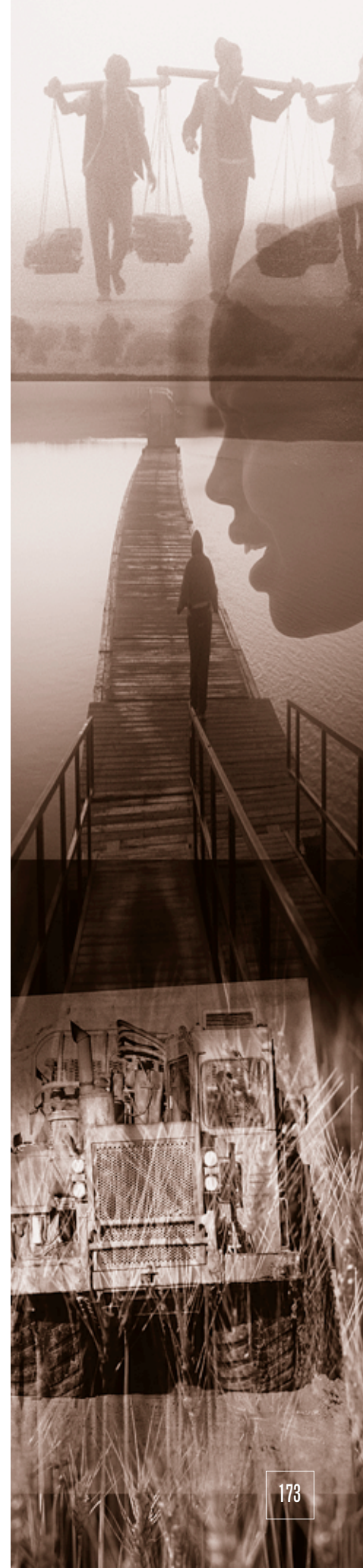


A WORLD OF DECISIONS: CASE STUDIES

How are people around the world rising to the challenges of environmental governance? The case studies that follow explore why it is so difficult to make inclusive and effective decisions about ecosystem use. But they also demonstrate the infinite human creativity, adaptation, and experimentation that can bring success. Each case contains a box that draws out the principal governance lessons that can be learned from the story. Some of these lessons illuminate the power of an informed community, some the difficulties and benefits of integrating economic and environmental goals. Others reflect the tensions between traditional approaches and new ideas, between immediate human need and long-term environmental health, between lofty goals and practical results.

The stories told in these case studies range from the struggles of an indigenous community in South Africa to the nascent efforts toward environmental democracy in Iran. However, they represent only a fraction of the stories that could be told. The lessons they teach are valuable guides to improving environmental governance everywhere, but they also serve to remind us that every situation is unique in its geographic, economic, environmental, social, and cultural make-up. Achieving more equitable and sustainable use of ecosystem goods and services demands patience and a deep understanding of local circumstances, as well as an appreciation of the broad principles explored throughout this book.





MIND OVER MUSSELS: RETHINKING MAPELANE RESERVE

The Sokhulu people know that when the *msintsi* tree is flowering, mussels are good and fat. They know the Zulu names for the rock ledges that mussels inhabit along approximately 30 kilometers of coast. Their ancestors have been harvesting mussels along this coast for years beyond counting and are buried in the nature reserve that is intended to protect it. Yet, for the past two decades, they have been called thieves and poachers and driven to harvest what they could get under cover of darkness (Harris et al. 2003:62–66).

Mussel shell middens on the coast of KwaZulu-Natal province where the Sokhulu people live date back 2,000 years (Horwitz et al. 1991:1), suggesting that residents have harvested and husbanded this resource for at least that long. They employed a system of rotational harvesting that allowed each mussel bed to recover for several years between uses. They occasionally closed the harvest season completely to preserve the mussel stock at vulnerable times, a tactic common in many scientifically managed fish and shellfish stocks. Before commercial forestry came to the region in the 1930s, women gathered mussels in the daytime, prying mature mussels from the rocks with a pointed stick, but foresters and loggers soon challenged their right to collect and drove them into hiding (Harris et al. 2003:64–66).

When Jean Harris, then a University of Cape Town researcher, arrived in the area in 1995, the situation for traditional mussel harvesters was dire. Harris had hoped, through her research, to determine a sustainable level of harvesting for the area's mussel beds. She soon realized, however, that the relationship of the Sokhulu community to the resource had been deeply distorted by the community's run-ins with outsiders. Her research into sound resource management would have to begin by grappling with the effects of this conflict. Clashes with vigi-

lante foresters, fishers, and the Natal Parks Board—the body that exercised legal authority over the province's park and coastal resources—had made mussel collection a high-risk activity. It took place only at night, by men willing to chance being beaten or arrested. In fact, few young Sokhulu women had ever gathered mussels, though women were the traditional harvesters, and mussels were regarded as a high-quality food, especially for children (Harris et al. 2003:73).

The conflict can be traced to 1933 when commercial forestry first came to the area, but tensions escalated sharply with the establishment in 1984 of the Mapelane Nature Reserve—an area that the Sokhulu community claims to own. Mapelane Reserve was intended to protect a region of rich habitat and biodiversity and is one of several smaller parks that were combined in 1997 to form the Greater St. Lucia Wetland Park. This World Heritage Site encompasses almost 240,000 hectares, including the foothills of the Lebombo mountains, lakes, coastal forests, massive dunes, and productive estuaries. Offshore, the park's coral reefs are home to 991 fish species, nearly 85 percent of reef fish species native to the western Indian Ocean region (WCMC 1999). Mapelane Reserve is on the extreme southern end of the Greater St. Lucia Wetland Park and is not itself inhabited, but has tradi-

tionally supplied fish and shellfish to adjacent communities.

The Natal Parks Board (recently reconstituted as Ezemvelo KwaZulu-Natal Wildlife, or EKZN Wildlife) has a powerful stake in protecting the resources under its authority, but its mandate does not—or did not—extend to accommodating the subsistence needs of local people. The region is biologically rich and visually spectacular. Leatherback and loggerhead turtles nest on the beaches. Whales, dolphins, and sharks ply the waters. Flamingos and pelicans put on dramatic displays in the wetlands. At just two and a half hours from the city of Durban, St. Lucia draws up to one million tourists annually (WCMC 1999) and ecotourism is expected to bring 500 million rand (more than US\$60 million) and 1,200 new jobs to the region in the next several years, as a new road from Durban is completed and a concentrated malaria eradication campaign bears fruit (SAN-Parks 2002).



Governance Lessons from Mapelane Nature Reserve

Mapelane Nature Reserve on South Africa's northeast coast is a place of beauty, a refuge for wildlife, and a center of conservation. It is also a focus of conflict and contested rights. To tourists venturing north from Durban, the reserve is a haven of bird life, verdant forest, and unspoiled coast. But until recently, residents of the nearby Sokhulu Tribal Authority saw it only as a restricted zone where they were forbidden to harvest mussels along the rocky coast, in the custom of their ancestors. The conflict over resource access and tenure in Mapelane Reserve is not unique. It is mirrored in national parks and protected areas in many nations, and points to a conundrum in sustainable park management: How can parks work for—and be supported by—local residents, and yet still fulfill their conservation missions? Can park neighbors both use and help to preserve a park's biological assets? Or must they be kept out to safeguard the park's living legacy?

At Mapelane, the solution required a new relationship between park officials and the indigenous community. Sokhulu residents regained authority over mussel beds on a short stretch of coast. Their right to harvest mussels is now linked to their responsibility to demonstrate—in hard numbers—that the level of harvest is sustainable. The success of this agreement demonstrates that transmission of rights and responsibilities over park resources to local groups is one avenue to conflict resolution and greater equity, but that the transition must be negotiated with care.

■ Co-management by park personnel and local residents offers a viable route to empowering local subsistence use of coastal resources.

- Successful co-management arrangements require the establishment of a local users group or management committee respected by the community and endowed with legal standing, allowing it to create and enforce management rules.
- Democratic mechanisms such as elections of local representatives to the management committee are important to establish its legitimacy and accountability to the local community.
- New harvesting regimes must be justified on the basis of joint fact-finding by both co-management partners to be credible. Harvest restrictions are more acceptable when validated by local experiments.
- Local consensus-building processes need sustained financial and technical support for solutions to take hold.
- An assessment of the current status of the resource is an essential precondition for co-management, followed by consistent monitoring over time, to determine if the resource is being used sustainably.
- Subsistence harvesting rights, even when successfully negotiated, are fragile if they begin to compete with commercial harvesting.

Perhaps that influx of money will bring new opportunities and a different way of life to Sokhulu. But in the meantime, its residents continue to depend on the humble brown mussel as a subsistence food, and have made it clear that they will fight to retain access to the shores where they have always gathered them. It took an outsider, Jean Harris, to propose that the goals of the Parks Board and the harvesters really weren't so far apart, and that a collaborative approach might bring them closer to a solution than had decades of violence and resentment.

The Invisible Users

Class and cultural biases are often embedded in systems of fish and shellfish management (Bailey and Jentoft 1990:344). Rules on when, how much, and who can harvest these resources are usually drawn up by technical staff focused on commercial and recreational fishing, but divorced from subsistence use. Such biases were reflected in provincial legislation in the 1980s, which was clearly targeted to recreational harvesters. It required mussel collectors to purchase permits and limited their take to 50 mussels per day (Harris et al. 2003:64).

The cost of a permit was beyond the means of most villagers. Until very recently, there were few sources of employment in the region and many families needed to supplement their small salaries with free wild foods. In addition, the small daily limit meant that villagers had to walk the 2 hours to the coast and back for an amount that barely constituted a family meal. Unwilling to live with what they considered an unfair regulation, the villagers adopted a different approach (Harris et al. 2003:64, 77).

Groups of harvesters made the walk at night, stripped mussels from the rocks wholesale, and cooked them in drums over fires built in the nearby woods. They worked fast, using spades and bush knives, to avoid detection and arrest. The practice badly damaged mussel beds, reducing the stock of harvestable mussels and eliminating the protected spots among older mussels that serve as sanctuary for young mussels and attachment sites for mussel larvae. Conservation officers and vigilante fishermen, convinced that harvesters were damaging the beds, sought out and ambushed their camps, attacking and arresting them. As a consequence, a people who had long depended on mussels for subsistence was gradually divorced from its access to the resource and from its previous sustainable practices (Harris et al. 2003:66).

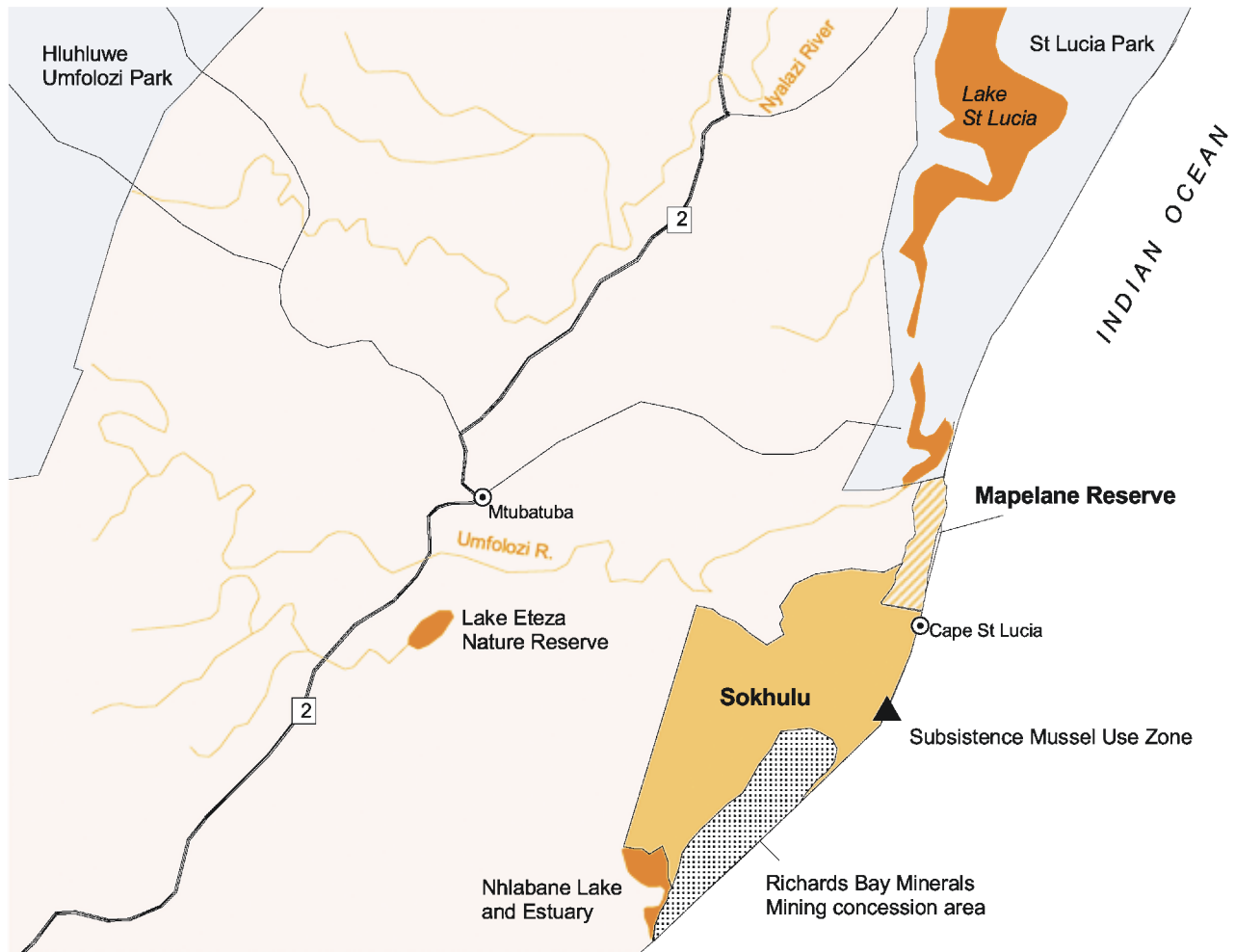
The conflict between the Sokhulu people and park authorities echoes similar clashes around the world where indige-



nous communities feel their resource rights have been violated by outsiders. In Central America, indigenous use of forest resources, including fruits, game, and medicinal plants, has often taken a back seat to the establishment of parks intended to preserve biodiversity and facilitate tourism. Commercial resource extraction has also played an important role. For example, treaty-based rights assigned to Mi'kmaq fishers in eastern Canada and Saami fishers in northern Norway were acceptable only until they began to interfere with state-imposed fisheries management systems (Davis and Jentoft 2001:225-231).

Elsewhere in Africa, the privatization of traditionally communal land rights has left many small-scale farmers with no means of support and resulted in bitter rivalries within families and clans and among townships and villages (Kamuaru 1998:302, 309-310, 313). These conflicts often have complex roots, involving rising demand on resources from population growth and economic development, conflicting objectives and poor communication among stakeholders and government authorities, lack of government recognition of customary and communal property rights, and inadequate or skewed enforcement of existing laws (Bennett et al. 2001:369-372). No matter what the mix of causes, however, indigenous communities tend to find themselves on the losing side of the conflict.

Mapelane Reserve and Sokhulu Tribal Authority, KwaZulu-Natal



Source: Harris and Radebe-Mkhize 2003

Burying Old Enmities

The Sokhulu Tribal Authority comprises eight wards, mainly rural and poor, with bad roads, no electricity, and few telephones—a legacy of South Africa's long years of apartheid. A traditional *nkosi*, or chief, heads the Tribal Authority, while councilors provide leadership in the wards. Although the region is rich in timber and minerals, until recently it had little appeal to investors because of a high prevalence of malaria. In time, new and upgraded roads into the area may bring more economic opportunity. But, at present, most jobs are a 90-minute bus ride away at the mine near the town of Richards Bay.

The last time the Sokhulu people remember being able to harvest in peace was in 1933, before the arrival of loggers. After that, they were regularly harassed by white foresters, fishers, and recreational collectors who would camp along the rocky shore and hunt for mussels and rock lobsters. The establishment of the reserve complicated matters further, adding

park personnel and the force of law to the existing conflict. Where formerly, recreational harvesters and subsistence gatherers might come to blows, harvesters now had to worry about being apprehended and incarcerated. Physical violence, rock-throwing, and arrests became common and subsistence gatherers looked for new ways to circumvent regulations they saw as unjust. They began harvesting even faster, with little regard for the old ways of preserving the stock. Ultimately, the efforts of park personnel to protect the shoreline were causing greater overall damage to coastal resources, and perpetuating tension and violence between park officials and the Sokhulu community (Harris et al. 2003:66).

In 1995, Harris and Mapelane's officer-in-charge, Terry Ferguson, convinced higher park authorities that there might be a better approach. Harris obtained outside funding for a five-and-a-half year project to examine what level of mussel harvesting might be sustainable and to find ways to put



the responsibility for the resource back in the hands of those who depended on it. Through a park employee who was also a tribal member, they arranged a meeting with the *nkosi* of the Sokhulu Tribal Authority, who approved a gathering of harvesters and park staff. Officer Ferguson had recently arrested several of the harvesters and had been injured in a stoning incident. He stood before the harvesters and pleaded for their help in finding a different way forward. He proposed that if local harvesters would help park authorities ensure that the resource was being harvested sustainably, park administrators would secure them legal access to the mussel beds (Harris et al. 2003:67).

With some reservations, the Sokhulu community agreed to a scheme of “co-managing” the mussel harvest with park authorities. The agreement called for the formation of the Sokhulu Buhhlebemvelo (“Beautiful Nature”) Joint Mussel Management Committee, known as the Joint Committee. The Joint Committee consisted of Sokhulu mussel harvesters, park representatives, researchers from University of Cape Town, and a few professional staff, including a community liaison officer to provide translations and keep the lines of communication open. The *nkosi* endorsed the agreement, on condition that he would be kept up-to-date on progress (Harris et al. 2003:67, 73).

Under the co-management scheme, the Joint Committee exercised control over most aspects of the mussel harvest. It identified subsistence collectors, issued harvest permits, specified collecting methods, determined the harvesting schedule, specified how many mussels could be collected per month, and hired monitors to record and oversee the collec-

tion process itself. Sokhulu members of the Joint Committee were elected within each ward by the harvesters themselves, and a Sokhulu harvester chaired the Committee, backed up by a vice chair from EKZN Wildlife, the provincial management agency. In order to keep any single individual from amassing too much power, it was agreed that the Committee chair would be re-elected each year, and the group would strive to act by consensus (Harris et al. 2003:74).

Both sides had much to gain from this arrangement. If the process worked, the community would regain use of resources it had long been denied, as well as training and logistical support, access to information about relevant political and legal developments, and the chance to participate in resource-related decisions. On the park authority’s side, a successful co-management project

would improve relations with the community, reduce unsustainable resource use and poaching, and decrease enforcement costs (Harris et al. 2003:68).

An Experiment in Cooperation

The first few meetings of the Joint Committee required an outside facilitator to help the Sokhulu harvesters and park personnel communicate. But as they came to know each other, the group was able to lead its own meetings. The first task was to determine how community members currently used the resource and how dependent they were on it. This was accomplished through a survey of Sokhulu households.

Next, the Joint Committee tackled finding a suitable test location that could be opened to legal harvesting. The group decided on a series of rocky ledges that supported healthy mussel beds just south of the park border. The harvesting area—called the “subsistence mussel-use zone”—comprised only 2 of the 20–30 kilometers of coastline traditionally used. Still, the Sokhulu considered the ability to collect mussels legally without fear of harassment, a significant victory. On the first day of legal harvesting, an 80 year-old woman told a local reporter:

“Today is a big day. I eat mussels for the first time in many, many years. As a young girl, I used to collect mussels with my grandmother. Then came the restrictions. So after my mother-in-law was arrested and we had to sell the cow to get her from jail, we didn’t get mussels anymore. I was worried that I would never eat a mussel again before I died (Harris et al. 2003:68).”

The Joint Committee then had to decide how to harvest in a way that would be both fair and sustainable. A strong disagreement surfaced over the kind of tool the harvesters should use to pry mussels off the rocks. A pointed stick had been the traditional tool and a screwdriver was the legal tool for recreational harvesters, both serving to dislodge only the mature mussels and leave younger stock attached to rocky outcrops. In the years when they gathered mussels in secret, however, Sokhulu harvesters had become used to using a *panga*, or bush knife, which they found to be more efficient. They saw suggestions that they should return to more “primitive” tools as efforts to hold them back (Harris et al. 2003:75).

To resolve the dispute, an experiment was proposed. Harvesting an equal number of edible-sized mussels first with a *panga* and then with a screwdriver, the Joint Committee recorded how long the harvest took and how many undersized mussels were dislodged and wasted. Although it did take almost twice as long using a screwdriver, as opposed to a *panga*, far fewer young mussels were lost. Furthermore, because the activity was now legal within the subsistence zone, the speed of harvesting was far less crucial. The experiment also inspired a re-seeding project, where members of the Joint Committee placed dislodged mussels under plastic mesh, allowing the mussels to reattach and continue growing to edible size.

Of course, the primary questions that confronted the Joint Committee revolved around determining a sustainable harvest level. How many mussels should harvesters be allowed to collect? Could they harvest year-round? Both sides had firm ideas, but neither side was basing its ideas on research. Jean Harris’ original research project—sidelined by evidence of heavy poaching—had been to determine a sustainable level of use. So she helped Sokhulu women set up an experiment to answer that question. They established zones of different harvesting intensity along the shore, marking them with color-coded flags. They hired several youths from Sokhulu and, with help from park personnel, trained them as monitors to oversee the experiment and record harvest data in a scientifically rigorous manner.

The researchers and park personnel, used to communicating with literate professionals, soon learned that a different approach was needed here. Live demonstrations, models, and pictorial representations soon took the place of technical explanations. The harvesters, who were mainly women and accustomed to keeping their opinions to themselves, gradually began to speak up and ask probing questions as they gained trust that their input would be heard and respected. The local youths hired as harvest monitors also benefited in the new arrangement. Through instruction and hands-on experience, they developed concrete understanding of resource sustainability concepts. They also earned salaries and received training in English, conflict resolution, and computer skills.

The experiment with different harvest levels led to some unexpected changes in attitude. A wide range of collection intensities was chosen at the beginning of the experiment and some, of course, were not sustainable. As they saw the effects of the more intense harvests on mussel populations, and how slow the stocks were to recover, women who had wanted higher quotas at the start reconsidered their demand. In fact, they asked the Joint Committee to curtail further harvesting where collection levels had been highest and most damaging. Their participation in the experiment and their control over decision-making brought them to a very different perspective than that held only a year before. Harvesters also recommended a closed season of 3 months each winter, based on their memories of traditional practice (Harris et al. 2003:82–83, 85).

Establishing the Rules

Seeing the results of their own experiments, harvesters have readily accepted limits on the number of permits issued, size of the harvest allowed per permit, and the tools used to harvest. Monitors and Joint Committee members enforced the rules within the subsistence zone according to community norms until one recent incident, when they tried to apprehend a poacher and were physically threatened. Now they leave enforcement to park officials and law enforcement officers, but ask that offenders within the subsistence zone be brought to the Joint Committee and the *nkosi* before they are taken to a police station.

In one case the *nkosi* and the Joint Committee decided that a Sokhulu woman had breached the rules, but only because of great need: Her husband had abandoned her and she had young children to feed. She was not expelled from the group by the Joint Committee, although she was fined. The community, which bears the brunt of damages caused by resource overuse, is able to grant leniency where appropriate. The arrangement keeps responsibility for local resources and norms within the community, while reducing the potential for violent conflict and maintaining responsibility for overall resource protection at regional and national levels.

Until recently, the small size of the subsistence collecting zone remained a point of community discontent. The 2-kilometer zone was tiny relative to the area of traditional use, and inadequate to the community’s needs, especially because sustainable harvest rates turned out to be lower than the community originally expected. However, in December 2002, the national government (which, under 1998 legislation, has overall responsibility for managing coastal resources) approved the Joint Committee’s application to expand the collection zone to 10.5 kilometers—a credit to the community’s successful co-management experiment (Harris 2003).

Beyond Subsistence

Attacking the problem from the other side, the Joint Committee is also working on developing new sources of income

for the Sokhulu people in hopes of reducing their dependence on mussels. For example, the co-management project has spawned a “craft initiative” that has tapped government funds to train some harvesters in craft development and marketing. The group now sells its crafts to three tourist shops in Durban (Harris 2003).

The co-management project itself has also been an important spur to development in Sokhulu, bringing new skills and confidence to the women who participate in the Joint Committee. Many participants in the project have tried to build their own capacities to continue working in the field of resource management. Where possible, community members have taken on responsible positions in the Joint Committee, such as treasurer and secretary, even though they required additional training. One very successful strategy has been the training of local youths to be harvest monitors: One of them has gone on to college to study natural resource management (Harris 2003).



The co-management experience has also brought the mussel harvesters considerable empowerment. Gradually, harvesters have become more vocal, challenging and arguing with park personnel. Still, without institutionalizing the progress made, the power balance could easily shift back. Harvesters are uniformly poor and female, a factor undermining their influence in most decision-making circles. To address this risk, the Sokhulu community and KwaZulu-Natal park authorities have recently signed a contractual agreement that spells out the roles and responsibilities of the two co-management partners, and confirms their commitment to continue working together (Harris 2003).

A Model of Co-Management

A measure of the success of the Joint Committee and its subsistence harvesting regime is that it is being used as a model for similar management programs in 17 other coastal communities in KwaZulu-Natal where subsistence fishing and

shellfish collection play important roles in local livelihoods. In addition, the experience gained by the people involved in the Sokhulu subsistence project has become a marketable asset that is already bringing the lessons of Sokhulu to a wider audience. Two of the mussel harvest monitors have been tapped to help run co-management projects elsewhere along the coast, and the community liaison officer of the Sokhulu project has been appointed the new provincial subsistence fisheries manager (Harris et al. 2003:92).

Indeed, the tide may be turning toward a more constructive approach to subsistence fishing and shellfish collection. In 1998, South Africa passed the Marine Living Resources Act, bringing authority over marine resources under the control of the central government rather than the provinces. One provision of the law requires a new plan—now being developed—for recognizing and managing subsistence use of marine resources. Implementation of the subsistence fisheries plan has been slow, but some progress is evident.

Sokhulu’s Joint Committee is the first local co-management group to be granted permits for legal subsistence collection under the law. Also, in crafting the new plan, park officials have introduced mandatory training for all field personnel in conflict resolution and the principles of co-management (Harris 2003; Harris et al. 2003:89).

Keeping the success of the Sokhulu project going will not be easy. It will require favorable interpretation of national marine legislation, local perseverance, and the continuation of an open and accepting attitude on the part of park personnel and Sokhulu community leaders. In addition, the Joint Committee’s legal status will need to be further clarified, so that its rights to manage subsistence mussel collection become routine, rather than legal exceptions subject to revocation. This will

require a modest amendment of national law. On the positive side, the national government has indicated that it will provide on-going funding for the Joint Committee’s management expenses, including the mussel monitoring program. This indicates strong buy-in at the national level—an important precondition if the Sokhulu experience is to be viable over the long term.

Using the Sokhulu co-management model for resources other than mussels may be difficult as well. Mussels have fairly low commercial value, and thus subsistence mussel collection does not tend to compete with any commercial market. But other marine resources such as fish or lobsters may have higher value in the marketplace, creating more obstacles to equitable sharing, and requiring different modes of cooperation.

Still, the basic elements of successful co-management of coastal resources are becoming clearer from the Sokhulu



experience and similar cases. A critical prerequisite is the establishment of a forum where community stakeholders and resource authorities can meet and negotiate common goals. Also critical is an appraisal of the resource and its current uses that is credible to all parties. At the heart of the co-management arrangement must be a body like the Joint Committee that has respect in the community and legal standing with state authorities, allowing it to limit access to the resource, control the harvest, and enforce rules. Adequate enforcement support from authorities is vital. Consistent and objective monitoring of the resource and harvest activities is also important to assess whether the management plan is sound or needs to be adjusted. Finally, there must be adequate technical and scientific help available, as well as con-

sistent funding over more than just a few years to support the effort while it matures (Sowman et al. 2003:300–335).

For groups with violent or divisive histories, taking these steps requires courage and skillful mediation at first, as well as much outside support. But initial success can quickly lead to a freer process of management where local residents take leading roles in determining what and how much to harvest, and in policing their own resource use. Along the KwaZulu-Natal coast, this formula has brought greater security to subsistence users while reducing poaching levels. Instead of arrests and rock-throwing, the future of the Mapelane’s mussel beds lies now with the Joint Committee, where the day-to-day meaning of sustainability can be hammered out in discussion, then double-checked at low tide.



THE NEW IRAN: TOWARD ENVIRONMENTAL DEMOCRACY

The standard image of Iran abroad is of a centralized, Islamic state where women have little public standing and religious leaders exert far-reaching control over political and social life. Widely publicized incidents such as the jailing of political dissidents perpetuate this image in the outside world. Yet, the appearance is deceptive. Beneath the authoritarian surface, significant changes are under way in Iranian society. In recent years reformist politicians have begun a decentralization drive, handing more power and administrative functions to local government bodies. Since 1999, local elections have been held across the country, and several hundred women now sit on local councils.

These decentralization efforts have not been limited to the political arena. The Iranian government's desire to halt environmental degradation has also triggered a democratic experiment to involve rural communities in conserving scarce water resources and productive land.

Since the late 1990s, the Sustainable Management of Land and Water Resources Program, based in rural Tehran and Semnan provinces, has developed a model of participatory decision-making that is attracting interest around the world. The results have encouraged the government to replicate the project's community-led methods to counter natural resource

problems such as soil erosion, land degradation, and drought, in other rural regions.

The initiative, jointly funded by the Iranian government and the UN Development Programme, targets communities in a 1.2 million hectare region along the Hable River. Facilitators have worked with villagers to identify local environmental problems and solutions in a region where overgrazing, desertification, and water scarcity are endemic. Results have been slow to materialize in some areas, highly impressive in others. The most marked success has been in the village of Lazor, 75 miles east of the capital Tehran.

Hable River Communities: Governance Lessons

Community involvement in decisions governing the use of land and water in rural Iran marks a significant first step toward the decentralization of natural resource management in the Islamic state. In the village of Lazoor, 100 miles east of Tehran, and other communities this has produced real environmental and social benefits. These include women's inclusion in decision-making; community-led implementation of effective flood control and water conservation measures; and a growing belief in, and commitment to community stewardship of natural resources.

However, the experiences of these communities also reflect common barriers encountered during attempts to empower local people and achieve genuine decentralization of control over natural resources around the world (see also Chapter 5):

- Central government ministries can be reluctant to give up power and decentralize decision-making and control over natural resources.
- Government officials often focus on expert planning and technical solutions rather than utilize local knowledge in natural resource management.
- Wealthier households can dominate participatory decision-making processes.
- Government ministries that share responsibility for natural resource management may fail to cooperate or coordinate effectively.
- Expanding successful local, community-led projects to a regional scale often proves difficult.

Lazoor: Participatory Planning in Action

Four years ago, the mountain village of Lazoor was plagued by routine flooding, land erosion, and communal apathy. The 3,000-strong community had only 1,100 hectares of productive farmland, mainly producing wheat, barley, and potatoes, and the villagers also owned 12,000 sheep (Farzin 1999; 2002:10). Overgrazing by these livestock had degraded the rangelands (which are under national ownership) and triggered landslides. Government efforts to improve agricultural practices and output, imposed from Tehran, had not gained the support of local farmers. As elsewhere in rural Iran, poverty levels were high and young people were leaving for the cities in search of jobs, mainly as tailors and carpenters.

As a result, Lazoor was chosen for the land and water project—one of eight pilot villages within the Firouzkooch township of Tehran Province. The ambitious aim of program manager Seyed Heidarian was to equip villagers with the techniques needed to identify, analyze, and prioritize local problems pertaining to natural resources, economic development, and social welfare. They would then be asked to produce solutions, based on their knowledge of the local environment and social and cultural traditions.

This was no easy feat, as Firouzkooch township was a typical Iranian rural enclave, where all rural planning decisions were made by central government officials and women had little public role. The first step was to democratically elect 20 local residents as “animators,” including two from Lazoor. In 1999, these volunteers attended a one-month training program on participatory rural appraisal techniques, organized by the Center for Sustainable Development and the Environment (CENESTA), an Iranian nongovernmental organization. They then returned to their villages to initiate community decision-making sessions with the help of expert facilitators funded by UNDP.

In Lazoor, public village meetings and workshops were organized to gauge community concerns and ensure an inclusive voice in decision-making. A 76-person coordinating committee, including 25 women, was established to filter discussion on the community's priorities. Every villager was encouraged to attend the public meetings, and female-only workshops were also held to encourage women and girls to take part. After months of debate, a list of 81 priorities was completed. It included demands for anti-erosion and anti-flooding measures, a micro-credit scheme, a high school, and a women's clinic. Meetings were then held between villagers and government experts to approve the top sustainable development priorities for action.

According to Mehdi Kamyab, former UNDP manager of the land and water program, the coordinating committee “fairly represented” about 500 families made up of 2,000 people, and the “whole process was consensus-based, nobody had the last say.” When there was a disagreement between villagers and government project managers about a scheme's practicality, independent facilitators brokered a compromise solution. Although the village Islamic Council, the local elected body, did not play a direct role in implementing Lazoor's sustainable development priorities, it did provide additional legitimacy by officially approving the decisions made (Kamyab 2003).

Improving Land and Water Management

Supported by government engineers and agricultural experts, the villagers translated their decisions on priorities into a dozen practical projects. These were implemented beginning in September 1999, with oversight from an elected central committee of five men and two women. Government and UNDP funds bankrolled the projects, along with a small “sustainable development fund” contributed by residents.

Hable River Basin, Iran



Lazoor's residents have since helped to build 42 small dams to control flooding, a water reservoir, five silt reservoirs to guard against soil erosion, and miles of anti-erosion embankments and irrigation canals. The community has also planted more than 7,000 fruit trees, including apple, cherry, pear, and plum, on a hillside overlooking the village. A second tree-planting program is also helping to improve soil quality and local biodiversity (Anderson 2001:A24; Farzin 2002:10; OCHA 2001).

By using rain and rivers more efficiently, Lazoor's residents are not only managing water resources more sustainably. They are also creating new opportunities for economic growth. Flood control, for example, has produced opportunities to cultivate new land. The community's entrepreneurship has so impressed state banking officials that they have opened a mobile bank branch in the village, approving several hundred small loans of \$600–\$1,200 and enabling around 300 families to open personal savings accounts (Anderson 2001:A24). Future programs include developing a medicinal plants nursery and exploring the feasibility of a mineral water bottling plant (Farzin 2002:11).

According to Hushang Djazi, one of the independent facilitators in Lazoor, the key to the village's success is active citizenship. "In the past the government was willing to do something for the villages, but since it made its own decisions without paying attention to the people who were affected, the projects failed. Our aim in Lazoor has been to improve rural people's skills and persuade them to participate in decisions and activities which directly affect them." Djazi is now help-

ing to develop the medicinal plants nursery, a scheme proposed by villagers and funded by the Global Environment Facility's Small Grants Program. "People describe the self-confidence generated by doing their own brainstorming and the ability to believe in self-organized problem solving as the best things that have happened to them" (Djazi 2002).

Shoukat Esfandiari was one of the Lazoor residents chosen to learn about public participation techniques and community-led problem-solving. Still working as an animator, she believes the villagers have not only gained confidence, but are also developing a sense of stewardship over their natural surroundings, suggest-

ing an explicit link between empowerment and environmental responsibility. "The level of tolerance has increased in the village and the society's outlook is positive. Villagers have become aware of the issues related to the environment and resources, so much so that they are interested in maintaining, protecting, and sustainably using these natural resources" (Esfandiari 2003).

Empowering Women

Alongside these land management improvements, a social transformation has taken place. Only a few years ago, all village-related decisions were made by a group of elders with women playing no part. Since the project's facilitators ran female-only meetings, however, women have begun to demand more say in village affairs. Once a month, the village middle school plays host to the coordinating committee. Following opening prayers, members discuss progress and make suggestions for new activities. Several projects to improve women's independence and income, such as sewing classes, have been successfully established at their insistence. Mixed group meetings also now take place in the local mosque—where women were previously required to sit separately behind a screen (Anderson 2001:A24).

Twenty-five women actively take part in a public participation program run by Fatemeh Maafi, the second Lazoor facilitator. "Before our women didn't have access to facilities like men. They didn't access decision-making in village councils and other bodies. The Hable River project made this happen.

Women are not completely emancipated, but our situation is much better.” The choice of projects, she says, has clearly been influenced by women’s priorities. “Sometimes women’s problems are different from those related to men. No one knows about these problems unless there is a voice, and the louder the voice, the more people will hear it” (Maafi 2003).

Malcolm Douglas, who led an international panel of experts commissioned by UNDP to evaluate the project in October 2001, also concluded that local women had been genuinely empowered. “It was impressive to see how women were involved in decision-making. Our impression was that the project facilitators’ approach had given women more confidence and had helped them to get the message across to men in the community about women’s concerns” (Douglas 2002). His panel report noted, however, that most women who actively participated in the project appeared to be from the community’s wealthier families, suggesting that the views of poorer women were not receiving equal weight (Douglas 2002).

Success Beyond Lazor

Lazor’s exercise in people-led resource management is not an isolated experiment. The village is one of several hundred actively involved in the Hable River land and water program, which covers a large swathe of land inhabited by 600,000 people across Tehran and Semnan provinces, south of the Caspian Sea. The watershed (and the project) is geographically segregated into three zones—the mountainous northern area, which reaches 4,000 meters above sea level; the southern desert plain, which falls to 700 meters; and a central area of hilly, inhospitable, and flood-prone terrain. The river runs northeast to southwest for 100 kilometers through this landscape, providing a magnet for agriculture and for the annual movement of migratory herdsmen and their livestock (Farzin 2002:4).

The project officially got underway in 1998-9 with public participation exercises in eight northern villages, including Lazor, followed by similar exercises across the region. The emphasis throughout was on community involvement in identifying and addressing resource management problems such as flooding, erosion and water pollution. The results have not always been identical to the Lazor experience, but many have yielded substantive accomplishments.

In the fertile plain in the south of the river basin, participatory planning projects have focused on efforts to increase agricultural productivity by improving drainage of waterlogged and saline land and the efficiency of irrigated areas. Farmers and water user groups have been enlisted in problem-solving exercises, although the emphasis from government managers has been very much on engineering solutions.

In the tiny villages of the rugged, mountainous central zone, small-scale road-building has helped reduce transport costs for fruit and vegetable exports, and villagers have come up with innovative schemes to improve their water supplies. For example, in the village of Ghalibaf, home to 40 families,

project funds and villagers’ labor has been used to build 4,700 meters of rubber pipes channelling water from a nearby spring to the hamlet (Farzin 2002:12).

In three other mountain villages, cooperative women’s groups have established bee-keeping enterprises with the encouragement of project managers and seed funding from UNDP. Each family contributes to buying the beehives. The original 200 hives have since grown to 600, with villagers recouping their investment several times over by selling honey (Farzin 2002:12).

Local Empowerment—Within Limits

The experiment under way in the Hable River watershed is best described as “partial decentralization.” Although communities are setting priorities to improve natural resource use and devising local solutions to land management and water problems, the minimum conditions for full decentralization described in Chapter 5 have not been met. Villagers in Lazor do not control most of the local program budget (the exception being the sustainable development fund made up of villagers’ contributions) and there are concerns that wealthier families dominate the coordinating committee. Detailed land use planning and mapping is also done by outside experts.

Nevertheless, power and decision-making are now essentially split between communities and central government managers. As in other countries, such as Bolivia (see Chapter 5), it is clear that the partial empowerment of local communities is giving a voice to people in Iran who previously lacked the right to participate in a meaningful way.

Moreover, given that the concept of local empowerment is very new in the modern Islamic republic and that rural communities have been used to decades of centralized control over their daily lives, the limited nature of the decentralization process to date is hardly surprising. Further, some international experts argue that a mix of indigenous knowledge and central government expertise can sometimes prove more effective at protecting natural resources and promoting sustainable use than passing all power and control to local communities.

“It was the first time in Iran that people had tried using participatory planning for natural resource management,” says Malcolm Douglas. “In my experience, under these kinds of circumstances, if you have a totally open process you end up with a simplistic wish list. People agree that they want a new road, a school, a clinic, a mosque and so on without any real consideration of local natural resource and social issues. Unless you have trained facilitators with some technical background, natural resource issues can often fade into the background” (Douglas 2002).

According to facilitator Hushang Djazi, the project managers in Lazor have already learned valuable lessons that could be applied to rural communities across Iran. “The keys to the Lazor method are: believe in local people; program with them, not for them; improve local institutions; and act

as a real facilitator, not a program expert or manager” (Djazi 2002). Nevertheless, two expert panels commissioned by UNDP to evaluate the project in 1999 and 2001, while praising the extent of public participation, also raised concerns about the limits of local democracy. Both teams visited Lazoor and made similar observations, namely that (Koochafkan et al. 1999; Douglas et al. 2001):

- The village’s 76-person project development committee appeared to be dominated by the wealthier residents. Poorer villagers, especially women and the illiterate, were not well represented, suggesting that their views were not being properly heard.
- There was too much emphasis on technical solutions, particularly engineering projects such as dams and detailed land mapping exercises, and not enough use made of villagers’ indigenous knowledge about local biodiversity.
- The project managers relied too much on central government officials and experts from UN agencies and nongovernmental organizations (NGOs), rather than building up knowledge and expertise among community organizations and locally based central government administrators and technical staff.
- The project’s purse strings were too tightly controlled from Tehran rather than by local administrators and the communities themselves.

All these factors have raised concerns among land husbandry and sustainability experts that local ownership of the project in Lazoor is not yet strong enough for it to survive without continued outside support from government, UN agencies, and NGOs. On a region-wide scale, concerns have also been raised that managers of the three project areas are failing to coordinate activities and pool experience and that there is no centralized database to help monitor progress and evaluate results.

Part of the problem—and a common failure of governance in countries attempting to decentralize power—has been the reluctance of some government officials to accept the validity of local empowerment and village-level decision-making. “The difficulty in implementing a new approach has not only been gaining the trust of communities, but also generating belief in such approaches in higher authorities,” notes Mohammad Ali Farzin, an Iranian development economist (Farzin 2002:7).

To counter this endemic problem, the second panel of experts to visit Lazoor recommended that Iran’s government conduct awareness-raising programs for senior officials on the benefits of participatory planning to promote its wider acceptance (Douglas et al. 2001:14).

Environmental Benefits—Within Limits

There is no question that the community empowerment experiment under way along the Hable River has produced environmental gains. In November 2001, for example, the UNDP-commissioned expert panel concluded that “the program is building up a wealth of valuable experience in tackling the problems of sustainable management of land and water resources...that is expected to be applicable to other parts of Iran.” They also noted that small-scale activities were being initiated spontaneously by communities, women’s groups, and even individual farmers and herders, demonstrating both a growing confidence in self-determination and a genuine commitment to sustainable resource management (Douglas et al. 2001:3-4).

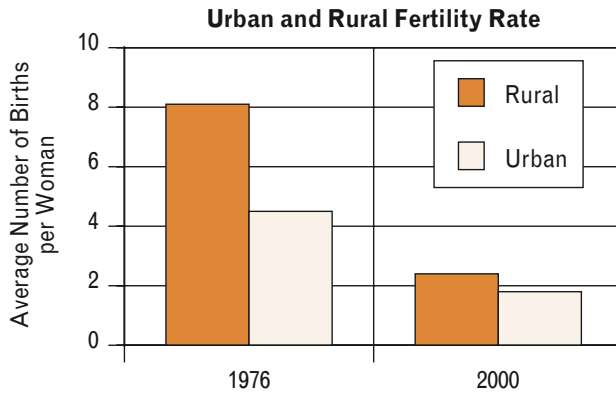
Several factors, however, have been identified as holding back progress toward sustainable agriculture and water use. First, the resource management program only covers a small area of the watershed and its activities are dwarfed by the problems facing the region. The inhospitable terrain, regular occurrence of flooding, and sheer extent of land degradation and water scarcity after decades of poor management have all combined to offset the efforts of villagers and project staff. For example, the limited tree-planting and water conservation measures under way in the uplands are likely to have little impact on the amount of water and sediment discharging into the flood-prone southern plains (Douglas et al. 2001:8). Malcolm Douglas witnessed these limitations firsthand in November 2001. “The program so far was really just scratching the surface. All it would take was one major storm and you would get massive flooding downstream which would neutralize much of the work being done” (Douglas 2002).

Second, while steps have been taken to improve coordination among central government departments, gaps in the newly integrated system remain. The widespread degradation of rangelands through overgrazing has been acknowledged as a critical problem, for example. Yet, Iran’s Department of Extension, Irrigation, and Livestock Affairs has not been involved in administering the Hable River project. Since this department is responsible for setting herders’ animal quotas, it has not been possible for local communities and project managers to reduce livestock on over-burdened land.

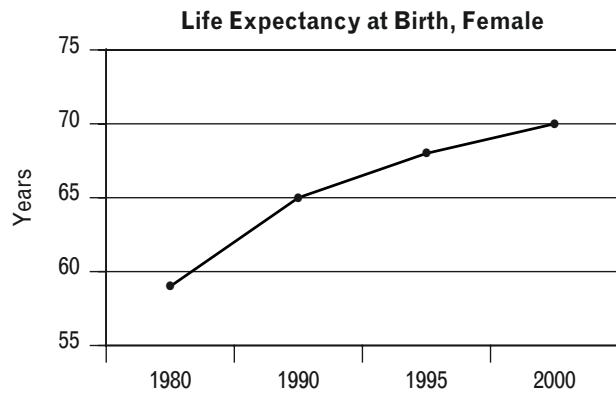
Third, little effort has generally been made so far to tap into communities’ own environmental knowledge and expertise. Villagers’ knowledge of local soil conditions and ecology, built up over many generations, could play an important role in improving soils, combating land degradation, and successfully introducing new species. Yet, much of the land use planning continues to be done by outside experts, a trend noted by the expert panel (Douglas et al. 2001:9-10). To enable local farmers and herders to become more actively involved, the panel recommended developing simple indicators to measure land degradation and the impacts of different land use practices.

Demography and Democracy in Iran

Democratization in Iran is not taking place in a vacuum. It is occurring in the context of significant changes in birth rates, life expectancies, and educational opportunities, particularly among rural women. Advances in these social and demographic indicators provide a basis for social change.

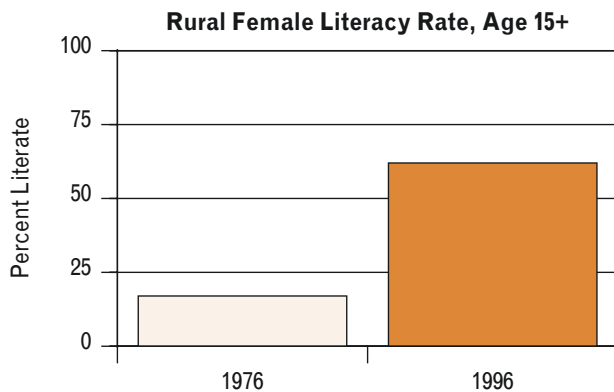


Source: Roudi-Fahimi 2002



Source: World Bank 2003

Rural Iran: Toward a Sustainable Future?



Source: Roudi-Fahimi 2002

Rural Iran: Toward a Sustainable Future?

Despite the widely publicized success in Lazoor, there is a general consensus that the Hable River program still lacks an overarching “sustainability vision.” This failure to develop a common purpose and agenda among community-led projects across the region has limited the program’s impact. It is also jeopardizing the original objective: to produce a workable blueprint for sustainable land and water management applicable across rural Iran.

According to Hossein Jafari at UNDP in Tehran, “the elements of a national model for rural land and water management are in place, but we have been unable to fit [them] together” (Jafari 2003).

As a result, UNDP ended its involvement in the first phase of the project in 2002, with two thirds of the \$1.2 million dollar budget still unspent. “There had been very good activities in the field producing very good results,” says Mr. Jafari. “Trials in ten more villages would not have produced any added value. Our key objective now is to produce a national model based on the successes of Lazoor and other areas” (Jafari 2003).

To this end, senior UNDP and FAO officials met with key government officials in January 2003. Agreement was reached for the two UN agencies to prepare the program’s second phase with government support. Work on producing a river basin-wide model for sustainable resource management, replicable across the country, is due to start during 2003. A participatory monitoring and evaluation system will also be established.

Whether such a regional blueprint will be able to generate a revolution in sustainable natural resource management across Iran will depend on many factors, not least the willingness of various government ministries to embrace decentralization initiatives and coordinate effectively (Jafari 2003).

Clearly, the early years of Iran’s transition from bureaucratic, centralized control of natural resources to an environment where people play a leading role in preserving their own natural surroundings have not been entirely smooth or easy. There is a long way to go before partial decentralization of power over natural resources becomes full-fledged environmental democracy, with communities genuinely in charge of decision-making, program management, and budgets. Or before Lazoor and other Hable River communities become workable models for the whole of rural Iran.

Nevertheless, although the trend in Iran so far is toward granting limited powers and resources to local people, the results have been positive, delivering ecological benefits and improving dialogue between government and civil society.

“If the right lessons are learned from Lazoor and other successful areas,” suggests Malcolm Douglas, “and they spread the effort across the whole region and go in with less of a technical fix, then there could be a major beneficial ecological impact” (Douglas 2002).



OK TEDI MINE: UNEARTHING CONTROVERSY

The environmental and human tragedy that is still unfolding at the Ok Tedi mine in Papua New Guinea raises fundamental questions about the governance of natural resources. These questions concern the balance of power between inexperienced, cash-poor governments and powerful multinational industries; the provision of and access to information that is technical in nature; communication across language and cultural barriers; and the need for institutional structures that allow for effective complaint and redress when things go wrong. Such issues are directly relevant to the global mining industry's ongoing efforts to reduce its adverse social and environmental impact and to be more accountable for its actions.

The Story in Brief

Papua New Guinea, a country of only 5 million people, is a botanical treasure island. Its relatively pristine rain forests, mountains, rivers, and reefs harbor a host of rare plants, animals, and birds, including flying foxes, river turtles, the longest lizard, and the largest orchid, bat, and butterfly species in the world (NRI and World Bank 2002:8).

Yet, in the 1990s, the country became a byword for the ecological destruction that can result when a young, weak government and an international mining corporation ignore environmental concerns and the voices of local communities.

The main source of trouble has been the Ok Tedi mine, situated deep in the rain-forest-covered Star Mountains of Papua New Guinea's Western Province. Since the mid-1980s, the large copper and gold mine has released about 30 million tons of mine tailings (a fine sand of crushed rock and metals) into the Ok Tedi tributary of the Fly River every year (Kirsch 2001:1). The result has been ecological disaster. By the early 1990s, fish were dying, turtles disappearing, and canoes running aground midstream as sedimentation raised riverbeds. The overflow destroyed food gardens in down-

Ok Tedi Mine: Some Facts and Figures

Operating Life: 1984–2010.

Jobs: OkTedi Mining Limited (OTML) employs about 2,000 staff. About 1,800 are Papua New Guinea citizens and 800 live within a 40-kilometer radius of the mine.

Production: About 200,000 tons of copper and 500,000 ounces of gold a year. By December 2001, the mine had produced 7.5 million tons of copper concentrate.

Ecological Impact: About 40 million tons of waste rock and 30 million tons of tailings—a fine sand—are discharged annually into local rivers. Impacts on rivers and rain forest will last for decades.

Economic Impact: The mine is the single largest contributor to Papua New Guinea's economy, accounting for about 10 percent of GDP. In 2001, sales accounted for 18 percent of total national exports.

Profits: From 1984–2001 OTML's profits totaled US\$338 million.

Source: OTDF 2001:6; Higgins 2002:1; Kirsch 2002:18; OTML 2003c:13; OTML 2003d

stream indigenous communities and killed thousands of trees.

The mine's main shareholders—Australia-based Broken Hill Proprietary or BHP (renamed BHP Billiton after merging with UK-based Billiton in 2001) and the Papua New Guinea government—failed for years to respond adequately to the ecological consequences of its operations. After the case became an international cause celebre, the indigenous peoples living along the Ok Tedi and Fly rivers sued the BHP and received \$28.6m in an out-of-court compensation settlement (NRI and World Bank 2002).

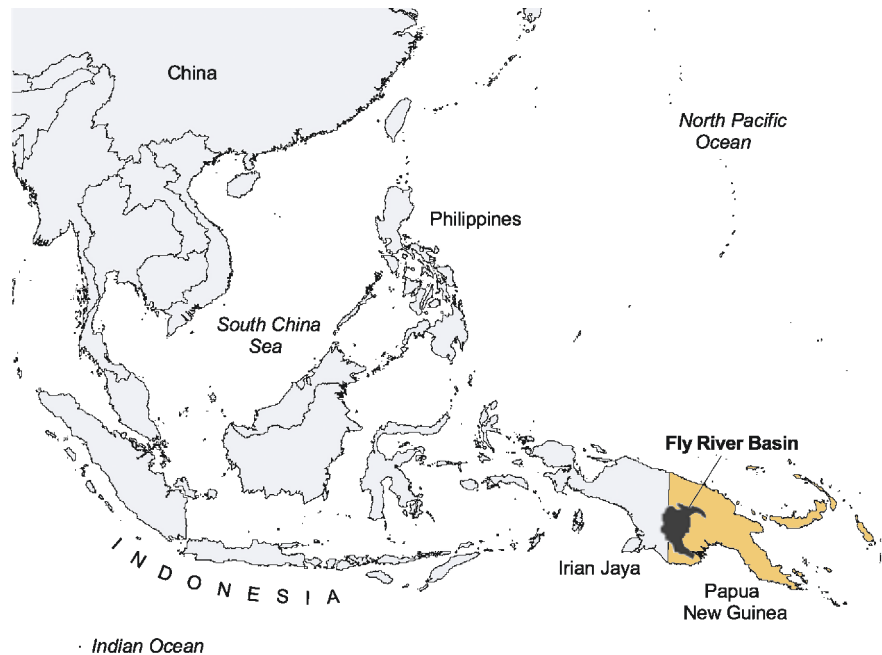
Today, although a limited dredging operation has been introduced, mine waste continues to pour into local rivers. While the mine's operations—and along with them, its boost to the national economy—are scheduled to end in 2010, its ecological impact will linger for decades. Ok Tedi Mining Ltd. (OTML), the company that operates the mine, itself acknowledges that more than 2,000 square kilometers of rain forest could be stunted (OTML 2003b). BHP Billiton, however, has walked away from Ok Tedi. In February 2002, its 52 percent equity share in the mine was transferred to an offshore trust, set up on behalf of the Papua New Guinea people (Finlayson 2002:6). The government gave BHP Billiton legal indemnity from responsibility for future mine-related damage to the Ok Tedi ecosystem, although the legality of this deal may be challenged in the country's courts.

What went wrong? The answers—explored in the following pages—lie in the interplay of several factors, all related to governance. They include the linkage of the mine with nation-building and economic development in a newly independent country; the political marginalization of local communities and weakness of local government institutions; the government's over-reliance on BHP for information about environmental costs and benefits; and the government's conflicting role as both mine shareholder and regulator.

Ok Tedi Mine: The Political and Economic Context

Papua New Guinea's first central government was elected upon independence from Australia in 1975. The young nation experienced an abrupt transition to rule by a weak, centralized government whose authority was rivalled by traditional clan systems. The new government faced high expectations from its people; it also faced external pressure from multilateral lending organizations such as the World Bank and International Monetary Fund and from corporate partners in the mining industry.

Papua New Guinea and Surrounding Region



Papua New Guinea is rich in mineral wealth. Large-scale mining began in the 1930s, under Australian colonial rule, in the Wau-Bulolo area. In 1972, a massive copper mine began operating at Panguna on the island of Bougainville, discharging its waste directly into the Jaba River. Over the next 15 years, the Bougainville mine became the world's biggest copper producer (Filer 1997:59; Finlayson 2002:1).

The copper and gold deposits at Ok Tedi on Mount Fubilan, almost 2,000 meters high in the rain forest-swathed Star Mountains, presented a daunting challenge. The terrain is inaccessible and prone to high rainfall, frequent earthquakes, and landslides (King 1997:96). But the ores presented a tantalizing prospect to Papua New Guinea's young government. By 1974, mining's contribution to the national income had already increased substantially, and a new mine at Ok Tedi promised to raise it even more.

The government wanted to use income from the mine to develop infrastructure and services and to boost Papua New Guinea's international standing as a major minerals exporter. It was encouraged in this by the World Bank and the Australian government, whose Export Finance and Insurance Corporation helped fund exploratory studies at Mount Fubilan (IWT 1994:60; MPI and AID/WATCH 1999:23).

In 1976, the state of Papua New Guinea authorized BHP, Australia's biggest mining corporation, to prepare a development plan for the mine. Four years later, the government committed to a partnership in Ok Tedi Mining Limited with a 20 percent shareholding. The other shareholders were BHP, Amoco Minerals, and a consortium of German companies (King 1997:98). The mine began operating in 1984 and within



a decade became one of the world's largest copper producers—extracting about 30 million tons of ore. By 1996, the Papua New Guinea government owned 30 percent of shares, BHP 52 percent and Inmet, a Canadian mining company, 18 percent (King 1997:98).

Virtually all of Papua New Guinea's land is in customary ownership, with the owners grouped into small communal clans (Hancock and Omundsen 1998:1). The state, however, claims legal ownership of all mineral resources beneath customary lands. As a result, only the government and its potential corporate partners were involved in deciding whether and how to develop Mt. Fubilan's ores, assessing the Ok Tedi mine's potential environmental and social impacts, and deciding how to ameliorate those impacts (Hancock and Omundsen 1998:3).

The approximately 2,000 landowners living at the headwaters of the Ok Tedi River held customary rights to the area covered by the proposed operations (Finlayson 2002: 9). These villagers alone were included in negotiations with the mining conglomerate, agreeing to lease 7,000 hectares of land to OTML in return for a benefits and compensation package that included cash, jobs, and education and health

facilities. The indigenous communities living downstream of the proposed mine were excluded from the mine consultation process. It was not until 1997, after mine waste had devastated their lives for almost a decade, that leases for these villages were finally negotiated as part of an out-of-court compensation settlement (Kirsch 2001:4).

Before the project was approved, OTML agreed to build a tailings dam to protect the Fly River as recommended in an Environmental Impact Assessment (EIA) by Australian consultants commissioned by the company. The report concluded that even with such a dam in place, copper and other heavy metals would have severe effects on fish downstream of the mine (Townsend and Townsend 1996). In January 1984, however, a landslide destroyed the dam's foundations. Under pressure from BHP not to force the expensive building of another dam, the government granted OTML temporary permission to release mine waste into the headwaters of the Ok Tedi River. In 1988, after a rebellion by indigenous landowners in Bougainville forced Papua New Guinea's other major copper mine (and revenue-earner) to close, the government renewed OTML's interim river disposal license. It is still in effect (Filer 1997:59).

Ok Tedi Mine, Fly River Basin



The Fallout

The well-documented environmental and social consequences of these decisions have been enormous. For almost two decades, the mine has discharged about 30 million tons of metal-tainted mine tailings and 40 million tons of waste rock a year into the Ok Tedi River, which in turn discharges its load into the Fly River. Before it reaches the Gulf of Papua in the Torres Straits, the Fly flows through dense primary tropical rain forest, wetlands, and savanna. The river system supports the greatest biological diversity in Australasia, including 128 recorded native freshwater species, with 17 unique to the Fly basin (Swales et al. 1998:100).

This chronic build-up of waste has had a devastating effect on the 50,000 people who live in the 120 villages along the two rivers and depend on them for subsistence fishing and other river-based resources. Before the mine, taro and bananas were commonly grown in village gardens and riverside sago palms often provided the mainstay of local diets. But since the early 1990s, the build-up of sediment in the rivers and subsequent flooding of forests have dramatically altered the local environment. Fish stocks have fallen by 70–90 percent, animals have migrated, and about 1,300 square kilometers of vegetation have died or become blighted, forcing villagers to hunt and fish over larger dis-

tances (BHP 1999:9; Higgins 2002:2). Copper concentrations in the water are about 30 times background levels, though the river still meets World Health Organization drinking water standards (BHP 1999:8–9).

For the Yonggom people and their neighbors living along the lower Ok Tedi and Fly rivers, the mine's ecological impact violated a centuries-old way of life. From the late 1980s, they described in interviews and anguished letters to the OTML and government officials how pollution and flooding were eroding their traditional subsistence lifestyles, forcing some villagers to relocate. "The animals living along the river banks—the pigs, cassowaries, pigeons and bandicoots—have all disappeared...now the places where turtles laid their eggs have been covered up," said one. "Before women travelled by canoe on their own, but today the river is too dangerous" (Kirsch 1997:124). An anthropologist working with the Wopkaimin people described the mine waste's impact on local wildlife and people as "ecocide" (King 1997:96).

A Voiceless People

As Ok Tedi Mining's own literature acknowledges, its arrival changed the lives of the people forever (OTDF 2001:6). The horticulturalist indigenous tribes of Papua New Guinea's Western Province had lived in small clan-based settlements

for hundreds of years, cultivating small garden-farms and hunting and gathering food from the rain forest (IWT 1994:71; Kirsch 2003).

The Ok Tedi mine introduced industrial jobs, urban living, a cash economy, and supermarket food to the region, based around the company town of Tabubil. Yet, little was done to consult or prepare its indigenous residents for this upheaval (Finlayson 2002:17). Lack of communication isolated the downstream communities from their new corporate neighbor. Confusion over language, the role of customary clan leaders, and cultural and spiritual values also fed into OTML's failure to quickly recognize and deal with the environmental disaster that ensued.

When personnel in the company's environment and community affairs departments first received complaints from villagers, they found them imprecise, exaggerated, and confusing. "People are suffering from sores," stated one letter. "The rain makes us sick. The air we breathe leaves us short of breath. And the sun now burns our skin" (Kirsch 2001:5). The

often settled without formal procedures. Clan leaders who gained their legitimacy through lineage were more influential than elected local officials and members of parliament (Burton 1997:33). These clan leaders wrote letters and sent petitions to as many interested parties as they could think of, making little distinction as to who was responsible for taking action. This helped create a situation whereby even though OTML's community relations staff recorded villagers' grievances, their reports were not considered important enough for senior management to act on and instead lay "filed away in forgotten corners" until it was too late to prevent court action (Burton 1997:42,52).

When anthropologist Stuart Kirsch visited the Yonggom communities in 1992, several years after the first letters of complaint were written, little formal assessment of environmental damage had been carried out by either mining company or government. He described the villagers as "in a state of despair, feeling both frustrated and completely ignored in their efforts to obtain restitution" (Kirsch 2001:9).



villagers' letters reflected their holistic and spiritual view of nature and human society as inextricably linked. But the jumbling together of evidence of mine waste impacts with clan mythologies blunted their message and helped prevent the initiation of a political process through which the communities' grievances could be effectively heard (Burton 1997:42-44).

At the same time, local peoples had little experience with modern political environments. Traditionally, disputes were

Seeking Redress

The unresponsiveness of both OTML and the government provided a crash course in politicization for the Yonggom people and their neighbors. Through local church and environmental groups, they made contact with the Australian Conservation Foundation and the Geneva-based World Conservation Union, which funded environmental audits of the Fly River. In 1992, the Wau Ecology Institute helped a

group of indigenous landowners present their grievances against OTML to the International Water Tribunal in The Hague. The tribunal's judgments lack legal force. But its finding, issued in 1992, that the Papua New Guinea government should either prevent further damage or close the mine (IWT 1994:85), brought Ok Tedi into the international spotlight. This in turn encouraged local villagers and their nongovernmental allies to seek legal remedy (Kirsch 2001:7–8).

In 1994–95, Australian law firm Slater and Gordon launched a series of lawsuits in the Victoria Supreme Court in Melbourne, where BHP was incorporated, on behalf of 30,000 villagers from 600 clans affected by the mine (Gordon 1997:143). The “David and Goliath” suit against one of Australia's biggest corporations received widespread media coverage, mostly unfavorable to BHP. Lawyers for the villagers argued that they had suffered damaging “loss of amenity” because of the waste's impact on their subsistence economy and spiritual and cultural connections to the land (Kirsch 2001:13, 17). In 1996, the two sides reached an out-of-court settlement, which included compensation and a BHP commitment to contain mine tailings. The agreed payout included 110 million kina (US\$36 million) over the life of the mine for the 34,000 people living along the Ok Tedi and Fly Rivers, and 40 million kina (US\$13 million) for the 15 villages most affected (Kirsch 2001:17).

In 1999, OTML began a river dredging operation 80 kilometers downstream of the mine. The same year BHP, as the major shareholder, publicly acknowledged the mine's “unexpected and significant environmental impacts” (BHP 1999:4). The timing of this announcement coincided with the publication of a risk assessment study commissioned by the company which identified the mine's closure in 2000–10 years ahead of schedule—as one of several options (BHP 1999:14). In the event, BHP chose to disinvest from the mine, arguing that the impacts of riverine disposal were not compatible with its contemporary corporate standards (BHP 1999:4).

Whatever the company's rationale for withdrawing from the Ok Tedi mine, its public admission of responsibility came 11 years after the first letters of complaint. How had such a significant failure of corporate governance and government oversight been allowed to take place, and over such a long period of time? The answer lies partly, of course, in the company's internal dynamics, but also in the political and economic climate in which it was operating.

Weak Nations, Powerful Corporations, and a Failure of Governance

Central Government: A Conflicting Role

Papua New Guinea is a country with a democratic process, freedom of information laws, and a constitution that enshrines environmental protection as a key national goal. The latter requires, for example, that “all necessary steps be

taken to give adequate protection to our valued birds, animals, fish, insects, plants and trees” (Taylor 1997:15).

Yet, when it came to Ok Tedi, the government agreed first to delay and then to forego construction of a tailings dam and to permit waste dumping in the river. How did the constitution take a backseat to economic development? Why was the likelihood of ecological damage deemed acceptable? And why was there no consultation with downstream communities before permitting river dumping?

The answer lies primarily in the linkage of the mine with nation-building and economic and social development, and in the government's conflicting role as both mine shareholder and regulator.

In the 1980s, it was not unusual for developing country governments to take equity stakes in new mining ventures operated by transnational corporations. The aim was to ensure that as many benefits as possible—revenues, profits, mining taxes—remained in the host countries. Yet, by juggling the roles of mine owner and mining industry regulator, these governments opened themselves up to a major conflict of interest (Temu 1997:192–193).

Strict oversight measures are necessary to neutralize such conflicts. At Ok Tedi, however, the Papua New Guinea government's conflict of interest played itself out to damaging effect. According to critics, the state's direct financial stake undermined its role as independent arbiter of the mine's environmental and social impacts and contributed to its failure to honor the constitution. As a mine owner, the government was also seen by local communities as at least partly responsible for environmental damage caused in the pursuit of profit and as having relinquished its role as the government (Taylor 1997:24).

The government's conflicted position was most strongly demonstrated by its failure to hold its corporate partners to their agreement to contain mine waste. When the tailings dam's foundations collapsed, start-up costs were over budget and copper prices falling. The area's geological instability made another dam potentially risky, and alternative options that environmentalists favored as more ecologically sound, such as building a 100-kilometer tailings pipeline to a stable lowlands waste dump, were expensive. At the same time, the Bougainville copper mine was in the process of closing down, with a consequent reduction in national GDP of around 20 percent (Hancock 2003).

Simultaneous closure of Ok Tedi would have undermined the country's fledgling education and health systems and exacerbated rural poverty (Hancock 2003). The mining companies could afford to walk away but the government couldn't afford to let them. When BHP warned that it would close the mine if it were required to build a new dam, the government waived the requirement rather than face major revenue, tax, and job losses and a severe blow to national pride. It chose this course of action even though complaints about the environmental effects of mine waste disposal had contributed to

the rebellion that brought down the Bougainville mine (Kirsch 2001:5-6).

The government's part ownership of the Ok Tedi mine also raises key governance issues in the legislative arena. From the start, the government made its deep commitment to Ok Tedi's success clear, and seemed prepared to accept some degree of environmental degradation to accomplish that goal.

Ok Tedi was exempted from later legislation, including the Environmental Planning Act of 1978, allowing the mine to escape oversight by the Department of Environment and Conservation (Burton 1997:50). Instead, OTML was made responsible for monitoring its own impacts (Kirsch 2001:8). The Department of Mining and Petroleum oversaw Ok Tedi policy in its early years, encouraging a decision-making process dominated by senior government and OTML officials (IWT 1994:66-67).



The closeness of this collaboration was brought to light at the International Water Tribunal hearings in 1991. According to its proceedings, "one former staff member at the Department of Minerals observed that OTML management personnel had easy and frequent access to the highest Papua New Guinea government levels... Frequently, important decisions by the Cabinet were made even without consulting responsible government staff, based on information provided mainly by OTML itself" (IWT 1994:66-67). In its judgment, the tribunal accused BHP of "using its foreign earning power to influence the government to make exceptions in the application of law in its favor to the detriment of the local environment and the livelihood of the local people" (IWT 1994:84).

In 1989, the government moved to address concerns about accountability for these mines, establishing a more inclusive form of decision-making for both new and existing opera-

tions. Development Forums were established, through which national and provincial governments and local landowning communities agreed to operational terms and to the benefits, rights, and obligations of each stakeholder (Hancock and Omundsen 1998:1-3). In 1991, the retrospective Development Forum for Ok Tedi resulted in an increase in royalty payments to villagers leasing land to the mine.

According to John Strongman, World Bank Mining Advisor in Washington, DC, these Development Forums "give a very good voice to landowners and provide for a very good circulation of information. Is it possible for Ok Tedi-type problems to happen again in Papua New Guinea? Absolutely not. The consultation procedures are now probably some of the best anywhere in the world" (Strongman 2003).

Many local villagers and their allies in local and international nongovernmental organizations (NGOs), however, do not share this upbeat assessment. They point to a continuing trend in decisions by the government since the 1996 settlement that favor BHP. Most contentiously, in December 2001, the Papua New Guinea government passed the Ok Tedi Mine Continuation Ninth Supplemental Act—which included a liability waiver relieving BHP of any responsibility for damage from the mine after the company sold its shareholding.

Local Government: A Lack of Capacity

Governance failures related to the Ok Tedi mine and the short-changing of local communities have not been confined to the national government.

The rule of law is tenuous in parts of Papua New Guinea, including its Western Province, and provincial agencies often lack both the capacity and expertise to deliver much-needed health, education, and transport services. Some local government administrations have also mismanaged their finances. The Fly River

Provincial Government (FRPG), which governs Western Province, has been suspended three times by the national government for inadequate financial management, the third time in September 2000. It was reinstated in October 2001 (OTDF 2001:7; Finlayson 2002:10).

The FRPG has had little success in converting its substantial mining royalties into sustainable, long-term benefits for its people. Since 1990, the provincial government has received 300 million kina (US\$100 million) in Ok Tedi-related payments, including royalties and taxes (Finlayson 2002:10). Yet, according to a 2002 report commissioned by the Papua New Guinea government as part of a World Bank-funded project on institutional mining reform, little of the windfall has been used to improve "unsatisfactory" health and education services or reorganize failed administrative systems. As recently as 2001, the FRPG's Building Board,

Tenders Board, Land Board, and Transport Board all failed to function, while the Department of Works had no working equipment (Finlayson 2002:11).

The province's huge size, the existence of many isolated communities to whom service delivery is costly and difficult, and the national government's failure to assist FRPG to reform have all contributed to this situation. With mine royalties and taxes due to cease in 2010, the potential consequences are dire. The national government-commissioned report concluded that "the vast majority of people outside the mine-affected areas have not benefited from the Ok Tedi mine, either financially or through improved services. In rural areas of Western Province there is little evidence of investment in agriculture or business activities that may be sustainable after mine closure" (Finlayson 2002:17).

Corporation as Government: Filling a Vacuum

Like other transnational corporations operating in developing countries where infrastructure and services are scarce, Ok Tedi Mining Limited has effectively taken on some of the functions of local government. To enable the mine to function and to attract and retain employees, it built an airstrip at Tabubil, the town nearest the mine site. It has also set up localized power and water supplies, constructed a sewage system, and built a local road network.

The company soon became the major provider of health services within 40 kilometers of the mine, running a 24-bed hospital and funding mosquito control programs (OTML 2003a). Local infant mortality subsequently fell from 27 to 2 percent. The company also paid for 133 community halls, 40 classrooms, 600 water tanks, and 15 aid posts in village communities (BHP 1999:11–12). Between 1982 and 2001, the Ok Tedi mine provided 3.39 billion kina (US\$2.13 billion) in benefits to Papua New Guinea (Finlayson 2002:6).

By the early 1990s, it became clear that the Ok Tedi mine had, through its existence in a highly under-developed region, created a dependency in the Western Province on the economic activity it generated. According to David Wissink, manager of the Ok Tedi Development Foundation, "OTML provided the area around the mine site in particular with the sort of social and physical infrastructure that would ordinarily have been provided by representative government. OTML provided this to meet its own needs, but also as part of the compensation arrangements for its mining activity" (Wissink 2003).

The company's assumption of this role clearly benefited those living closest to the mine, many of whom also worked there. The bigger downstream communities suffering the brunt of ecological damage, however, received little direct benefit from the mine until after the compensation settlement. Moreover, their early efforts to win redress were hampered both by the weakness of the local government and by the absence of democratic process created by the national

government's conflicting role as a mine owner.

Acting like a surrogate government, whether intentionally or not, raises serious governance questions about the proper role of un-elected transnational corporations operating in developing countries. On one hand, local citizens often welcome the new services and infrastructure that such companies can bring. On the other, such benefits can quickly erode once the companies depart.

In Papua New Guinea, the government was warned in August 2002 by an independent expert that "unless the capacity of the provincial government is greatly enhanced in the immediate future, the [Ok Tedi] Foundation will be seen as replacing the role of government for a large proportion of Western Province's population" (Finlayson 2002:18). His report also warned that the viability of the modern infrastructure that local people had come to rely on—from water and power to roads—would be jeopardized once OTML ceased to maintain them (Finlayson 2002:15).

Ok Tedi Today: A Just Outcome?

Both the Papua New Guinea government and local communities viewed the possibility of the mine's early closure as the worst of all worlds, depriving local residents of income and the region of royalties to mitigate ecological problems and fund alternative employment programs.

A World Bank report commissioned by the national government in late 1999 concluded that closing the mine quickly would be the "best environmental option," but would create a "potentially disastrous" social situation (World Bank 2000). BHP's shareholders wanted to close the mine in 2000, but the company agreed instead to write off its investment. In February 2002, its 52 percent equity was transferred to a new trust—the Papua New Guinea Sustainable Development Program Company—whose dividend income would be spent on development programs for up to 40 years (Kirsch 2001:1; MMSD Mining et al. 2002:348). For its part, the newly-merged BHP Billiton, now one of the world's largest mining corporations, received indemnity from future pollution liability.

Legislation and agreements sealing this deal followed 2 years of consultations between OTML and Fly River communities. According to the company, each village chose two representatives to act on its behalf. By 2002, OTML had negotiated Mine Continuation Agreements with 142 of the 155 villages in the affected area (Higgins 2002:4). The agreements provide compensation for future environmental damage between 2002 and 2010. About 60,000 people—or 40 percent of Western Province's inhabitants—will benefit, with 180 million kina (US\$50 million) split between cash payments (16 percent); health, education and job creation projects (58 percent); and trust funds for future generations (26 percent) (Finlayson 2002:14).

The bulk of development assistance will be managed by the new Ok Tedi Foundation, which has become a vehicle for improved company communications with the Fly River



communities. During 2002, around 150 village planning committees were set up to jointly review proposed projects with foundation staff. Agreed-upon projects are presented to one of nine community development trusts for funding approval. These trusts have an average of eight trustees, at least four of whom are local community representatives (Wissink 2003).

It is too early to judge how this new partnership approach will play out in terms of successful sustainable development and job creation before and after the mine closes. What is not in question, however, is that both the contested 1996 settlement and BHP's early exit from the mine raise crucial issues of environmental governance, accountability, and social justice that continue to reverberate throughout the region and the country.

Two issues generate most anger. First, many villagers still living with the daily outpouring of mine waste believe that BHP Billiton should not have been allowed to escape responsibility for continuing environmental damage after its exit. A pending court case in Australia alleging breach of the 1996 settlement will attempt to force both BHP Billiton—which remains bound by its terms—and OTML to implement more comprehensive tailings containment measures and pay out more compensation (Hardwick 2003). Both companies are contesting the case, expected to reach trial in early 2004.

Second, there is widespread confusion and upset among villagers over the terms of the Community Mine Continuation Agreements (CMCAs) signed on their behalf. According to local NGOs and the Australian lawyers acting for commu-

nity leaders, many villagers claim they did not understand that legal documents were being signed by two representatives on behalf of entire communities, or that they barred individuals from taking part in the second lawsuit against BHP and OTML. Fourteen hundred villagers subsequently signed affidavits disowning the agreements (Hardwick 2003).

Ongoing distrust among the mining company, provincial government, and communities is also reflected in concerns about the accountability of the Papua New Guinea Sustainable Development Program Company. Bob Danaya, governor of Western Province, has strongly objected to the lack of a provincial representative on the Board of Directors, whose membership has been appointed exclusively by BHP Billiton and the national government (Danaya 2003).

2002–2010: Crunch Time

The history of poor governance—national, local and corporate—surrounding the Ok Tedi mine and Western Province has left a legacy of distrust, disaffection, and environmental degradation. Further, Papua New Guinea remains a heavily mineral-dependent economy, despite hopes that the revenue from Ok Tedi and other mines would help the country diversify its economy.

Although Ok Tedi has generated significant income for local communities and the Fly River Provincial Government, there is little to show for it in terms of new, durable infrastructure or services (Finlayson 2002:15). Meanwhile, mine

Beyond Ok Tedi: Progress Toward Sustainable Mining?

The mining industry has rapidly consolidated in the last 20 years, creating companies that are larger than some national economies. A few giant mining transnationals based in Australia, Canada, the United States, and the UK now dominate the market. They include BHP Billiton, Rio Tinto, Placer Dome, Newmont, Freeport, and Anglo American.

These companies wield enormous power, especially in developing countries anxious to generate income. Under-resourced governments, as in Papua New Guinea, can fail to provide adequate oversight and protection for local people and resources. Some assume the potentially conflicting roles of mine regulator and shareholder. A number of questions suggest how such power imbalances among corporations, developing country governments, and local communities might be righted.

- Would a global code of conduct agreed by governments and mining companies improve the industry's social and environmental performance?

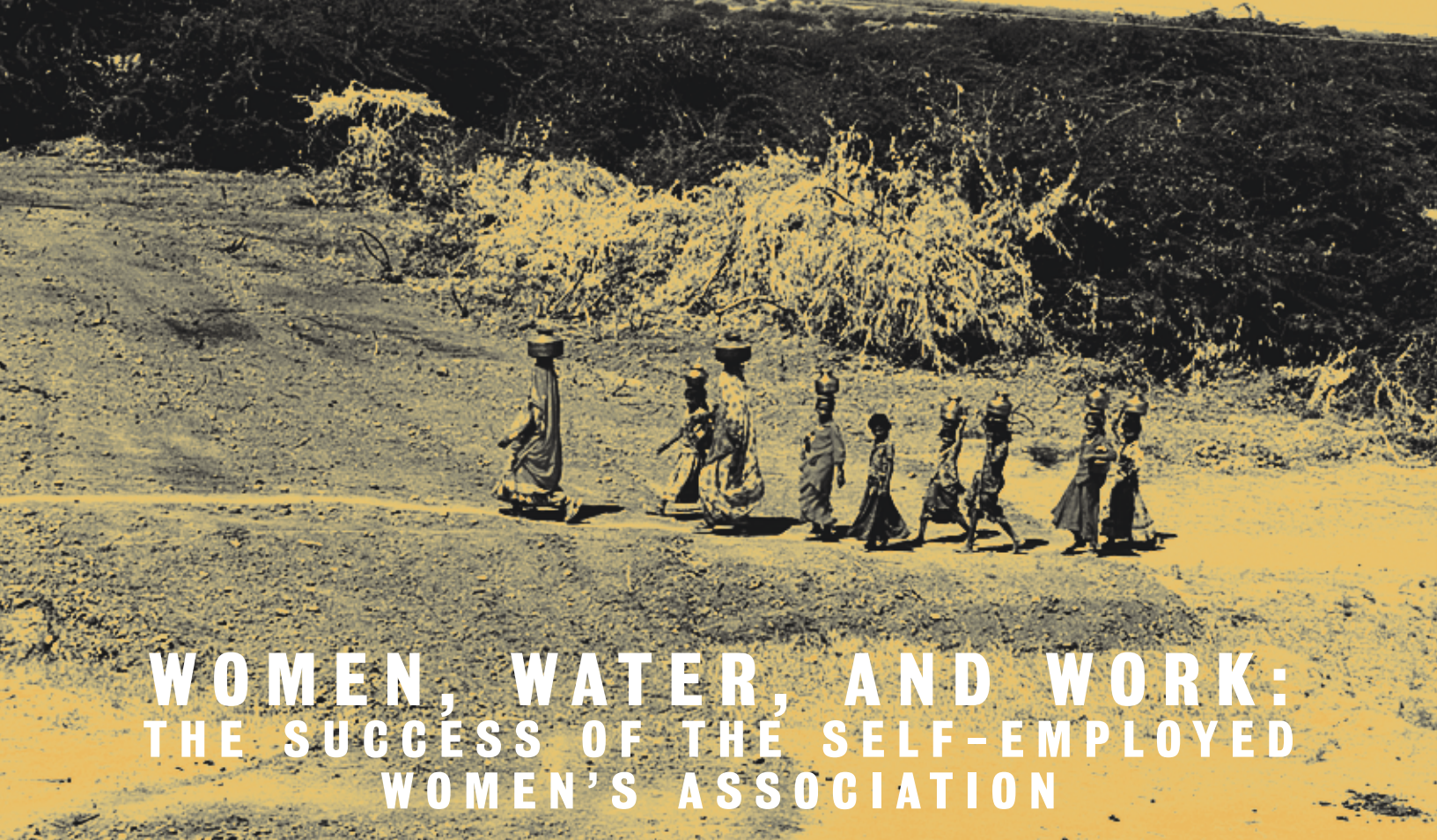
- How can developing country governments make informed decisions on whether to approve a mine when they are acting on information provided by the prospective mining company?
- What better efforts can be made to ensure the full understanding and prior informed consent of communities living in or around potential mine sites?
- Should governments be part-owners of mining projects, given the potential conflict between the roles of mine regulator and shareholder?
- What measures can be taken to ensure that mine closures do not result in social dislocation and deprivation, especially in regions where local government is weak and companies are major service providers?
- Should companies remain accountable for future pollution from their mining operations, even if they divest themselves of ownership?

tailings continue to pour daily into the local rivers, affecting food supplies and making it harder for people to return from a semi-cash economy to subsistence lifestyles.

Between 2001 and 2010, 40 percent of the predicted 1.5 billion kina (US\$0.5 billion) total income from Ok Tedi mine will flow into Western Province (Finlayson 2002:18). Clearly, greater cooperation and better relations are urgently

needed between mine, foundation, national, and provincial governments to ensure that this money is used to maximum effect.

Seven short years remain to put right the wrongs done to the people and environment of Ok Tedi. If this is not achieved, ecological disruption and cultural dislocation—not sustainable development—will be the mine's lasting legacy.



WOMEN, WATER, AND WORK: THE SUCCESS OF THE SELF-EMPLOYED WOMEN'S ASSOCIATION

In villages of the desert district of Banaskantha in Gujarat, India, many local women have taken control of the key resource they need for their livelihoods and their families' survival: water. They have demonstrated how water resources can be governed efficiently for economic and ecological gains. In these areas, agricultural productivity has increased, outmigration in times of drought has substantially declined, and animals and birds have returned to rejuvenated habitats. In a society that is patriarchal and dominated by the state, this has not been an easy task. Yet, guided by their all-women trade union, the Self-Employed Women's Association (SEWA), they have established innovative grassroots governance structures and effectively linked them to mainstream government agencies. They have acquired new management and technical skills, and learned to influence state authorities, resulting in greater self-respect, and a more influential voice not only within the community but also inside their own homes.

The underlying strategy behind this success has been the linking of environmental protection with livelihoods. For rural women, economic benefit often depends on the health of the natural resources they use. Mainstream governance institutions, however, treat these two issues separately and, too often, as mutually exclusive. SEWA's work has shown that rural communities are motivated to rebuild their environmental bases only if they see some tangible economic benefit in doing so.

SEWA: A Profile

The Self-Employed Women's Association (SEWA) is a trade union of over 300,000 women in India. Of these, more than 200,000 are poor, self-employed women working in the informal sector in Gujarat. Founded by Elaben Bhatt, SEWA was registered in 1972 with the two-fold objective of providing full employment to its members and making them self-reliant. SEWA has members in 11 of the 25 districts of Gujarat. Two thirds of its members are based in rural areas.

SEWA's membership broadly comprises three types of self-employed women:

1. Hawkers, vendors, and small businesswomen who buy and sell vegetables, fruits, fish, eggs, other food items, household goods, and clothes.
2. Home-based workers like weavers, potters, *bidi* and *agarbatti* workers, *papad* rollers, ready-made garment makers, women who process agricultural products, and artisans.
3. Manual laborers and service providers like agricultural laborers, construction workers, contract laborers, handcart-pullers, hand-loaders, domestic workers, and laundry workers.

Women belonging to different occupations are organized either as unions or cooperatives. These groups are then federated at the district level into "local associations" run by district-level executive committees. At the state level, SEWA is led by a 25-member executive committee made up of representatives from various districts and occupations. The executive committee is elected every 3 years.

SEWA is both an organization and a movement to empower poor, illiterate, and vulnerable women. It organizes women to ensure that through full employment its members obtain work security, income security, food security, and social security (at least healthcare, child care, and shelter). SEWA often works like an NGO for the welfare of its members. But because it is a trade union, all its activities are mandated by the members themselves.

SEWA has offshoots in other states in India. In the northern state of Uttar Pradesh, for instance, SEWA-Lucknow works with women embroiderers who export their exquisite work. SEWA has also spawned similar organizations in other developing countries in Africa, East Asia, and South America, and has established a strong global network that has lobbied international decision-making bodies such as the International Labour Organization, for the rights of home-based workers.

Gujarat, India



Map data courtesy of Disaster Mitigation Institute, Ahmedabad, Gujarat, India

The Harsh Environment of Banaskantha

Climatic conditions in arid Banaskantha District are hostile, with saline land and water, flash floods, sand storms, and frequent droughts. Rainfall is less than 7 inches per year. The region is also prone to cyclones and earthquakes. The Banaskantha River runs through the district but remains dry for most of the year. During the rainy season, it floods the villages bordering its banks. Droughts are common and the groundwater table has been receding by 6.5 feet a year as withdrawals exceed natural replenishment. Over 75 percent of the district's villages have been declared "no source" villages by the State Water Board, because they do not have reliable sources of fresh water. Salinity is widespread and many villages rely on mobile water tankers sent infrequently by the state's water supply agency, the Gujarat Water Supply and Sewerage Board (GWSSB).

Water, for drinking and irrigation, is a perennial problem for rural communities that subsist on rain-fed agriculture and livestock rearing. Water scarcity has led to low agricultural productivity, reduced fodder production, and low milk yields. Nearly 90 percent of the district's people live in villages, but during the long summer and the recurrent droughts water shortages force large-scale migration to towns throughout the state.

Ironically, Gujarat is home to the Sardar Sarovar dam, one of 30 major, 135 medium, and about 3,000 minor dams planned to be built on the river Narmada. Currently under construction, it will be one of the world's largest water projects with an extensive canal and irrigation system. It is expected to supply water and electricity to Gujarat and the

neighboring states of Madhya Pradesh and Maharashtra. The priority intended water use is domestic consumption, but an independent review commissioned by the World Bank found that plans for the delivery of water to villagers in the drought-prone regions of Gujarat were only in the early stages of development. The review observes that a sound and reliable hydrological analysis is lacking and cites “compelling evidence that the Sardar Sarovar Projects will not operate as planned.” In other words, the waters of Narmada are not likely to reach rural villagers in Banaskantha or other poor, arid districts.

Women and Water

Fetching and carrying water is women’s work in rural India. Women in Banaskantha spend up to six hours a day bringing water from distant sources to their homes. They carry up to 15 liters on their heads on each trip, walking barefoot through treacherous terrain. This affects their health: women often complain of chronic backache, painful feet, general weakness, and fatigue. Ill health, in turn, lowers their productivity. In addition to domestic consumption, women need water for their enterprises and professions such as horticulture, dairy farming, food processing, handicrafts, and midwifery.

Despite the vital role of village women in the country’s water supply, it was not until the eighth five-year plan (1992–1997) that the federal government formally recognized the need to involve rural communities in managing water resources, and only in 1999 did it establish guidelines for involving women. Guidelines included reserving 30 percent of places in government technical water training schemes and village-level water committees for women. However, women in Gujarat began taking their first steps toward self-governance in water issues in the mid-1980s, thanks to SEWA.

Enter SEWA

In 1986, the State Water Board of Gujarat invited SEWA to use its grassroots base to strengthen village-level water committees (called *pani panchayats*) so that rural people could take over the operation and management of failing water supply systems. After 3 consecutive years of drought, the Water Board believed that proactive local communities might succeed where more centralized management had failed. SEWA agreed to take on the task, because the organization realized that water supply was a critical issue affecting the productivity and quality of life of its membership: Two thirds of SEWA’s members live in rural Gujarat.

Initial work began in two sub-districts or *talukas* of Banaskantha district, Santhalpur and Radhanpur. An existing water supply scheme funded by the Dutch government provided water to 107 villages via pipelines from 6 tube wells more than 60 miles away. These villages had formed water committees, but a preliminary survey by SEWA revealed that water committee members were far from active. Indeed, many people had not been consulted and did not even know



they were on the committees. Women tended to be members in name only, because male members excluded them from all activities. SEWA found that village-level government officials, water engineers, and water committee members themselves were generally ignorant about the powers and role of the water committees. The majority did not even know how water reached their own villages. Not surprisingly, much of the water supply system in the two sub-districts was nonfunctional. SEWA found that there was almost no easy access to safe drinking water in the whole of Santhalpur and in about half of Radhanpur.

As a first step, SEWA arranged several meetings between water engineers and villagers so that villagers could understand the water supply scheme. A group of men and women from different villages was taken to the Santhalpur headwaters to see the source of their water supply. Two of the most

Water Management in Rural India: Governance Lessons

Water resources are owned and managed by the government in India, and responsibility for day-to-day implementation of water-related policy is divided among a host of agencies ranging from different ministries in the capital, New Delhi, to administrative agencies at the state, district, and sub-district levels. In addition, recent years have seen the entry of the private sector into water delivery services. At the village level, water wells, pipes, and other infrastructure have traditionally been maintained by men. Water supply in many rural areas, however, remains inadequate and the burden of keeping fields and families supplied with daily water has fallen on women. In the state of Gujarat, in northern India, SEWA has worked for over 15 years to mobilize village women, many untrained and illiterate, to build, maintain, and manage small-scale water supply systems. While small in comparison to the vastness of the Indian subcontinent, the progress made by these women has yielded compelling lessons.

- Decentralizing control of India's natural resources began, in principle, decades ago, but the growth of actual local control required initiative on the part of civil society.
- Helping poor, uneducated women acquire skills needed for natural resource management takes time and represents a greater challenge than the physical construction of new water infrastructure.
- Capacity-building efforts must be persistently applied over time if they are to take root and lead to genuine empowerment.
- Poor women are more likely to participate in natural resource management projects if they are explicitly linked to economic development.
- Despite official skepticism, locally driven watershed management projects in Gujarat have proven that uneducated women can navigate the complexities of government and deal effectively with mainstream institutions.
- Successful management of a natural resource by women translates into growing respect for those women in village government, in social activities, and in the home. However, maintaining this respect against the traditions of a patriarchal society presents an ongoing challenge.

successful, and fully attended trips were to two milk cooperatives, Amul and the National Dairy Development Board. The visits were planned so that the villagers could appreciate the democratic functioning of these two thriving collective enterprises. Another visit to Indian Petro-Chemical Limited (IPCL), a government company manufacturing plastics, demonstrated how a village water supply pond could be lined with a special plastic film, to prevent the ingress of salinity. Water in an unlined pond is gradually contaminated by salts leached from the desert soils, becoming undrinkable after a few months. In later years, lining ponds with agri-film became a cornerstone of many village water maintenance projects.

SEWA's efforts to rally women and men were, however, impeded by massive seasonal distress migration due to lack of water and jobs. At times, whole villages were deserted. In others, only the elderly, the disabled, and some young children were left behind. The question that confronted SEWA was how to stop people from leaving their homes, so they could develop their village resources. The village-level water meetings thus led to the articulation of two urgent needs of the villagers: The need to find non-water based economic work, and the need to conserve water, revive traditional sources like surface wells and ponds, and create alternative water sources like roof rainwater harvesting structures.

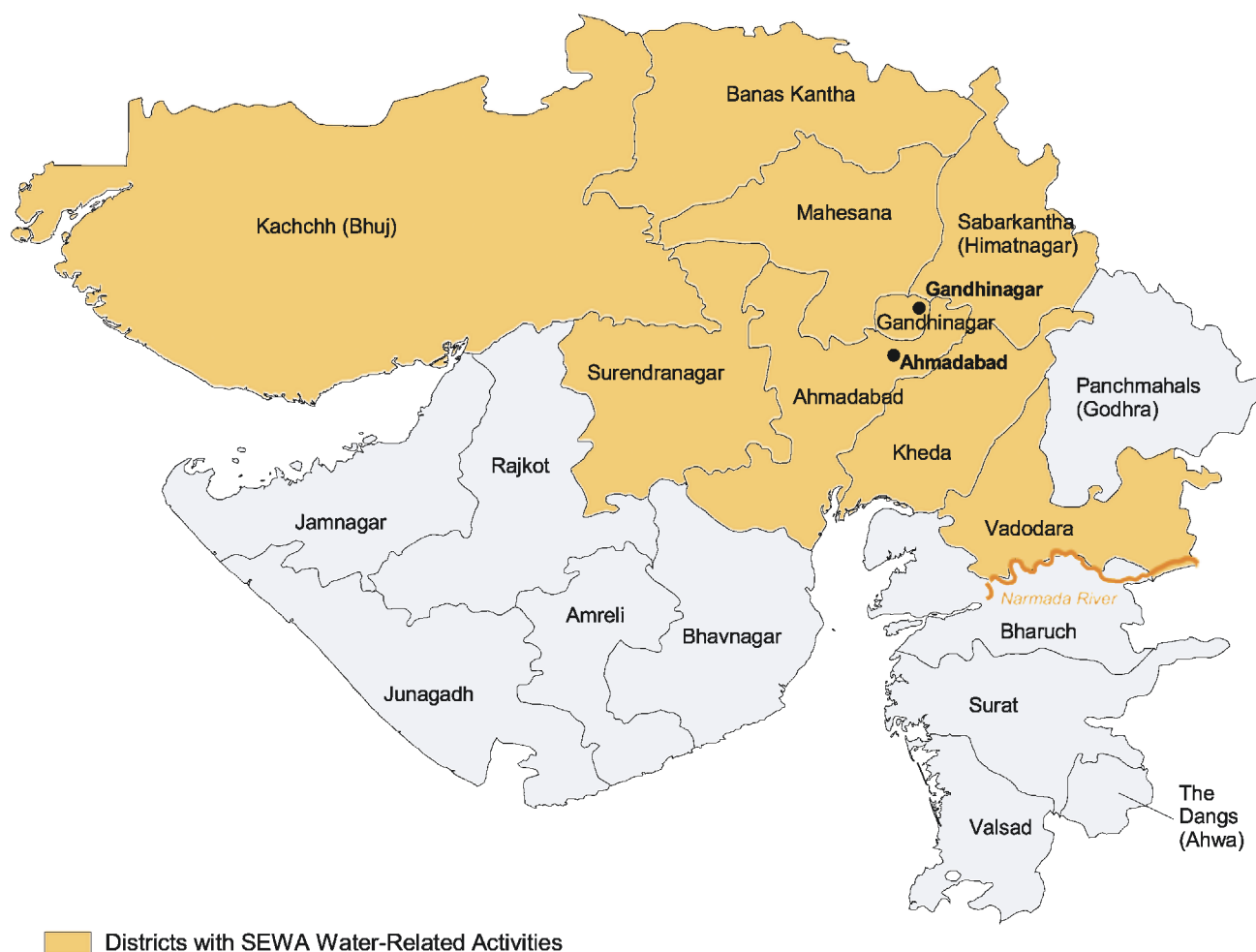
Women and Water Governance

SEWA's leadership understood that it would be easier to recruit its members to water development activities if they were clearly linked to economic improvement. Accordingly, from 1986 on, SEWA mobilized village women into about 50 groups organized around 8 economic activities, ranging from embroidery and gum collection from the forest to rainwater harvesting for anti-desertification measures. These groups were formed under the Development of Women and Children in Rural Areas (DWCRA) Program, a joint effort of the Indian government and UNICEF. By 2000, nearly 200 such groups existed with their own district federation, helping women with economic and business development.

At first, however, women were reluctant to come forward because water infrastructure was regarded as male territory. Most men were also uncooperative. They were critical of women entering the public domain on this issue, and several went so far as to say they would not drink water from a source created by women. Many threatened not to work on water harvesting structures that would be managed by women. Some men openly said women would make financial blunders and force them to mortgage their lands (almost all land titles are in men's names) to repay their debts.

SEWA persisted, however, and facilitated the formation of women-dominated water users committees called *pani samities*. Instead of the stipulated 30 percent quota for women, these were either all-women committees or had at least an equal number of men and women members. Women slowly

SEWA Water-Related Activities in Gujarat, India



gained confidence as they began to lead water activities, raise their productivity, and see their incomes increase. A year after the water activities were initiated, the promising results prompted more women to join in. Poonamben of Bharvad village, Radhanpur, recounts how no one wanted to join the *pani samities* initially. “Now we’ve learned so much about measurements, maps, and surveying methods that everyone wants to become a member and know about these things.” SEWA’s argument is that because women are primarily responsible for fetching and using water—for domestic purposes, cattle, and kitchen gardens—it is necessary to give them prominent roles in water governance. This fact also made it easier for SEWA to take on water-related activities because, as a trade union, it can only undertake activities that are mandated by its members.

Many different kinds of activities were undertaken in the first phase of SEWA’s work. The initial 42 *pani samities* took over maintenance of the piped water system in the San-

thalpur and Radhanpur sub-districts, including collecting user fees. Simultaneously, the village women applied themselves to revive and maintain their traditional community sources of water. *Pani samities* began constructing check dams, deepening existing ponds, and lining ponds with plastic film to prevent salt penetration.

The results of this early partnership between SEWA and the State Water Board were mixed, but successful enough to encourage SEWA to take up other water-related activities throughout Banaskantha and other districts of Gujarat. These first years laid the foundation for SEWA’s Millennium Water Campaign, which began in 1995 (see below).

Navigating the Government Labyrinth

In Gujarat, rural drinking water supply is controlled primarily by the State Water Board. Decentralization began in 1957, when a government-instituted committee recommended devolvement of political and administrative power

Who Controls and Manages Water in Gujarat?

The state of Gujarat owns all surface water and ground-water that falls within its jurisdiction. To administer its water resources, the state has set up a maze of departments at the state, district, and village levels.

At the state level, there are three ministries and four departments in charge of water resources in different ways. The structure is complicated, the roles overlap, and there is no institutionalized manner of interdepartmental coordination. The seven bodies governing water at the state level are:

1. **Ministry of Narmada** (currently this charge is with the Chief Minister, the highest elected representative of the state).
2. **Ministry of Irrigation** (irrigation other than from Narmada waters).
3. **Ministry of Drinking Water Supply** (other than from Narmada waters).
4. **Narmada and Water Resources Department.** In this department are different secretaries for irrigation and for drinking water, but they report not to the head of the department but to the Minister of Irrigation and Minister of Drinking Water Supply respectively.
5. **Gujarat Water Supply and Sewerage Board (GWSSB)** is a separate implementing body headed by a chairman (an administrative post) and a member secretary (a technical post) and is under the charge of the Chief Secretary of the state.
6. **Sardar Sarovar Narmada Nigam** is a body responsible for the implementation of the Sardar Sarovar series of dams on the river Narmada in Gujarat. This is the only big dam in the state; all other irrigation is through smaller projects and is, therefore, known as "minor irrigation."

to the village level through the establishment of local self-governing bodies called *panchayats*. The new institutions evoked an extraordinary response from the people and the *panchayats* were given formal recognition in 1993 by means of amendments to the Indian constitution.

Panchayat representatives are members of village-level natural resource management committees and can exercise real influence over the installation, operation, and maintenance of drinking water supplies. However, *panchayats* still

7. **Panchayats, Rural Housing, and Rural Development Department** has two secretaries, in charge of *panchayats* and rural development respectively. They are responsible for overseeing water resource schemes implemented directly by the *zilla panchayats* (elected self-governing bodies at the *zilla*, or district, level), the District Rural Development Agency (DRDA), and by the village-level *panchayats*.

At the **district level**:

1. "Minor" irrigation schemes are implemented by the **Minor Irrigation Department**.
2. *Zilla Panchayats* directly implement some small irrigation schemes, small drinking water supply projects delegated by the GWSSB, and small water harvesting projects.
3. Some watershed development projects are implemented directly by the **District Rural Development Agencies**, or through sub-contracting to *panchayat* institutions, private parties, NGOs, or community-based organizations like SEWA.

At the **sub-district (*taluka*) level**:

Some drinking water supply projects are delegated by the GWSSB to be implemented directly by the *taluka panchayat*.

At the **village level**:

Village *panchayats* are responsible for maintenance and distribution of village-level drinking water supply projects delegated to them by district or sub-district level *panchayats* and the DRDA.

Within village *panchayats*, *pani panchayats*, or water committees, are constituted to oversee the drinking water supply and watershed projects.

have limited administrative and financial control. In addition to the State Water Board and village-level *panchayats*, district committees and sub-district development offices are also responsible for overseeing some irrigation systems and watershed development projects. (See: Who Controls and Manages Water in Gujarat?)

The *pani samities* quickly learned that reviving and maintaining their traditional sources of water would not be an easy task. First, village-level water management schemes fell

under the jurisdiction of *panchayats*, which often were not equipped with the required managerial and technical know-how. Second, the sheer number of government agencies dealing with different aspects of water delivery and maintenance was overwhelming. The women had to learn about the different roles of these agencies, decide what agency to approach, and when and how to approach them. Under such conditions, it was a challenge for SEWA to activate *pani samities*, keep them motivated, and sustain community participation.

Over the course of the decade 1986–1995, SEWA and the *pani samities* learned to navigate these difficult waters. Many of their experiences demonstrate the complicated alliances that had to be constructed before water projects could get off the ground.

For example, in the village of Madhutra, the *pani samiti* decided to reconstruct an old check dam that had been washed away in the floods of 1990. The *samiti*, the village *panchayat*, engineers from the Minor Irrigation Department, and SEWA employees sat together to plan, design, and construct the dam. It was agreed that the villagers would bear the cost of materials transport. The Irrigation Department would pay for the raw materials and for labor. The *panchayat* would be responsible for maintaining the dam and collecting water user charges from beneficiary farmers. This plan was carried out successfully.

Government Recognition and the Millennium Water Campaign

By 1995, SEWA had accumulated a great deal of experience in the water sector, and its projects were yielding tangible economic, social and environmental benefits throughout the state of Gujarat. In that year, the state government invited SEWA to take part in a watershed development project in the role of Principal Implementing Agency (PIA)—the body with authority to carry out the work. This was the first time that a trade union had been invited to take on such a role.

SEWA used this unprecedented opportunity to launch a watershed development program of its own, dubbed Water, Women, and Work: the Millennium Campaign. However, before SEWA decided to participate in the government program, it used its hard-won respect to bargain hard with the authorities. SEWA members discussed the government guidelines in great detail. They wanted more than the reserved 30 percent representation for women on the watershed committees because otherwise, they said, they would not be able to influence the decision-making process. The state agency in charge initially refused to entertain any modification of the guidelines. This led to protracted negotiations. State officials said that women were uneducated and unqualified, and would not be able to supervise technical works (Banaskantha has a very low literacy rate, just 11 percent). SEWA argued that it was equally difficult to find highly educated or qualified men in the villages. Finally, the state agreed to allow the formation of women-dominated village watershed committees.



Then began the second phase of negotiations. SEWA wanted the watershed development program to be integrated, linking economic development with ecological regeneration. They reached agreement that the watershed program would encompass six economic-ecological activities:

- Land development (land contouring, land leveling, plugging small furrows caused by erosion);
- Water conservation (check dams, well recharging, pond construction and repair, small lift irrigation, drip irrigation);
- Forestry (plantations on private land and on common wasteland, growing of fodder, nursery raising);
- Agriculture development (dryland horticulture, distribution of fodder kits including seeds and information capsules, improved agricultural tools, crop demonstration);
- Livestock rearing (immunization, primary health education, disease prevention interventions); and
- Capacity building (organizing the community, basic administrative skills, essential financial management).

A Successful Campaign

Between 1995 and 2001, SEWA's water campaign spread to a total of 502 villages in nine districts (see map). SEWA used funds from the national government's Integrated Desert Area Development Program to structure a watershed development program that maximized the participation of women and incorporated the lessons learned over the previous 10 years. Women comprised 80 percent or more of the membership of most of the new water users committees, and committee activities revolved around issues of particular interest to women—fodder growing, nursery plantation, improved agriculture, rainwater harvesting and capacity-building.

In Banaskantha, SEWA's program focused on 8 villages in 2 sub-districts and aimed to treat a total of 4,000 hectares. Each village was given a grant of 2.5 million rupees (Rs) (approximately US\$53,000) for a four-year period. The villages were required to contribute 10 percent of this sum, in cash or as free labor. The cash was deposited in a bank as a Village Fund controlled by the water committee to be used for future repairs and maintenance. Twenty percent of the fund (Rs 0.5 million or US\$10,600) was spent on technical services (for example, GIS analysis) and the salaries of SEWA employees.

Results of the water campaign in Banaskantha have been impressive. Aquifers in 18 villages have been recharged. A total of 150 wells, including surface wells, tube wells and farm wells, have been recharged in 8 villages. In Porana village alone, for instance, a total of 25 wells have been recharged. Salinity has decreased in the treated land thanks to various innovative and low-cost mechanisms for sweetening and recharging the groundwater. In Porana village, a polyvinylchloride (PVC) pipe was constructed to drain excess rainwater that collected in the corner of a sloping field. The rainwater was channeled into the ground and filtered using a traditional sand and stone layered filtration system. The pipe was plugged when not in use. This method has turned the saline groundwater sweet and it is now available in wells for drinking and irrigation. Groundwater is lifted with a water pump for irrigation and farmers are able to grow three crops annually instead of one. The investment was just Rs 5,000 (US\$106) for each system.

Interestingly, some of the water harvesting structures built under the watershed development program are not recognized as technically sound by the government engineers.

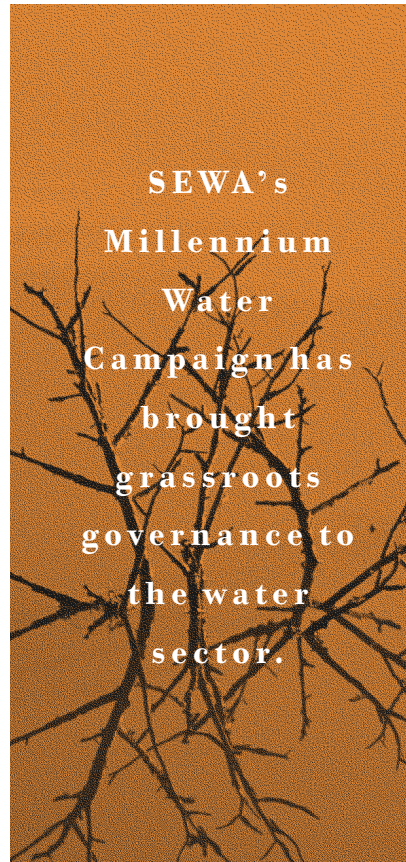
However, during the first torrential rains, 25 check dams built by the state irrigation department were swept away while all those constructed by SEWA survived. The state officials concede that the check dams may not adhere to stipulated norms, but that they are functional and secure.

New plantations have greened the desert around the eight villages and birds that had lost their habitat have returned. The pond in Barara village today resembles a bird colony. A rough count shows at least 28 species of birds, none of which was visible before the watershed program began. Wild animals such as deer and rabbit are now easily visible. Soil ecology has improved and the invasive growth of *prosopis* (a variety of acacia) has been contained as villagers now grow crops that they can sell in the local market.

Not least, distress out-migration has stopped completely in the eight villages. Villagers from Datrana and Gokhantar, for instance, stopped migrating once they lined the ponds in their villages with plastic film, sweetening the water. Out-migration has also declined substantially in the two sub-districts as a whole because an average of four villages around each of the eight targeted villages have benefited from the augmentation of the water supply. Migration, in other words, has been contained in at least 32 of the villages in and around the total watershed area.

SEWA's integrated watershed development program was implemented efficiently, enabling the available funds to be stretched to cover additional land. In Datrana village, for instance, the villagers, led by an 8-woman, 3-man watershed development committee, treated a total of 600 hectares from funds provided for the treatment of 500 hectares of village land. Throughout Banaskantha, an additional 30 percent over the designated area benefited from the program.

The success of the watershed program led to SEWA's nomination in 1998 to the state-level Advisory Committee for Recharging of Water Sources. SEWA immediately pushed for a novel policy change that would allow for the construction of roof rainwater harvesting systems in the arid districts of Gujarat. Government funds would be given only to women, meaning that women would benefit from drinking water storage tanks in their homes and they would own the water infrastructure. The State Water Board adopted this recommendation and, for the first time, sanctioned the construction of 1,000 such tanks by SEWA. Later, the Water Board gave permission to other agencies to build similar systems.



The guidelines for the roof rainwater harvesting systems stipulate a 30 percent contribution, in cash or as labor, by the beneficiary. For those living below the official poverty line—and many SEWA members belong to this category—the beneficiary has to contribute only one-tenth of the total cost. By mid-2001, 80 roof rainwater tanks had been built in seven villages of Banaskantha. A full tank, about 15,000 to 20,000 liters, serves a family of 5 for at least 2 months. The tanks became popular because, in times of drought, women could also store water from the mobile water tankers directly in their roof tanks. Increased water storage in the roof tanks contributed to reduced migration rates during the scorching summer months. And many villagers went back to the tradition of keeping a trough of water for the local birds. As Puriben of Vauva village explained, “If we don’t get water we can always clamor for mobile water tankers. But the birds would die of thirst if they did not get water from us during the dry season.”

Institution-Building for Grassroots Water Management

SEWA’s watershed development program has helped to institutionalize grassroots governance in the water sector. Institution-building begins at the village level because two thirds of SEWA’s members live in villages. The village-level water and watershed committees, the *pani samities*, which are at least 80 percent women, form the first building blocks of SEWA’s three-tier governance system. *Pani samiti* members are identified and selected at a meeting of all village adults. This meeting is called by SEWA in collaboration with the village governing body (*panchayat*). Participants at the meeting discuss village water problems in detail and chalk out a viable plan of action. The *pani samiti* is given the responsibility of carrying out and overseeing the day-to-day tasks of water-related activities and is accountable to all village adults.

The *pani samiti* sends representatives to a district-level “water spearhead team” of 10–12 members. The spearhead teams include one or two SEWA members, one of whom is a team leader stationed at district headquarters. The team leader acts as a friend, motivator, and expert counselor while the spearhead team is still new. As *pani samiti* members gain experience and confidence, the role of the team leader diminishes.

Spearhead teams in turn report to a state-level water coordinator stationed at Ahmedabad, the former capital of Gujarat. Each team member is also a member of SEWA’s district-level executive committee of the Federation of Women’s Occupational Groups. This membership broadens the scope of the water campaign and enables *pani samiti* members to take advantage of other services offered by SEWA. For example, savings and credit spearhead teams are able to make “water loans” for constructing roof rainwater harvesting systems in their members’ homes. In Banaskantha, for example, when the government failed to provide its grant for the systems on time, the poor women took out water

loans from their savings and credit groups and repaid the loans when they received the subsidy from the government.

New Competencies, New Challenges

SEWA’s water management work has yielded rich dividends and been able to face tough challenges because of two inherent strengths. First, women have been continually trained and supported to deal with the technical, social, institutional, and cultural demands of water-related activities. Second, new institutions dominated by women have been created with strong links to mainstream governing institutions. These strategies have empowered women both at the individual level and within their communities.

Women have learned to handle finances; funding is now given directly to *pani samities*. Technical training has created a cadre of “barefoot” managers, accountants, and technical experts. Women now know how to build a contour earthen dam, how much to deepen a pond, and how to line a pond with plastic film, among other things. SEWA itself has been able to develop a good database on water sources and their status in villages.

Socially, women have earned more respect within their families and their communities. Their voices are heard more and their opinions are more in demand. Handpump mechanics, for example, recount how villagers’ perceptions have changed from distrust, wariness, and mockery to respect and even awe. In local politics, some women *panchayat* members have found that working with the water campaign has strengthened their own efforts to contest *panchayat* elections.

There has also been some shift in attitudes toward rural women on the part of mainstream institutions. The Gujarat Jalseva Training Institute, the technical training arm of the State Water Board, has changed its rules to accommodate illiterate women in its training program. The minimum qualification for applying to training programs was reduced, and sometimes waived for promising candidates. To accommodate women’s needs, training programs are now sometimes held in villages and sub-district headquarters rather than at the Institute’s campus.

SEWA’s success has prompted villagers and civil society groups to question India’s trend toward privatizing water distribution services. There is some sign that government agencies are beginning to trust the “people’s sector” to handle water supply activities, despite their skepticism that poor, illiterate women could prove competent. The Gujarat Water Board has recently decided to abandon its private sector contract for managing piped water supply systems in Surendranagar, and handed responsibility directly to a people’s organization.

Alongside the development of a promising institutional framework, expanding governance skills, and continuous capacity-building, however, there remain formidable challenges. For instance, not all women’s district-level federations are registered. Even where they are registered, they are not recognized by government agencies. Thus, government

departments prefer to sign agreements with SEWA, the parent body, rather than with the federations directly.

Although women's groups work with village *panchayats*, these relationships can be tenuous and dependent on individual rapport. In many villages, women's groups face resistance from elected *panchayat* representatives whose signatures are necessary for many of the projects to be implemented at the village level.

The governance capabilities of the women's groups themselves need to be strengthened. Dealing with the varied problems of the water sector and the many government water authorities is a skill that many of the water spearhead team members have yet to master. Faced with unresponsive government officials and bureaucratic delays in delivery of government services, many women lose heart and find it difficult to win the confidence of villagers. The technical cadre of women "barefoot" engineers also needs to be expanded and their skills upgraded.

There is an urgent need to sensitize government agencies to larger issues that would benefit women. For example, construction of roof rainwater harvesting systems could be included as part of the government's housing policy, espe-

cially in arid areas. Indigenous transport systems need to be developed so that women do not have to trek long distances carrying heavy loads on their heads. More institutes imparting technical training in rural water supply systems need to revisit their admission rules so as to include illiterate but competent female candidates.

As the water sector is opened to privatization by the government, pricing of water services is a critical issue that SEWA has not yet addressed. SEWA argues that women's labor should be translated into economic terms because it forms part of the total cost of collecting water. But how should this be done? And what are the other pricing issues that will come into play if water services are opened to the "people's sector"?

In spite of their many successes, the women behind SEWA's watershed campaign in Gujarat, and women elsewhere in India, face an ongoing struggle to overcome the entrenched patriarchy of their society and the proliferation of government bureaucracy that stifles innovation by local people.

Contributed by Aditi Kapoor, Independent Journalist and Fellow, Leadership for Environment and Development (LEAD), New Delhi, India.



EARTH CHARTER: CHARTING A COURSE FOR THE FUTURE

The Earth Charter, a set of 16 overarching ethical principles and 61 supporting principles, was launched in June 2000 in The Hague. Its sponsor was an international commission led by two influential, international figures: Mikhail Gorbachev, president of Green Cross International, and Maurice Strong, Secretary-General of the 1992 UN Conference on Environment and Development.

A Manifesto for Earth

Environmental governance operates through a range of social structures, from government laws and agencies, to nongovernmental organizations (NGOs), to customary rights, responsibilities, and behaviors. But there is also a less tangible side to environmental governance. The decades since the 1972 Stockholm Conference have witnessed the emergence of global norms of good environmental governance. These norms are not formally defined, but they are characterized around the world by a decreased tolerance for corruption and increased expectations of transparency and public participation in decision-making (see also Chapter 1). Such norms are rooted in the idea that broad ethical, moral, and behavioral shifts are required by governments, corporations, and communities, if good governance is to become a universal reality.

The Earth Charter represents an attempt to codify such norms of good governance in a statement of universal applicability. It is a unique document, both in its ambitions and in its mode of development. The Earth Charter grew out of ideas and opinions expressed by thousands of individuals; it was not mandated by an intergovernmental process or body, nor does it yet have any official status. It represents something new in global governance: a genuinely public expression of

the beliefs and values that should, ideally, govern decision-making for the benefit of humans and the rest of the living world. The document is characterized by strengths and weaknesses:

- The extensive participation and consultation processes undertaken around the world give the Earth Charter legitimacy.
- The genuine effort of the Earth Charter Commission to build consensus among all parties confers credibility on the final document.
- The Earth Charter's high aspirations may not be fully realizable, but their wording was not compromised by *realpolitik*.
- The Earth Charter has no legal status and no powers of enforcement, and will therefore be regarded by some parties as irrelevant.
- The document's lack of specificity makes it hard to translate aspirations into practical actions.

Ten years in the making, and the result of collaboration by civil society organizations across the globe, the Earth Charter builds on a succession of UN documents including the 1987 Brundtland Commission report, the 1992 Rio Declaration on Environment and Development, and the UN Millennium Declaration. In just over 2,400 carefully-crafted words, it lays out an ethical foundation for building a just and sustainable world—one based on respect for nature and people, universal human rights, social and economic justice, democratic and participatory societies, and non-violent conflict resolution.

As a set of principles to live by, rather than a prescription for action, the Earth Charter stands apart from the many other UN-driven declarations and treaties that address environment and development. And it does so in ways that have direct impact on issues of governance.

First, it presents a holistic worldview driven by such ethical concerns as respect for nature, rather than the economics-

and science-driven “environment-by-numbers” approach that most businesses and governments take toward sustainable development. This holistic approach views the strengthening of democratic institutions, the transparency and accountability of governing institutions, and inclusive, participatory decision-making as inseparable from environmental protection and social and economic justice.

Second, the Earth Charter is largely a bottom-up rather than a top-down initiative, shaped and adopted primarily by civil society and local government institutions rather than central governments. Third, because it is not a policy-making document which may be ratified by some governments and flouted or rejected by others, the Earth Charter’s framers hope it will reach directly to citizens the world over. The aim is to generate changes in attitude and behavior across a wide constituency including individuals, communities, local governments, schools and universities, non-governmental organizations (NGOs), and businesses.

The Earth Charter: Main Principles

I. RESPECT AND CARE FOR THE COMMUNITY OF LIFE

1 Respect Earth and life in all its diversity.

2 Care for the community of life, with understanding, compassion, and love.

3 Build democratic societies that are just, participatory, sustainable, and peaceful.

4 Secure Earth’s bounty and beauty for present and future generations.

II. ECOLOGICAL INTEGRITY

5 Protect and restore the integrity of Earth’s ecological systems, with special concern for biological diversity and the natural processes that sustain life.

6 Prevent harm as the best method of environmental protection and, when knowledge is limited, apply a precautionary approach.

7 Adopt patterns of production, consumption, and reproduction that safeguard Earth’s regenerative capacities, human rights, and community well-being.

8 Advance the study of ecological sustainability and promote the open exchange and wide application of the knowledge acquired.

III. SOCIAL AND ECONOMIC JUSTICE

9 Eradicate poverty as an ethical, social, and environmental imperative.

10 Ensure that economic activities and institutions at all levels promote human development in an equitable and sustainable manner.

11 Affirm gender equality and equity as prerequisites to sustainable development and ensure universal access to education, healthcare, and economic opportunity.

12 Uphold the right of all, without discrimination, to a natural and social environment supportive of human dignity, bodily health, and spiritual well-being with special attention to the rights of indigenous peoples and minorities.

IV. DEMOCRACY, NON-VIOLENCE AND PEACE

13 Strengthen democratic institutions at all levels, and provide transparency and accountability in governance, inclusive participation in decision-making, and access to justice.

14 Integrate into formal education and life-long learning the knowledge, values, and skills needed for a sustainable way of life.

15 Treat all living beings with respect and consideration.

16 Promote a culture of tolerance, non-violence, and peace.

Source: Earth Charter Secretariat 2000

In an international arena crowded with environmentally driven initiatives, it is perhaps easier to define the Earth Charter by what it is not than by what it is. It is not a practical to-do list for achieving ecological protection or sustainable development on national or local levels. Nor is it (at least as yet) a formal intergovernmental agreement. On both counts, it differs from Agenda 21, the main outcome of the 1992 Earth Summit in Rio de Janeiro, which lays out a broad sustainable development plan of action for governments.

Earth Charter advocates describe inspirational documents like the French Declaration of the Rights of Man and the UN Universal Declaration of Human Rights as the closest parallels to what they hope to achieve.

These so-called “soft law” documents are not legally binding. But when adopted by state governments they become morally binding, providing standards by which nations measure their civilizations. Human rights, for example, were placed firmly on the international agenda in 1948 when the UN General Assembly declared them to be “universal” and a “common standard of achievement” (United Nations 1948). While stated in very broad terms, the declaration has successfully codified human rights standards and is used to hold nations accountable in the court of public opinion. The Earth Charter Commission hopes that it, similarly, will become a

common standard for ethical, just, and environmentally sound behavior “by which the conduct of all individuals, organizations, businesses, governments and transnational institutions is to be guided and assessed” (Earth Charter Secretariat 2000).

Such sweeping goals, coupled with the charter’s broad language and high-minded principles, are easy to criticize as too general to be useful and too open-ended to be monitored for effectiveness. But to do so misses the value of such behavior-changing initiatives. No one today, for example, seriously disputes the authority or effectiveness of the Universal Declaration of Human Rights, although it took many years for its principles to be translated into legally binding conventions adopted by nations.

By early 2003, the Earth Charter had been translated into 27 languages. More than 2,000 NGOs and 1,000 local governments have endorsed its principles (Rockefeller 2003), while 54 countries have formed Earth Charter national committees (Smith 2002:30). Its name recognition is limited and it remains well below the radar of most national governments. Yet among local governments and within the emerging global civil society—linked by common aims of ecological protection, social justice, and peaceful internationalism, and connected by the Internet—it is beginning to find a strong foothold.

Earth Charter Snapshots

There is no such thing as a standard Earth Charter program. Around the world, communities, individuals, businesses, educational establishments, and local governments are using different means to translate symbolic support for the charter into practical action and behavioral change.

In Parliaments and Town Halls...

Three years after its launch, actual adoption of the Earth Charter by local governments remains limited, with the most enthusiasm demonstrated in the United States, Eastern Europe, Spain, and parts of Africa, Latin America, and the Middle East. In April 2001, the parliament of Tatarstan, a semi-autonomous Russian Federation republic, became the first provincial government to embrace the Earth Charter as a guide for state policy and practice. With a mixed and potentially volatile population of Muslims and Orthodox Christians, the republic has made non-violent resolution of conflict a cornerstone of its constitution and its leaders view the Earth Charter as a means to this end. The Tatarstan government has analyzed its key laws and policies against Charter principles and is introducing the document into school curricula (Earth-Ethics 2002:36).

In April 2002, Puerto Rico’s senate followed suit, voting to support the principles established in the Earth Charter, to adopt them as a guidance system in its “formulation of public laws and politics,” and to exhort the territory’s government,

educational system, and business, science, and media organizations to do likewise (Alvarez 2002). The document has also been endorsed by 99 cities and towns in the nation of Jordan (Earth Charter Initiative 2002:8).

In the United States, where Local Agenda 21 has generally been slow to take off, the Charter has made significant inroads into local government consciousness. It has been endorsed, among others, by the 1,000-member U.S. Conference of Mayors and the 400-member Florida League of Cities (Earth Charter Initiative 2003).

At a global level, the International Council of Local Environmental Initiatives (ICLEI) endorsed the Charter and is encouraging its 380 municipal members to apply its principles (Earth Charter Initiative 2003). Some local authorities are already doing this in practical ways. The city government of San José, Costa Rica, for example, has implemented an Earth Charter training program for over 1,800 employees, including the police, sanitation, and health departments. Workers are encouraged to incorporate its principles into their daily activities (Earth Charter Secretariat 2003).

In Classrooms...

The Earth Charter’s ethical framework has struck a strong chord with educational institutions. The Charter is central to the UN Educational, Scientific and Cultural Organization’s efforts to develop teacher training programs on sustainable development for schools and universities. Its principles have

Creating the Earth Charter: A Lesson in Global Democracy

In itself, the Earth Charter embodies two of the good governance themes emphasized throughout this report as prerequisites to successful sustainable development: the right of citizens to participate in decision-making and the transparency of organizations and processes. The process by which it came about could be described as textbook participatory democracy in action.

The concept of an Earth Charter, laying out “independent principles for a sustainable way of life,” first surfaced in recommendations made by the 1987 Brundtland Commission. Five years later the world’s heads of state gathered for the UN Conference on Environment and Development (commonly known as the Earth Summit) in Rio de Janeiro. But the charter idea failed to take root there, prompting its Secretary-General Maurice Strong and former Soviet president Mikhail Gorbachev to launch an Earth Charter Initiative in 1994, with the support of the Dutch government.

Under Maurice Strong’s leadership, in his role as chairman of the Earth Council, consultations began on developing the Charter as a “people’s treaty” rather than an intergovernmental document. The aim was to tap into the ideas and energies of a global civil society movement blossoming in the wake of

also been endorsed by the International Baccalaureate Association and by dozens of university departments and hundreds of schools worldwide.

In universities, the Charter is being used both as a framework for philosophical discussion and as a starting point for developing practical policies. At Michigan State University, for example, a course entitled “Earth Charter: Pathway to a Sustainable Future” grounds environmental study in real world problems. Students are given practical projects which reflect Charter principles, including designing and building a composting system, transforming cafeteria food waste into nitrogen-rich compost, and developing a campus recycling strategy (Earth Charter USA 2003b).

In Communities...

The United States has seen some of the strongest and most spontaneous reactions to the Earth Charter’s call for a new, ethical world order. A diverse group of strangers including a Philadelphia printer, a single mother in Portland, a Buddhist in San Francisco, and a former mayoral candidate in Indianapolis pooled resources over the Internet to launch community networking summits under the umbrella “The Earth Charter: A Declaration of Interdependence” (Roberts 2001). Around 700 U.S. organizations representing 40 million members have endorsed the Charter, including the Sierra Club and Humane Society of the United States.

In other nations, the Earth Charter is being used as a community development tool. Elizabeth Ramirez, an environmental

educator in Costa Rica, has used its principles in working with impoverished village women in the remote, mountainous regions of Laguna Hule and Río Cuarto.

Communist collapse in Eastern Europe and the emergence of new communications technologies (EarthEthics 2002:16–19). At the invitation of the Earth Charter Commission, established in 1997, several thousand individuals and organizations around the world took part in a rolling process of consultation, drafting, further consultation, and re-drafting. Efforts were made to reach wide audiences via the media and Internet-based conferencing. Participants included local governments, environmental and social justice NGOs, religious, educational, and indigenous people’s organizations, scientists, ethicists, and legal experts. One on-line drafting session involved representatives of 300 universities and 78 countries (Earth Charter USA 2003a).

To give the Charter a firm foundation in existing international agreements, its core team of drafters, led by Steven Rockefeller, professor of religion and ethics at Middlebury College, Vermont, drew on a wide variety of sources. These included 50 existing international law instruments, the findings of the seven UN summits held during the 1990s, and the contents of about 200 nongovernmental declarations and people’s treaties on environment and development (Earth Charter USA 2003a).

The Charter’s wording was shaped by contemporary science, international law, religious teachings and philosophical

educator in Costa Rica, has used its principles in working with impoverished village women in the remote, mountainous regions of Laguna Hule and Río Cuarto.

After studying individual Charter principles, villagers have planned and carried out activities that protect local landscapes, enhance women’s status, and reinforce traditional cultural and social values. A children’s movement, the *Defensores Verdes* or Green Defenders, has also been formed. Its members act as guardians of the natural environment within their homes, schools, and communities, creating vegetable gardens and wildlife refuges, replanting a forest area, and opposing the development of a lake, among other activities (Vilela 2003).

In the Business World...

In general, engaging with the business community has not been a priority for the Earth Charter Initiative; nor have trade associations, other than the World Federation of Engineering Organizations, flocked to endorse its prescription for change. One exception is the Australian investment banking industry, members of which met with 40 civil society groups in October 2001 to discuss using the Charter as a framework of principles for the ethical investment industry (Manning 2001). While no industry-wide agreement was reached, Earth Charter Australia is now working with individual corporations on establishing broad sustainability criteria to evaluate companies’ performances. The Calvert Group, a leader in the field of socially responsible investment, has unilaterally endorsed the Earth Charter as an ethical guide.



Measuring Progress: Earth Charter Indicators

To succeed on its own terms, the Earth Charter must act as a tool to promote good environmental governance, ecological protection, social progress, and ethical business practice on a global scale. Yet many communities struggle with how to give its principles the practical application this entails. To help bridge this gap, the World Resources Institute (WRI) is developing a set of indicators that can act both as a road map to sustainability for local government and as a practical checklist for community activists to track local progress against Earth Charter principles.

Each indicator will describe a specific step, tied to an Earth Charter principle, for local governments to take along the path to sustainable living. For example, compliance with Earth Charter Principle 11(a) (to “secure the human rights of women and girls and end all violence against them”) would be measured by the presence or absence of legislation granting women equal rights (WRI 2002:18).

In 2004, the Earth Charter indicators will be piloted in a few communities. WRI will help them adapt the indicators so that they will be meaningful in their particular local context. The accessibility of data at the local level will be a key to applying the indicators successfully. “The more locally you apply indicators, the more likely you are to force change as a result,” argues Christian Layke, indicators project coordinator at WRI. “You are operating close enough to the decision-making level to really make a difference.”

traditions, the global ethics movement, and best practices for building sustainable communities. But as it progressed, the text was continuously adapted and extended to encompass the consensus view of a broad range of organizations and individuals that commented on several globally circulated drafts.

“Whenever I got recommendations from this group, so long as they were not scientifically unsound or completely out of step with international law, we considered them in the drafting committee,” says Steven Rockefeller. “Principle 10, for example, caused a lot of discussion because developing country advocates were passionate about referring to economic justice. It went through 25 or 30 drafts until we got a formula that was both consistent with international law and acceptable to all parties in the advisory group” (Rockefeller 2003).

Initially Mikhail Gorbachev and other Earth Charter commissioners wanted to develop a short statement with a few punchy principles. However, developing country activists such as Wangari Maathai, the Kenyan founder of the Green Belt Movement, argued strongly for a more detailed ethical framework that could be used to hold their governments to account for their actions.

“There was a continuous tension between having a short document that would have an emotional and poetic impact and a document that would give people on the front line the concrete help they needed,” recalls Rockefeller (Rockefeller 2003).

The drafting committee of international environmental law experts, scientists, ethicists, and grassroots representatives met three times in New York between 1997 and 2000 to refine a text acceptable to the Earth Charter commissioners. A final version was approved in Paris in March 2000.

Vision Versus Reality

It is hard to quarrel with the Earth Charter's sentiments, but how influential can such an aspirational document realistically hope to be? In a world riven by nationalism and religious hatred, it promotes peace, tolerance, and the interdependence of nations. In a world where natural resources are indiscriminately exploited and nonhuman species are in retreat, it urges respect for nature and ecological protection. In a world where the income gap between rich and poor nations and individuals grows ever wider, it calls for economic justice and the eradication of poverty. The task of achieving such moral and cultural shifts in the global mindset is truly Herculean.

Acting Globally

The Earth Charter's positioning outside the mainstream intergovernmental process on sustainable development is proving both a strength and a weakness. On one hand, those working to implant the document in the public consciousness can point to its grounding in civil society as a source of legitimacy arguably greater than that wielded by a small elite of international policy-makers.

They can also point to strong support for the Charter among developing countries, many of whom frequently clash with industrialized nations over the content and tone of formal international agreements on environment and development. Approximately 41 developing nations have so far begun Earth Charter-related activities, compared with about 20 developed or transition countries. Host president Thabo Mbeki of South Africa was among several developing country representatives urging support for the Earth Charter's ethical principles at the 2002 World Summit on Sustainable Development (WSSD) in Johannesburg.

At the same time, the Charter risks irrelevance, or a permanent place on the sidelines, if it becomes entrenched too far outside the formal international process. With so many environment-based treaties and statements of intent now published by the UN, by national governments, and by international and national alliances of NGOs, the Earth Charter needs to stake its claim at every level—including the intergovernmental. The Universal Declaration of Human Rights, for example, became such a powerful, behavior-changing tool precisely because it was adopted by the United Nations on behalf of all the world's countries. Pressure could then be applied by the many on the few nations who continued to defy its standards.

One of the initiative's four avowed goals was to mirror the progress of the human rights declaration by winning endorsement by the UN General Assembly at the 2002 Johannesburg summit. However, the charter's visionary worldview fell victim to business as usual. In his opening address, President Mbeki of South Africa cited the Earth Charter as part of "the solid base from which the Johannesburg World Summit must proceed," and the draft Johannesburg Declaration on Sustainable Development, to be signed by heads of state, referred

to "the relevance of the challenges posed in the Earth Charter." However, the reference was later deleted, in a closed-door session, on the last day of the summit (Earth Charter Secretariat 2002:2).

This setback underlines the difficulty the Charter's exponents face in winning acceptance for an ethical framework to guide global action on environment and development. While applying a set of agreed values to policy-making might seem a logical step in our increasingly interdependent and resource-depleted world, persuading governments to limit their freedom of action by formally adopting them will not be easy. According to Earth Charter commissioners who attended the summit, there was little interest in discussing ethical principles at all, while some governments actively opposed references to the need for global ethics (Earth Charter Secretariat 2002:3).

The Earth Charter's penultimate paragraph calls for the implementation of its principles through a legally binding international instrument. Such a vehicle already exists in the form of the Draft Covenant on Environment and Development drafted by the Commission on Environmental Law of the World Conservation Union (IUCN), which synthesizes all existing international law in the field. Yet the Covenant has languished before the United Nations since 1995, with no nation so far willing to step forward and propose its adoption.

The Earth Charter commissioners believe incremental advances, rather than wholesale endorsement or recognition, may well prove the route to acceptability for both the Charter and the Covenant. One such advance was WSSD's formal acceptance of an educational partnership between the Earth Charter Initiative and the United Nations. This will involve UNESCO, the governments of Costa Rica, Honduras, Mexico, and Niger, and 13 international NGOs in using Earth Charter principles to help train community leaders to implement sustainable development (Earth Charter Secretariat 2002:4).

A second incremental step was the use of wording almost identical to that in the Charter's preamble in the Johannesburg summit's political declaration, namely: "We declare...our responsibility to one another, to the greater community of life and to our children" (United Nations 2002a). This reference to "the community of life" is the first of its kind in a UN document of law. As such, according to Steven Rockefeller, it marks "a critical moral step" by governments toward accepting environmental responsibility "not just toward human beings but to the larger living world" (Rockefeller 2003).

Acting Locally

By building strong grassroots support in many countries, the Earth Charter is creating the potential to revolutionize attitudes to local governance and stewardship of natural resources. At the 2002 World Summit on Sustainable Development, its principles were endorsed by mayors and other

local government representatives from around the world. To channel this potential, however, local communities, businesses, and governing authorities need to translate their symbolic support into concrete plans and policies.

In some places, this is happening by itself. The cities of Burlington, Vermont, Toronto, Canada, San José, Costa Rica, Jundalooop, Western Australia, and Urbino, Italy are either measuring city programs against Earth Charter principles or using the principles to guide municipal practice. In Canada's biggest and most ethnically diverse city, the Toronto Regional Conservation Authority has measured its policies on minorities against the Charter's Principle 12 and taken action accordingly. In response to Principle 12(a), which calls for the elimination of "discrimination in all its forms," for example, the city has committed itself to measure and address instances of "environmental racism," such as higher pollution levels in ethnic neighborhoods. It has also pledged to provide opportunities for all minorities to have equal access to recreation, education, and green spaces in the city (King 2002:1).

Many local government organizations that have endorsed the charter, however, have done little concrete with it. "Groups such as the U.S. Conference of Mayors are coming to us and saying, 'We love the Earth Charter, how do we use it?'" says Richard Clugston, executive director of the Center for Respect of Life and Environment in Washington, DC, and a member of the Earth Charter's international steering committee (Clugston 2003). In response, the committee is now developing toolkits on using the Charter in teaching or as part of local government sustainability programs.

Such practical guidance is essential to expanding the Charter's reach, according to grassroots activists like Gwendolyn Hallsmith, a pastor who successfully led efforts to persuade more than 20 town meetings in Vermont to endorse it. "Getting a local city council to make a symbolic gesture of support for the Earth Charter is one thing, but really putting the principles to work in a municipality is another thing altogether. It requires a substantial commitment to participatory planning and action on the part of the municipality and often takes some dedicated resources to see it through" (Hallsmith 2002).

A second challenge for the Earth Charter secretariat and steering committee is delineating what role the document should play alongside other community-based sustainable development initiatives. Since the 1992 Earth Summit, for example, around 2,000 (mostly European) local governments have developed specific plans of action under the umbrella of Local Agenda 21, including recycling, water conservation, and energy efficiency programs (Hallsmith 2002).

Mirian Vilela, executive director of the Earth Charter International Secretariat, based in Costa Rica, concedes that some local authorities see no need to endorse the Charter—either because they are actively implementing Agenda 21 or

because sustainable development is not seen as a priority. She contends, however, that the Charter can legitimately complement Local Agenda 21 programs in two ways: First by providing a missing ethical framework within which decisions and policies can be made; and second by expanding sustainable development programs beyond their usual limited focus on combating environmental problems to include social and economic justice and democratic decision-making. "I describe Local Agenda 21 as providing the body of community sustainable development while the Earth Charter is the soul. You need the one to complete the other" (Vilela 2003).

This argument was endorsed somewhat less poetically by the world's governments in the 2002 Johannesburg Summit's Plan of Implementation, which emphasizes "the need to consider ethics in the implementation of Agenda 21" (United Nations 2002b). To what extent the Earth Charter will fulfill this role for local sustainability initiatives around the world, however, remains an open question.

Charting a Course for Earth's Future?

Throughout history, the power of words has shaped human actions and outlooks. By planting and spreading ideals of acceptable behavior that gradually become *idée fixes* in diverse cultures across the globe, inspirational texts can prove more powerful and permanent than conquering armies. Yet to achieve this, the Earth Charter needs to succeed on many levels. It must inspire with its words, acting as a driver for behavioral change and a roadmap for practical action.

How likely is this to happen? The simple answer is that it's too early to say. In a world deeply divided by geopolitics, religion, and warfare, the Earth Charter may become a guide for those who seek a partnership of nations dedicated to maintaining global peace, social and economic justice, and ecological security. Or it may simply prove too idealistic as a guide for practical behavior, and give way to a new set of values and beliefs that more accurately reflect the global zeitgeist.

"My view is that the Earth Charter provides a very useful vision of the way the world—governments, business, communities, and individuals—need to think about global issues and fold them into everyday life," reflects Daniel Esty, a governance expert at Yale University. "But it's a very big challenge to get people to re-engineer their thinking, and that process has only just begun. There is also still a good bit of work to be done to consolidate at the international level a new set of environmental norms for people to endorse and live by" (Esty 2003).

UN General Assembly endorsement would help the Earth Charter's bid to become this internationally accepted ethical framework. But the measure of real change, says Esty, will be "the extent to which the norms the Earth Charter puts forward penetrate into real life" by persuading people and governments to change their behavior (Esty 2003).

