestry engineer, “people who defended the environment were considered ‘rebels without a cause,’ dreamers.”

They were stigmatized for supposedly being against “progress.” They were accused of wanting to preserve nature to the detriment of human beings – we feel this in our skin here in Acre. Our insistence on creating a development model based on a forest economy cost us dearly – from having our political objectives misrepresented, to the violence that killed our colleagues, as was the case with Chico Mendes. We want to put an end to the days when politicians governed only for an elite few who ravaged our natural resources and ignored the needs of our people.

The GF vision is deeply rooted in the social movement that arose in the 1970s when Acre’s native son, Chico Mendes, fellow grassroots leaders, and thousands of local families launched the fight for the forest. Senator Marina Silva, a former *seringueira* and co-founder with Mendes of the Rural Workers Union and Rubber Tappers Movement, represents Acre in Brazil’s Federal Senate. She recalls the early days of the struggle:

At first, we fought to save the forest, but not with an explicit environmental awareness – we were fighting for our livelihoods, our way of life. But our struggle identified with others around the world, and we came to recognize that our battle for land and resource rights was

Xapuri is restoring its historic riverfront, social and cultural life thrives, and crime has dropped precipitously.

also a fight for the environment. Chico understood this process very well and he worked to build alliances and networks throughout Brazil and the world.

The movement relied on *empates*, nonviolent resistance to extensive logging and clearing of rain forest, and worked with international environmental groups, multilateral funding agencies, and those few in government who would listen to its pleas for a system of sustainable use for Amazon forests. When Mendes and several of his comrades were assassinated for maintaining the courage of their conviction, the world stood up and took notice. Yet even as this movement’s efforts halted or re-directed many development projects that were felling the trees, the people of the forest remained hostage to underdevelopment. This next phase of the battle was fought at the ballot box and the *Governo da Floresta* was put in office.

“Xapuri for All”

The city of Xapuri and the neighboring community of Seringal Cachoeira illustrate the positive impact of the *Governo da Floresta*. Under the “Xapuri for All” program, this city of 11,000 people has been transformed. The streets are clean and in good repair, the houses freshly painted, and new businesses are opening. Xapuri is restoring its historic riverfront, social and cultural life thrives, and crime has dropped precipitously. For the first time, citizens have access to quality health care and good schools.

“The government’s role,” explains Mayor Julio Barbosa, “is not to run projects, but to create conditions and incentives. In a state like Acre, with limited private investment, the commitment of state and local governments to work with business and civil society for the common good is essential.” New processing plants “add value to forest



New co-ops for Brazil nut and manioc producers have extended entrepreneurship to Acre residents.

products. This creates jobs and increases revenue for local re-investment,” the mayor continues. “It all seems easy, doesn’t it?” he adds with a smile.

Residents of Seringal Cachoeira have developed a model sustainable-use plan for their 25,000-hectare (60,000-acre) extractive reserve. Extractive reserves, also inspired by Chico Mendes, were established in 1990 under a federal provision to allocate government land to traditional forest communities such as *seringueiros*, who, with appropriate management plans, may engage in economic activities based on sustainable use of forest resources. Here, the plan involves the joint participation of the local community, the state Secretariat of Forests and Extractive Reserves, the municipality of Xapuri, UFAC, the *Universidade de São Paulo* (University of São Paulo, USP), and state-based NGOs. The plan details sustainable uses for traditional products such as Brazil nuts and identifies a number of new ones: essential oils, palm hearts, and tropical fruits.

As with rubber, Brazil nut gathering was formerly subjected to paltry financial return. Under the GF framework, however, middlemen are being replaced with producer cooperatives and processing facilities for Brazil nuts and a broader range of forest products, such as *cupuaçu*

fruit that is locally prepared for market in the form of frozen pulp. Producers of sustainably-harvested palm hearts and such staples as manioc meal, the energizing beverage *guaraná*, and Brazil nuts have received a major boost from an innovative marketing program that includes attractive new packaging and on-line sales via the GF website www.ac.gov.br. “If we succeed in establishing viable economic activities that don’t destroy the forest and create misery and exclusion,” says Carlos Vicente, Acre Secretary of Forests and Extractive Reserves, “then we will be making a major contribution toward a positive future.”

A New Approach to Forest Management

The GF’s ZEE database for sustainable socioeconomic development also indicated that low-impact timber harvesting could become an important venture for local citizens. As Planning Secretary Siqueira notes, the GF has “clear goals to combat poverty and create jobs through sustainable use of forest resources. We must grow by using the natural endowment of the forest and its people. Through these key assets, we seek to establish a new entrepreneurial culture.” So, rather than export raw hardwoods, plans called for training expertise to be imported

We must grow by using the natural endowment of the forest and its people. Through these key assets, we seek to establish a new entrepreneurial culture.

Gilberto Siqueira,
Acre planning secretary

**BUILDING NATURAL ASSETS
AT SCALE**



Left: Senator Marina Silva (center) inaugurates an income-generation program for urban residents.

to the forest to hone local talent capable of transforming raw lumber into high quality finished wood products. Master São Paulo designer, Etel Carmona, was invited to set up a small furniture workshop in Xapuri to apprentice new artisans in the creation of goods crafted for high-end world furniture markets.

In April 2002, the Forest Stewardship Council (FSC) certified the harvesting methods of Brazil's first community-based, sustainable timber-extraction program in Xapuri/Seringal Cachoeira. Nineteen families currently operate this Participatory Forest Gardening project that provides certified wood to the Xapuri furniture workshop. Raw timber and finished wood products with FSC certification command significantly higher prices. Program consultant Virgilio Viana (no relation to the governor), a USP forestry professor, calls the project a "second *empate*, which evolved from the effort to halt unregulated logging, sometimes by *seringueiros* themselves. The challenge was to convince purists who view logging as a betrayal of Chico Mendes's ideals that, first, timber can be harvested for significant income and, second, that if timber is to be harvested, then it must be done sustainably."

Equipped with the Chico Mendes Law, Senator Marina Silva helped secure a viable market for Acre rubber extractors by negotiating with Italian tire maker, Pirelli, whose Brazil operations buy 1,500 tons per year of the state's production. The global purveyor proclaims that it "guarantees work and income for more than 6,000 *seringueiro* families... [using] raw material from native trees, thus representing the conservation of nearly 90,000 hectares (216,000 acres) of forest." In November 2000, Pirelli Brazil introduced the "Xapuri," its first tire produced of 100 percent domestic latex. "The Xapuri is a social investment that is part of our corporate environ-



mental policy," said Giorgio della Seta, president of Pirelli Brazil.

Diversification in the rubber sector is a further GF priority. Acre latex is also vital to health-care products, and plans are in place to establish a condom and surgical glove plant in Xapuri. Tappers also support a growing industry in *couro vegetal*, or botanical leather, promoted by the *Instituto Nawa*, whose TreeTap® label can be seen on such rubber-coated items as backpacks and travel kits. "We do not want to enter the global marketplace through the back door," says Antonio Alves, who heads Acre's Secretariat of Culture. "We want to come in through the front door and demand fairness like people from any other part of the world."

Partnering for a Sustainable Future

Beyond the Brazilian Amazon, the *Governo da Floresta* is broadening its leadership role by sharing its sustainable development experience with its Andean neighbors. As geophysicist Foster Brown, senior scientist at Woods Hole Research Institute and UFAC professor, enjoys explaining, "Acre is the 'center' of a trinational universe – Bolivia, Peru, Brazil – that will undergo increasing commercial expansion upon completion of two transcontinental highways linking the Atlantic with the Pacific oceans by crossing the Amazon Basin and the Andes highlands. Our goal is to ensure that new development respects the needs of people and the environment."

UFAC coordinates a series of public fora with organizations across the trinational region. Backed by solid UFAC research and outreach, Governor Viana also works to help ensure that the promise of sustainable development does not stop at Acre's borders. In a major trinational encounter with business executives, NGOs,

We do not want to enter the global marketplace through the back door. We want to come in through the front door and demand fairness like people from any other part of the world.

Antonio Alves,
Acre culture secretary



Producer owned cooperatives enhance market access and improve livelihoods.

civic groups, and elected officials, Viana was the sole government representative to emphasize the need for well-designed sustainable development initiatives for this eminently fragile region – as opposed to the usual single-minded focus on commercial opportunism. Proposed safeguards include a trinational ZEE and the establishment of a multisectoral, trinational planning commission.

Viana, Senator Silva, and the entire state team have taken a distinctly holistic approach to developing an extensive array of social and natural assets to improve the quality of life for all 600,000 Acreans. The *Governo da Floresta* is beginning to break the vicious cycles of human exploitation and environmental degradation that it inherited. “Sustainable development,” says Silva, “is something significant that will never be the work of just one individual or group. It demands the effort of all humanity.”

Another noteworthy characteristic of the GF’s approach is its unprecedented cooperation with Acre’s diverse indigenous communities. “Never before have we had such an opening to present our interests and needs to state authorities,” comments Sebastião Manchineri, general director of the Coordinating Body of Indigenous Organizations in the Amazon Basin (COICA), and himself inspired at the age of 15 by the



social activism of Chico Mendes. “With the *Governo da Floresta* we have direct participation and negotiation on matters of vital concern to our survival. We now sense respect for our knowledge and culture that had been suppressed for 500 years.”

The Acre government’s careful consideration of the state’s abundance of assets is illustrating the viability of sustainable development alternatives. The multiparty Government of the Forest is providing the managerial assets needed to make it work, yet Governor Viana gives full credit to the people of Acre: “Society creates solutions, and what we are doing is a proposal of the Amazonian people, our ideal.” The governor continues:

A government platform based on socioenvironmentalism needs to be viewed as viable, tangible, and better than all other options. It is a difficult task because it involves a structural change in perspective. But what we are doing here in Acre, thank God, is something everyone wants to do – turn dreams into reality. It is making Chico Mendes’s dream come true, the dream of the people of the forest. It is an immense challenge that is only just starting. We know where it begins. Where it will end, we do not know. We only know we have a very long path to follow. 🌱

Sustainable development is something significant that will never be the work of just one individual or group. It demands the effort of all humanity.

Senator Marina Silva

New Paths to the Future



HUMAN ASSETS

There is much to celebrate in these 14 trail-blazing initiatives that are opening new paths to empowerment, environmental protection, social equity, and an improved quality of life—sustainable development in all its fullness! And there is much to learn from how these efforts emerged and were strengthened, and what they tell us about strategies for the way forward.

LESSON 1:

Local communities can create their own sustainable futures.

These bold initiatives were created and promoted by local communities that mobilized for self-empowerment to gain decision-making control over their lives. Indeed, these stories illustrate that community-based sustainable development can make a real difference, in both developed and developing country contexts, if it is rooted in the experience and knowledge of local people, is managed and controlled by the communities themselves, and combines traditional knowledge with modern techniques.

A community-based approach requires the alignment of local dynamics:

- *Strong social capital* and *effective representative local organizations* that can build community consensus around critical social and economic decisions. The Purépecha of San Juan Nuevo, Mexico, would not have been able to create an industrial-scale, globally certified, sustainably managed forestry and wood products enterprise without a strong culture of trust and reciprocity. Similarly, the advances in Acre, Brazil would have been impossible without forest communities first mobilizing to defend their way of life against encroaching cattle ranchers and then taking electoral action that succeeded in putting state government's resources in service of community-based sustainable development.
- *Secure land and resource rights* — the *sine qua non* for promoting equitable and sustainable development. The Makulekes of South Africa are converting themselves from a community that generated migrants, because its resource base was too poor to support families, into a community that builds livelihoods and community infrastructure on the basis of its newly-restored land rights. The *zebaleen* of Cairo, on the other hand, are most severely challenged because their access to an unrecog-

nized resource, urban waste, is threatened by corporate competition over the economic value in that asset.

- *Knowledge of how to manage natural assets*, improve production technologies, and take advantage of market dynamics. The organic and Fair Trade Certified coffee producers of Oaxaca, Mexico, and the organic cashew farmers of the Bajo Lempa, El Salvador, as well as the sustainable forestry enterprises of the First Nations in Canada, illustrate the potential of local communities to understand and participate in the most modern of socially and environmentally sustainable global markets, with tangible benefits for both individual producers and their communities.
- *Access to financial capital*, whether internally generated or externally provided, to develop key community and economic capacities. The pooling of community financial resources in Karnataka, India, is the fulcrum for making improvements in agricultural production, natural resource restoration, and expanded sustainable livelihoods.
- *Supportive enabling policy environments*, including good governance and appropriate policy instruments that support sustainable development practices. A local, state or provincial, regional, or national government that is proactively open to rethinking the management of a full range of key assets—such as the approach taken in Acre—builds upon local initiatives, legitimizes them, and provides them with resources that permit rapid growth in the scale of sustainable development activities.
- *Active citizen engagement*, through access to effective, affordable technology and smart media campaigns. The key to the success of the “Bucket Brigades” in California, South Africa, and elsewhere has been the combination of credible technical information on air quality and brilliant media-based campaigns on the part of community-based organizations.
- *New enabling institutions and bold partnerships* between local and external actors. The creation of the lisaak forest management partnership with Weyerhaeuser Corporation was facilitated by external pressure upon the forest products company to resolve First Nations territorial claims and to conduct forest management more consistent with the traditional values of the region's first inhabitants. Similarly, the strong partnership between the Xapuri communities of Acre with the University of

Acre, the Pirelli Tire Corporation, and Etel Furniture Designers has significantly added value to primary forest products and created hundreds of new jobs.

- *Building upon local cultural practices and knowledge.* The Xikrin of Brazil have begun to develop livelihoods that build upon traditional cultural values of what we now call “sustainable management,” rather than converting to externally driven modes of “modern” agricultural practice and forest management. The fishers of Balayan Bay, Philippines, have come to understand the benefits for both small-scale fishing and marine tourism in establishing community-managed sanctuaries for reproduction of fish populations. It is their movement *away from* competitive, unregulated access to marine resources that offers hope for richer and more sustainable livelihoods.

LESSON 2:

Building natural assets strengthens local sustainable development

In the not so distant past, when policies for alleviating poverty focused primarily on raising income and consumption levels through relief programs, the notion of encouraging people with low incomes to restore their natural resources, strengthen their stewardship of them, and convert them into bases for more sustainable livelihoods would have been scoffed at. Even today there remains considerable skepticism in some of the official development assistance community about the ability of local communities to adopt strategies that are capable of transforming their ways of life.

The skepticism is ill founded, as the 14 case studies presented here clearly suggest. These are stories of individuals, organizations, and communities that have demonstrated remarkable foresight, intelligence, and capabilities for collective action that are far beyond what is often acknowledged as possible. In each of the following dimensions of a strategy for building natural assets, the power of the approach can be seen.

- *Social mobilization based on natural assets.* What happens when environmental issues are brought to the attention of large, politically diverse constituencies? Because natural assets are eminently visible and inherently place-based, they command attention. They provide strong bases

for social mobilization across economic and social lines. Whether one focuses on the urban “bucket brigades” of Los Angeles or the *seringueiros* of Brazil, threats to natural assets can move public opinion, which in turn can lead to policy changes. Clean air and preserved tropical forests appeal to the instincts of citizens everywhere.

- *Local control of natural assets.* What happens when we put natural resources confidently into the hands of low-income local communities? Sometimes the context or the policy structure has led communities toward degradation of those resources. That is part of the sad legacy of many rural development efforts of the latter half of the last century. But the cases described here suggest that another result is, in fact, possible. When local collaborative efforts were encouraged rather than discouraged, the management of millions of hectares of forests in India, the western Amazon, and elsewhere improved. When rights of access were strengthened, rather than weakened, communities like the Mahenye in Zimbabwe protected their wildlife against poaching and built their present and future income potential.
- *Local restoration of natural assets.* What happens when communities have degraded their landscapes for many years? The skepticism that this can be reversed is often based on the history of past degradation. But Hayfork in the United States, Karnataka in India, and Balayan Bay in the Philippines all illustrate the ability of small communities to restore degraded natural assets and build new livelihoods upon them.
- *Changing markets for the products of natural assets.* What happens when isolated resource-dependent communities face the challenges of increased global competition? Examples of communities that abandoned traditional production and send their sons and daughters as migrants to other places are common. But a rapidly growing number of communities are learning to adapt their production to meet the global challenges, especially when they are given small doses of technical assistance that enable them to understand better the new options that emerge. The farmers of Bajo Lempa in El Salvador, the Xikrin of Brazil, and the First Nations of British Columbia in Canada are showing how this can be done.



SOCIAL ASSETS

- *New global opportunities based on natural assets.* What happens when apparently complex issues, such as payments for environmental services, are explained to well-organized communities with limited education? The example of Chalatenango in El Salvador suggests that they can understand them quickly and translate them effectively into proposals for improved management of upstream forests and farm fields.



NATURAL ASSETS

LESSON 3:

These case studies suggest strategies for the WSSD process

These encouraging initiatives demonstrate to the world that local level sustainable development is a reality – not merely a concept in formation – that should be acknowledged, nurtured, and expanded for even greater results. A critical area for future action includes devising creative ways to scale-up these local level successes—by building broader coalitions at national levels and by linking local/national efforts with regional and international processes in ways that create more enabling policy and institutional conditions.

The World Summit on Sustainable Development (WSSD) is more than an event. It is an elaborate global process that deliberately engages civil society, industry, and governments to reflect on the changes that have occurred since the Earth Summit in Rio and to propose new paths to a more sustainable future. This process provides a unique opportunity for building a mechanism to shape the policy, program, and institutional infrastructure to facilitate the expansion and strengthening of community-based sustainable development solutions.

It is also an opportunity for people “on the ground” around the world do come together and share experience.

In turn, we hope that lessons learned from these case studies will help build the emerging sustainable development paradigm and contribute to debates on a range of broader issues, including appropriate macroeconomic policies; relations among states, markets and people; and social development models that create appropriate enabling environments for local initiatives.

Together with our partners, we believe that these advances will not happen without fundamental reforms of development policy and practice at both the international and national levels. This includes structural changes in the global economic system so that the benefits of globalization may accrue more readily to all. We need implementation of alternative development strategies to achieve a new balance among economic, environmental, and social development. We need the benefits of globalization to favor historically disadvantaged communities. And we need basic changes in global governance that enable the voices of the less powerful to be heard and their interests to be recognized.

The WSSD process underway provides an opportunity to refocus global attention on these reforms. But what is essential is to have a clear political commitment and a concrete strategy for sustainable development—one that supports poverty eradication and social justice and creates the institutional and financing mechanisms for implementation. What is needed is an effective action plan with clear and measurable targets, indicators, rigorous time frames, and appropriate funding and institutional arrangements, as well as transparent mechanisms for monitoring and accountability.

The asset-building approaches to reducing poverty and injustice highlighted in this book provide an effective strategy for sustainable community development to which local and national governments, the private sector, and donor agencies can contribute. But beyond the local goal of building sustainable communities, it is essential to find ways to build a fair, healthy, and sustainable global system that nurtures local efforts with the fundamental goal of promoting social justice, equity, ecological sustainability, and democratic participation. 🌱

Ford Foundation Support for Partners in These Initiatives

All of the initiatives presented in this volume have been supported by the Ford Foundation. Much of the funding has backed nongovernmental organizations that provide technical assistance to the communities whose work is featured here; some has gone directly to the communities themselves; and some supports broader global initiatives in which the communities participate.

San Juan Nuevo in Mexico has received direct support from the Foundation's Mexico City office for several years – first to develop technical capacity for community forestry management and wood processing, then to help community leaders to participate in learning processes with other forest communities. It has also benefited, along with **lisaak** in British Columbia and **Xikrin** and **Acre** in Brazil, from the certification of its forest management practices by the Forest Stewardship Council (FSC). Foundation support contributed to the creation of the FSC, which is now receiving assistance from 7 of the Foundation's 14 offices worldwide.

The “bucket brigades” of **Los Angeles** have been supported under the Foundation's recently developed program in the area of environmental justice. An initial grant for the bucket brigade work supported an extensive strategic planning process.

The community-based marine sanctuaries of **Balayan Bay** reflect Foundation work in the Philippines with public-interest law firms and NGOs to assist communities seeking legal right to use local natural assets.

The Foundation has supported work in areas such as **Karnataka** since 1994, initially providing seed money for collaborative natural resource development in the drier parts of India based on strengthened relations among village groups, small local NGOs, and government extension agencies.

Foundation funding for India's movement for Joint Forest Management began in 1983 for work with village-based resource management institutions and smaller NGOs. Endowment support in 1998 strengthened their work on Joint Forest Management program implementation in **Gujarat**.

The Foundation has supported the development of markets in the U.S. for Fair Trade coffee from producers such as the members of the cooperative in **Oaxaca, Mexico**.

The Foundation's support for the efforts of allied NGOs to improve the living and working conditions of *zebaleen* communities in **Cairo** began in 1983. Later supported activities include creation of a community-administered credit fund, development of a composting plant, and, most recently a feasibility study on prospects for formalization of the sector.

Since 1988, Foundation grantmaking in the **State of Acre, Brazil**, has helped a diverse group of partners to build the region's research, technical assistance, training, marketing, and publications capacities in agroforestry, forest management, farming systems, and sustainable development, as well as contributed to key advances in policy research and advocacy on sustainable land use, resources rights, and democratic governance. Many other Foundation partners in Brazil have contributed to the success of the efforts in **Xikrin**.

The Foundation has supported efforts in **Zimbabwe** for decentralization of wildlife management and community-based natural resource management.

Foundation support for the development of the **Makuleke** initiative supported the land restitution case and community institution building.

The Foundation has supported rural communities in **El Salvador** in conceptualizing, organizing, and communicating their efforts to sustainably manage large landscapes. It has also helped to build the local governing structures of these communities and to design an environmental services approach to the provision of clean water.

And the Foundation's work on community-based forestry in the United States, of which the **Hayfork** story is an example, seeks to convert forest resources into community assets to provide sustainable new jobs and enterprises, revitalize the land-based culture of indigenous and other rural resource-dependent communities, and improve ecosystem health. 🌱

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15, PHOTO DISC

16, 18 (R), 20 (R), FRED MERTZ

17, 18 (L), 19, 20 (L), 21 COURTESY OF LIBERTY HILL FOUNDATION

22-27, COURTESY OF OUTREACH

28-33, CÉSAR GORDON

34, PEDRO MARTINELLI/ISA

35-39, HOWIE SEVERINO

40-45, WIM GUSBERS

46-51, GUY STUBBS

52-56, NORBERT STILLER

57, 58, 59 (R), 60-62, CLEMENTE SANTIAGO

59 (L), ANA TEJERO

63-67, ANNETTE HALE

68-73, AUSTAIN CHABAYANZARA

74-80, AHMEDABAD VIKSAT AND THE WINROCK INTERNATIONAL INDIA PHOTO LIBRARY

81-85, CINDY HAZENBOOM

86, 89(R) - 91(CENTER), JOSÉ DIAZ DA SILVA

87, EDWARD PARKER

88, 89(L), 91(L), ADAM HINTON / PANOS PICTURES

91(R) - ANGELA PERES

92-9, HOWIE SEVERINO

94, CÉSAR GORDON

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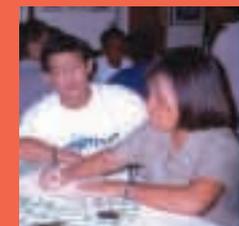
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