

Preliminary Draft¹

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**Against the Odds:
Creating a community-managed protected area on disputed land**

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ABSTRACT

Defining and enforcing appropriate property rights for common-pool resources presents an enduring conundrum. The problem is particularly difficult when multiple stakeholders assert rights, the resource base is threatened by incursions, and property rights are disputed. The Montaña Camapara Reserve in Honduras exists within these challenges to property rights and sustainable management. The reserve was formed in 2001 by three municipalities that share communal rights to the mountain; they have fought over their boundaries for more than a century. In 1995, one of the municipalities obtained a national land title that included most of the mountain, despite objections from its neighbors. The mountain's springs provide water for nearly two dozen villages. Its land is coveted by coffee growers and farmers, who began clearing the mountain during the 1990s. In this context, people in surrounding villages became concerned for their water supply, and formed a grassroots movement to protect the mountain. The movement's supporters pressured municipal authorities to create a reserve and remove landholders. Over the course of nearly a decade, about 20 farmers agreed to relocation, residents cooperated to fence the reserve, and the three municipal governments reached an accord to defend the mountain from further incursions. Recently, forest cover has been regenerating where farmers abandoned land, but the national government has not recognized the reserve and formal property rights remain in dispute. Drawing on ethnographic fieldwork, satellite images, and archival research, this study explores how the watershed reserve developed collaboratively and why it has endured despite ongoing tensions. The analysis points to the importance of transparent negotiations, participation of all disputing factions, building of shared understanding, and the widespread conviction that the reserve serves the common good. Unexpectedly, the reserve's creation occurred without state support, contradicting the dominant notion that successful, strictly protected reserves require state involvement.

KEYWORDS

Water, common property, forests, Honduras, Latin America, conflict mediation

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INTRODUCTION

Through time, struggles over land and access to natural resources have been associated with resource degradation, institutional failures, and human suffering. In particular, conflicts over rights to scarce water and forest resources threaten to become more common as demands grow (Amery 2002). While deforestation has received attention as a major environmental problem since the late 20th century (Bonnie et al. 2000; Geist and Lambin 2002; Moran 1992; Bajracharya 1983; Smil 1983), water scarcity has been described as the major environmental challenge of the 21st century (Marks 2009). In several ways these problems are linked. Forests and many sources of freshwater are common-pool resources, which present management challenges because they are subject to deterioration and it is difficult to limit access. Moreover, forests and watersheds often overlap. Processes that damage forests, such as industrial logging, conversion to pasture, and abusive agricultural practices, can degrade watersheds (Hamilton 1987). In addition, access to water is often inequitable, just as rights to forests and costs of deforestation are often distributed unevenly (e.g., Bakker 2001; Carmichael, Schafer, and Mazumdar 2008; Sterling 2007). Unclear or conflicting property rights and ineffective or inappropriate institutions have been viewed as root problems of poor natural resource management and associated social tensions. While progress has been made in understanding the contexts associated with effective institutions, research has further to go to understand why conflict-ridden situations sometimes evolve toward sustainable and equitable resource management, and in other instances lead to exacerbated struggle.

Institutional analyses of long-enduring common property regimes provide a starting point for considering the circumstances in which common-pool resources may be managed sustainably, with relative equity, and mitigate conflict. Ostrom's (1990, 2005) design principles recognize that well-defined resource boundaries, clear recognition of the rightful users, locally appropriate institutions, participation by a majority of the users, and accessible conflict resolution mechanisms contribute to regimes that manage natural resource effectively through time. Effective regimes typically incorporate monitoring and enforcement, in association with graduated sanctions for rule-breakers. Related research indicates that face-to-face interaction, shared experiences and understandings, and trust contribute to the evolution of successful common property institutions (Agrawal 2003; Dietz, Ostrom, and Stern 2003).

In this context, the Montaña Camapara Reserve in western Honduras presents an interesting case for study. This communally-managed reserve was created in 2001 after an acrimonious process in which three rival municipios (similar to counties) agreed to protect the mountain and its cloud forest. Each municipio claims part of the mountain under its communal land titles. In the process of reserve creation, nearly 20 farmers had to abandon fields and give up claims to land on the mountain's slopes. The circumstances of the reserve's creation and maintenance appear to contradict several well-supported theoretical principles of effective common-property regimes. First, the three municipios are pursuing legal battles over disputed borders within the reserve and

between their adjacent territories. The presence of disputed boundaries typically undermine common property regimes (Agrawal 2002). Second, border conflicts and the relocation of farmers seem antithetical to shared trust, which has been identified as an important component in effective common property management (Ostrom 2005). Third, at the reserve's inception, the municipios lacked monitoring and enforcement arrangements, and no coordinated mechanism for conflict resolution existed. As indicated above, these elements characterize many successful common property arrangements. Finally, the three municipios have been experiencing two decades of rapid change with the introduction of telephones, electricity, internet access, international development programs, new roads, and dramatic expansion of export coffee production. Rapid change tends to weaken local institutions and has been associated with environmental degradation (Gunderson and Holling 2002; Janssen 2000; Dietz, Ostrom, and Stern 2003). Given these circumstances, theories would not predict that the reserve would prove effective in protecting the forest and its watershed. Over the past 17 years, in which I have spent nearly 20 months living in the site over 14 visits, I first doubted that the reserve would be created, and then expected it to fail. Instead, I witnessed the return of forest to abandoned fields in the reserve, the building of fences, and grassroots collective action to monitor and protect the forest and its water sources. Wonder and curiosity led me to this research, and to ask the following questions:

- How did this locally-managed forest watershed reserve become established despite property rights disputes?
- What kinds of institutions and social relationships have helped to create and maintain the reserve?
- What lessons can be drawn for understanding the roles of conflict and shared experiences in managing forests with multiple owners and competing rights?

METHODS

The data for this study was collected between 1993 and 2010 through fieldwork visits in each of the three municipios. I conducted interviews with municipal authorities, knowledgeable residents, forest guards, and representatives of governmental and nongovernmental agencies. I reviewed documents and records from municipal archives, and the archives of the Honduran Forest Development Corporation (COHDEFOR, now the Institute for Forest Conservation and Development, ICF) and the Honduran Coffee Institute (IHCAFE). I administered household surveys (1994, 2003, 2007) in La Campa, where my work focused until I started investigating all three municipios' relationships with Montaña Camapara. I worked with Honduran botanists to assess forest conditions and species richness in the reserve, and collected observations of forest regeneration and signs of maintenance. In spring 2010, I interviewed farmers who had agreed to abandon their land on Camapara, members of water committees, and the former mayors who agreed to create the reserve. I also worked collaboratively on the analysis of forest cover change through use of remotely sensed images.

SITE DESCRIPTION

The three municipios that share Montaña Camapara are located in Lempira, which is ranked as the poorest department (similar to a state) in Honduras. Nearly one fifth of the population is unlikely to live until age 40, 37.2% of the population over the age of 15 is unable to read or write, and 71.8% of children under the age of five suffer from malnutrition (Programa de las Naciones Unidas para el Desarrollo (PNUD) 2006). Lempira is named for the indigenous leader who led a regionwide uprising against the Spanish invaders in the 16th century. To this day, the Department retains its association with indigenous Lenca culture and traditions, even though the Lenca language disappeared in the early 1900s.

The three municipios – La Campa, San Marcos de Caiquín (hereafter, Caiquín), and Santa Cruz - that share Camapara have maintained many dimensions of their Lenca heritage. Although the observance of traditional rituals and agricultural practices have been declining, the Lenca have preserved artisanal crafts, dances and festivals that represent syncretic expressions of indigenous and Spanish influence. Each of the municipios has unique traditions and characteristics that set it apart. Santa Cruz has most stubbornly defended itself from outside interventions that might undermine its traditional ways of life. Most residents of Santa Cruz depend on subsistence agriculture. In Caiquín and La Campa, dependence on subsistence corn and beans has fallen as farmers have turned to coffee production.

Each of the municipios has a foundation of common property landholdings as part of their indigenous and municipal land titles. In the late 20th century, common property forests became subject to privatization, primarily due to the expansion of coffee production. In Caiquín and Santa Cruz, outsiders bought land to plant coffee, and created a land shortage for residents that has exacerbated inequality and poverty. La Campa prohibited outsiders from acquiring land until 2001, when a neoliberal mayor ended the prohibition. Since then, outsiders have been buying land in La Campa, which now has its first landless families.

The municipios share a strong tradition of local governance. For many years, they received minimal government support or assistance. As a result, they had to rely on their own people to provide the labor and resources for municipal projects. The people built roads, schools, municipal buildings, and used materials from common property forests, and sand and gravel deposits to carry out their tasks. While the municipios no longer demand communal labor, they continue to exhort their people to work together on public projects. Participation in local government and traditions of communal labor have provided a foundation for collective action.

Within this paper, I refer to Caiquín, La Campa, and Santa Cruz as communities, because they see themselves as communities. They were each designated an “indigenous community” through the machinations of the Spanish colonial government. But through time and through interactions with higher-level governments, neighboring indigenous communities, and each other, they found meaning and a shared identity as

a community. Later, this community identity compelled each one to seek municipal status, in order to continue to govern themselves and their land. Their identity rests on shared territory, traditions, and a sense of place, and is confirmed through perceived and constantly evolving differences with their neighbors and Honduras' dominant mestizo population. People who acquire land in the municipios, or who marry into a family, are not perceived as community members. If they establish permanent residence, they will eventually be accepted and their children will be members if they are born and grow up in the community. Although La Campa, Caiquin and Santa Cruz each form a community, that does not mean that members are unified, nor that they get along with each other. They live in villages scattered around their respective municipios, but they recognize themselves as community members, and call themselves "Campeños," "Caiquines" and "Cruzeños." Through interviews and conversations, I discovered that as individuals, they express understandings, beliefs and attitudes that carry similarities as well as contrasts and contradictions. They see themselves as having something in common that is greater than their differences (Tucker 2010).

ORIGINS OF CONFLICT AND BORDER DISPUTES

As long as the people of Santa Cruz, La Campa, and Caiquín remember, they have been disputing their boundary lines. Each one has land titles gained in the 16th century from the Spanish colonial government, which recognized them as indigenous communities with rights to land for subsistence use (Tucker 2008). The exact borders between their lands remained uncertain for generations, because the earliest titles included few clear landmarks. As legally recognized indigenous communities, they were forced to provide labor and tribute to Spanish authorities and landowners. Following independence from Spain, the emergent nation of Honduras began dividing its territory into subordinate regional and municipal units. La Campa and Caiquin were included as part of the municipio of Gracias, which demanded labor and taxes. Santa Cruz became part of Erandique. In 1865, the La Campa and Caiquín hired a surveyor to officially demarcate their land and provide definitive land titles. The terrain proved too broken by canyons and cliffs to walk. The surveyor declared that the border ran in a straight line sighted from peak to peak across the highest three mountains between the two communities, ending on Camapara, where the boundaries met the borderline with Santa Cruz. Residents of Santa Cruz walked with the surveyor and representatives from La Campa and Caiquín to mark their abutting borders. Together they built stone cairns to mark the borders, but the sightlines between La Campa and Caiquín opened the door for another century of disputes. It was next to impossible to ascertain the exact location of the borderline on the ground, because the mountain peaks could not be seen from the slopes and valleys. Farmers on all sides moved the cairns at will. In the 1980s, the communities decided to construct concrete border markers reinforced with steel rebar sunk into the bedrock. At this point, they hired another surveyor to confirm adherence to the lines in the 1865 titles. The three communities argued over several marker positions, but cooperated to build the concrete markers.

The disputes over land relate to the three communities' efforts to gain independent municipal status, which requires a border survey. Santa Cruz gained independent municipal status in 1926, following the 1865 borders. In 1921, La Campa succeeded in submitting all of the documents required for municipal status (Fiallos 1991). Caiquín, preferring to be subordinate to La Campa than the more distant and demanding Gracias government, asked to be included in La Campa's bid for municipal status. As a result, Caiquín ostensibly became part of La Campa, but its residents never surrendered rights to govern themselves and their land, and refused to pay taxes to La Campa. Caiquín soon began to petition the national government for independence from La Campa.

In 1995, Caiquín won its battle to become an independent municipio (Tucker 2008). Through a process that remains murky, a map of Caiquín's boundaries was drafted in Tegucigalpa and approved by the national legislature. Although Honduran law mandates that official delineation of municipal border lines must be done on location by an accredited surveyor in the company of witnesses from each of the bordering municipios, no surveyor ever came to walk the boundary line. Neither La Campa nor Santa Cruz were consulted when Caiquín's borders were mapped. When La Campa's municipal authorities saw the map, they discovered that almost one fifth of their land title had been allocated to Caiquín, including two of La Campa's villages and its entire portion of Camapara. La Campa began an expensive legal battle to rectify the error. According to Caiquín authorities, they also had no voice in drawing their boundaries. Caiquín's authorities acknowledged that a mistake had been made, but declined to support La Campa's litigation to correct the error. Meanwhile, residents of Santa Cruz maintain that La Campa and Caiquín have made incursions on segments of its land to the north and south of Camapara. The situation places the Camapara mountain, especially that part claimed by La Campa, in unclear legal status. The lack of secure, legally recognized property rights has often been associated with open access situations, in which no one is able to impose constraints on resource use. Without clearly defined rights and rules of use, open access generally leads to overexploitation and degradation (McKean 2000).

Although competition for land constitutes the foundations of conflict between Caiquín, La Campa and Santa Cruz, their enmities also trace to differences in Lenca identity, traditions, subsistence, ritual practices, and linkages to outside powers. These have been confounded by socioeconomic differences that have become accentuated with the expansion of export coffee production since the 1990s. Each of the communities traces its heritage to the Lenca peoples who dominated the region prior to the Spanish conquest, and who resisted Spanish domination and carried out periodic revolts against Spanish governance in the 16th-17th centuries. Countering the Lenca propensity for coordinated uprisings, the Spaniards relocated Lenca settlements, required obligatory labor that removed men from their families for extended periods, and instituted different, exorbitant tribute demands across settlements (Newson 1986). The colonial government encouraged the emergence of distinct community identities by imposing Spanish-defined land rights, government structures, and Catholic patron saints. Patron saints became symbols that united communities before the Catholic Church, government powers, and neighboring communities. Within Lenca communities across

the region, syncretic Catholic and Lenca rituals and beliefs emerged. Certain elements were common, but others became unique expressions (Chapman 1986). Caiquin, La Campa, and Santa Cruz developed unique dances and music to mark their patron saint's festivals; each sees their practices as most truly Lenca. They also became artisanal specialists in colonial trade networks, which often built upon pre-Hispanic trade routes. In particular, Santa Cruz wove basketry and La Campa created pottery that was prized throughout western Honduras (Castegnaro de Foletti 1989). These differences affirmed community identity and imparted a sense of autonomy despite marginalization under the colonial government and the subsequent Honduran nation.

One consequence of strongly-shared community identity, particularly given the history of exploitation and marginalization, is a conviction that people outside of the community cannot be trusted. Within days of arriving in La Campa, I heard that people of Caiquín, Santa Cruz, and other nearby municipios were unreliable and untrustworthy. Visiting Caiquín, I learned the same of La Campa and Santa Cruz. It proved especially difficult to visit Santa Cruz; any nonresident faced deep suspicion and shunning unless accompanied by someone deemed a friend. These suspicions at first inhibited my research and relationships, but through time, I gained people's confidence.

BASES OF CONSENSUS AND COLLABORATIVE SOCIAL RELATIONSHIPS

Although my early interactions with people suggested unrelenting enmity between La Campa, Caiquín and Santa Cruz, I began to find many cracks in the walls that people envisioned between their communities. One day in 1993, I returned from visiting farmers' fields to discover a family that I did not know setting up bedding for the night on my neighbors' front porch. I learned that the family was from Santa Cruz. When I asked my neighbor about the family's visit, she explained that they were traders who had been passing through La Campa for decades; they had become *compadres* (fictive kin) over the years. Later, I discovered that several families in La Campa and Santa Cruz maintained friendly relationships built on exchanges of livestock, pottery and other goods. When I began to conduct household surveys, I asked where people were born. I discovered that a number of women from Caiquín had married *Campeño* men, and many *Campeño* daughters had left home to marry Caiquín men. Furthermore, leaders in Caiquín and La Campa had cooperated on shared goals over the many years that the communities had been yoked as one municipio. They had built roads through shared labor, petitioned the government for schools and teachers, and jointly protested mistreatment by outside loggers during the period that national government had nationalized the country's trees (Tucker 2008). Moreover, families living along the borders between La Campa and Caiquín occasionally held land on both sides of the border. In addition, my observations of patron saint's festivals in the three municipios revealed that people gladly visited the neighboring communities to celebrate special religious and social events. Because the communities did not have hotels (except for La Campa since 2003), visitors lodge with friends and in-laws. I realized that the many people distinguished their friends and acquaintances in neighboring municipios as trustworthy, while they regarded the rest of the population with misgivings. These social networks and interdependencies undermine and belie the rhetoric of conflict and distrust

revealed in casual conversations. Thus the borders are crossed by webs of familial connections, and provide a context in which collective action and cooperation can emerge.

Another base of collective action arises from shared experiences (Ostrom 2005). The communities have more in common with each other than they might admit, but local authorities and residents realize that they endure difficulties and deprivations that few urban Hondurans could imagine. Food scarcity touches nearly every family at some time, and indices of malnutrition for young children remain high even in comparison to other developing countries. Educational programs have been reaching more of the population in recent years, but school infrastructure remains inadequate. Many children in the three municipios walk 3 or more hours a day to get to school and back. Although parts of La Campa, Caiquín and Santa Cruz have obtained electricity in the past decade, most of their villages have not yet been connected to the grid. Several villages in Santa Cruz do not have a road to connect them to the outer world. Many roads in La Campa and Caiquín have been built since 2000, with nothing more than a bulldozer forcing its way through the forest to create a rough dirt track. Many people still walk long distances to carry out daily activities. The great leap forward has been in communications; construction in cell phone towers has brought affordable phone service to most of the villages in the area. Another challenge that the people share is the provision of potable water.

Until the 1990s, many of the villages in the three municipios lacked potable water, and others depended on water from unreliable or contaminated sources. The search for water led people to Montaña Camapara. Between 1990 and 2000, eleven villages in La Campa and Caiquín worked alone or cooperatively to build six water projects on Camapara's peak and its slopes. The projects served from one to four villages each, and village residents provided all of labor to construct the projects. In advance of the projects, the villagers worked to obtain the materials and technical plan. According to Honduran water law, municipios have the responsibility to manage local water, and may charge local or outside sources with the responsibility. Local water projects must be operated by water committees (*juntas de agua*), which take on the duty of building water projects, provisioning water for beneficiaries, and maintaining the infrastructure. They can submit applications for funding and assistance from SANAA, the agency responsible for water and aqueduct management, or from other supportive agencies. Water committees can collect fees to cover maintenance costs, and establish rules of procedure and governance (República de Honduras 2006).

The collaborative effort of the water committees to construct water projects emerged from the experience of shared deprivations, participation in local governance, and joint labor on municipal projects. The people also depended on Camapara's water, no similar sources existed in the vicinity. These elements created a foundation upon which the communities could consider sharing Camapara and creating a communal reserve. Even so, collaborative efforts pose many challenges.

THE ORIGINS OF THE RESERVE IN A CONTEXT OF CONFLICT

In the early 1990s, a farmer went to Camapara to hunt. He hoped to bring back a deer or at least a squirrel to provide meat for his family. While he was there, he planned to check Suanoy's water reservoir, which he had helped to build. As he followed the path, he discovered that a large area had been cleared of trees, and slashed for a field. The field came near the village's water reservoir, and the farmer returned home wondering if the field would be expanded, and what would happen to the water if the forest upstream of the reservoir was cleared. Within weeks, he and other residents of Suanoy collected funds, purchased barbed wire, and went to the mountain to build fences around their reservoir. They continued upslope to the border with Santa Cruz, and south to the line with Caiquín. When they finished, about 40 hectares of nearly pristine cloud forest had been fenced off. From the border with Santa Cruz, they could see that Cruzeños had already cleared land for agriculture up to the La Campa border. On the Caiquín side, several new clearings had appeared, created by subsistence farmers who had been displaced from lower, more fertile land by coffee growers. The Campeños worried that avaricious farmers might cut the fence, clear forest, and contaminate their water with soil erosion and runoff from chemical fertilizers and pesticides.

At about the same time, the villages of Mescalio and Mataras completed building water projects on Camapara. Several residents working on the project had land claims on the mountain, and a few people spotted places that looked promising for coffee plantations. They returned to clear land and plant. In the next few years, more farmers – nearly all of whom lived in Mataras – claimed the lion's share of La Campa's portion of Camapara. On Caiquín's side, farmers continued clearing Camapara, and came to edge of the water reservoir that San Matías and Monqueta, in La Campa, had built to supply water for more than 100 families. Another water project built on the lower slopes of Camapara fed water to three of Caiquín's villages; agricultural clearing bared the land near the spring that fed the reservoir. Livestock grazed and defecated near the water. The situation alarmed water committees in La Campa, whose population depended most upon Camapara's water. Unlike Santa Cruz and Caiquín, which had other watersheds, La Campa had no other major water sources to tap. Representatives of La Campa's water committees complained to municipal authorities, and requested that Camapara be protected. The mayor at the time held land on the slopes of Camapara, but agreed that the water had to take precedence. He spoke in favor of creating a reserve, but farmers on the mountain refused to consider giving up their land. Meanwhile, residents of Mataras and Mescalio who did not own land on Camapara began a polite effort to convince their neighbors on Camapara that the clearing threatened everyone's water, and could be risking their future survival if the water became polluted or diminished with the clearing of forests. They had witnessed with their eyes that less water flowed when the cloud forest was cut. Scientific assessments of cloud forests support the farmers' observations. While cutting most forests does not reduce water flow because rainfall remains unchanged, cutting cloud forests reduces water availability because the dense canopy intercepts cloud water. When the trees are cut, that water is lost (Hamilton 1995).

Throughout the 1990s, La Campa's water committees and many residents pursued a multi-pronged strategy to build support for the reserve. Interviews that I conducted with 20 key actors mentioned the following strategies: 1) Water committees and reserve supporters talked purposefully with the farmers with fields on Camapara to change their minds. One person characterized their efforts as "educational," others said that they aimed to "conscientizar" (develop awareness and sense of responsibility) among their neighbors and anyone else who did not understand the need for the reserve. 2) Reserve supporters used water committee meetings, which require the periodic attendance of every head of household who uses water, to express concerns over threats to the water, and increase interest in the reserve. At these meetings, farmers with land on the mountain were vastly outnumbered by neighbors who criticized their lack of concern for the water. 3) Water committee presidents met with La Campa's mayor, and searched for strategies to promote the reserve's creation. 4) Reserve supporters and the mayor made declarations in municipal council meetings in favor of the reserve. 5) The water committees worked with the FAO Lempira Sur project, which started in the region in 1999. The FAO project provided technical assistance to assess the obstacles to reserve creation, and undertook studies to map the watershed on Camapara (Navarro 2002). 6) Water committees in La Campa approached water committees in Caiquín, and requested their support. La Campa's water committees and the mayor realized that protecting La Campa's side of Camapara would not be enough, especially given its precarious legal status. La Campa's mayor met with his counterpart in Caiquín, with whom he had arranged an agreement to respect La Campa's traditional boundary line on Camapara. The two mayors had genuine respect for each other, and agreed to move ahead together for the reserve. Together, they approached the mayor of Santa Cruz. The Cruzeño faced a populace that disliked any hint of subordination to its neighbors. Santa Cruz had already denuded its portion of Camapara, and no forest remained to protect. Even so, the three mayors reached an agreement in principle that Camapara should be protected.

Then elections changed the dynamics. In 2002, new mayors took control in the three municipios. The new La Campa mayor, Don Juan, a native son, returned after building a career as a lawyer and representative in the national legislature –the only Campeño to achieve this type of success. Campeños admired him deeply. He desired to transform La Campa for the better. Creating a reserve on Camapara became one of his first priorities. A second priority was to reverse the legislative error that had drawn Caiquín's boundaries on La Campa's land. For all his political connections, he could not achieve the second goal.

Don Juan proceeded to build relationships with his neighbors in Caiquín and Santa Cruz. He collaborated with FAO's Lempira Sur project and representatives of the Spanish development agency, Solidaridad, to encourage educational efforts in favor of forest conservation and cloud forest protection. In collaboration with the water committees, water beneficiaries, FAO and Solidaridad, the process of demarcating the Camapara reserve began even though several major challenges remained: Farmers still worked fields and coffee plantations within the proposed boundaries; coffee farmers were building a road through the middle of Camapara to ease transportation; hunters

still viewed Camapara as open access; and Caiquín and Santa Cruz had not committed to protected the watershed on their sides. In July 26, 2004, Don Juan summoned all of the Campeño farmers with land claims on Camapara to the municipal office. The farmers recall the meeting with vivid, highly correlated details, which I present as a compilation of voices:

“Don Juan told us that we had no choice, we would have to leave our land.”

“We felt that we would have to go along with the water committees, in the interests of keeping peace.”

“By that time we had realized that it was only a matter of time, the public was against us, but we did not want to give up the land without some compensation”

“Some of us had no other land. We had little hope of finding similar, good land. We asked to be given something for all that we would lose.”

“The mayor listened to us. He said that there was no money in the municipal coffers, but he would find a way to give us something, although it would have to be paid in small portions over a period of time.”

“After a long talk, we agreed that we would move off the mountain if we each received 4000 lempiras (about \$200) in compensation.”

The municipal secretary recorded the meeting minutes, and at the the end drew up the agreement. It stated in part:

Finally, those present manifest their concordance with the proposal presented by the mayor, and accept the amount offered and the gradual manner in which it will be paid to the list of affected persons presented below, who have participated in making this agreement. From this day forward, they will endeavor to depart (Camapara), resolving the problem of land tenancy within the protected area so as to no longer impact the natural environment nor the water that many communities consume (...).

Everyone present at the meeting signed off on the agreement with their name or thumb print. They removed their fences, left their land, and fulfilled their duty as community residents to help fence the reserve within La Campa’s area. Over the next two years, each of the signatories received the 4000 lempiras promised. Additional people came forward after this meeting, and received at least partial compensation for abandoning land in the reserve. The water committees accepted the responsibility to pay off the farmers, which they did by levying an additional fee on all of the households who used water. In the end, Don Juan paid the remainder from his own pocket. As I interviewed each of the men who had abandoned land in the reserve, I asked how they felt about abandoning land in the reserve. Each one expressed a degree of regret, and those who had not been able to purchase land in replacement often felt some anger. But every

one of them expressed support for the reserve, and they believed that their decision protected the water upon which their families depended as much as everyone else. Several stated that as members of the community, individuals must sometimes recognize a common good, even if it is personally difficult. Most of them mentioned that the forest had returned to the land that they had cleared, and the water flow had increased. They often said something to the effect: "The forest is beautiful now."

Other challenges took longer to resolve. Negotiations eventually succeeded in stopping the road that was being built through Camapara, and villagers built concrete posts to prevent vehicles from entering the reserve where the road had begun. A few coffee farmers still protest that the road would not have caused significant harm. A continuing educational campaign discourages hunting in the reserve, even so, one of my guides brings along a rifle "just in case we see a dangerous animal."

And further challenges remain. Caiquín succeeded in fencing off the forest around its major water sources, and some have grown back. But unlike La Campa, Caiquín's mayor and water committees have been unable to convince farmers living in the watershed to depart. These farmers include some of Caiquín's poorest families. Compensation is more costly and difficult in Caiquín. Its land has become more expensive and scarce than in La Campa due to the influx of outside coffee producers who have acquired much of Caiquín's best land. Caiquín's authorities have not figured out a way to collect higher taxes from the outsiders who do not live in nor invest in Caiquín, and the municipality teeters on the edge of bankruptcy. Even so, the farmers living in Caiquín's side of the reserve have agreed to leave if they are given replacement land and a house. Water committees in both municipios have been seeking a way to meet these farmers' needs. Meanwhile, Santa Cruz's municipal authorities agree in theory to the importance of the reserve, but they are shackled by limited resources and resistance among the families who own land on its side of Camapara. Santa Cruz does not depend on Camapara's water, therefore it does not prioritize its protection. Cruzeños draw water from several other watersheds, and these forested areas are strictly protected by their water committees. There is a saving grace: the Cruzeño family that owns a large piece of Camapara's land on the border with La Campa and Caiquín has left it fallow since the reserve's creation. While not ceding their rights, they have let the forest grow back.

SOCIAL AND INSTITUTIONAL ARRANGEMENTS THAT PROTECT THE RESERVE

When the reserve was created, there were no arrangements for monitoring or enforcing the borders. La Campa and Caiquín's water committees took on the responsibility for monitoring their own water reservoirs, and worked with municipal authorities to create additional protective arrangements. In Caiquín, water committees charge every household an extra fee that pays two forest guards. Caiquín's reservoirs have suffered periodic damage from delinquents, and problems with livestock knocking down fences to enter the reservoir areas. The water users agreed that fulltime monitoring and fence maintenance were needed, and have been paying the higher costs.

La Campa's water committees monitor their reserves through the weekly or bimonthly visits from a person designated as the primary maintenance man, who must check and clean the filters regularly. He repairs any damage to pipes, and can call on other community members to assist in the tasks. Most water committees have also organized their water users into teams to perform a monthly cleaning and maintenance of its reservoir. This usually means that each head of household works a turn on water maintenance one or two times a year; residents of smaller villages serve more frequently.

At a municipal level, La Campa and Caiquín have created municipal forest protection units, which receive partial support from ICF and the municipal budget. These units include one or two monitors charged with checking on any reported abuses, charging violators, and submitting reports on observations. La Campa has hired a full-time guard, whose main responsibility is to patrol La Campa's portion of Camapara, and look out for forest fires. With consistent monitoring, La Campa's portion of Camapara has had only a few small incursions. In one case, a desperately poor man planted a small maize field that crossed into Camapara to feed his family. The municipio agreed to let him have the land, after extracting his promise to make no further inroads, and to maintain the fence.

LESSONS AND CONCLUSIONS

Studies have argued that negotiation and participatory processes can lead to effective institutions for resource management and potentially mitigate conflict (Uitto and Duda 2002; Petts 1988; Xu and Jim 2003; Tang and Tang 2001). In the case of the Camapara reserve, the land disputes have been kept in check through negotiation, participatory experiences, as well as social networks that link Caiquín, La Campa, and to a lesser extent, Santa Cruz. The reserve remains in a legal limbo because La Campa's claims have not been recognized. Reserve protection and forest recuperation has been constrained because neither Caiquín nor Santa Cruz have been able to remove farmers living within the reserve on their sides of Camapara. Even so, the municipios have kept the lines of communication open, and educational efforts have helped people on all sides to comprehend the benefits of protecting cloud forests.

Monitoring and rule enforcement have been recognized as significant factors in explaining why certain forests present better conditions than others (Chhatre and Agrawal 2008; Gibson, Williams, and Ostrom 2005). To a large extent, this principle has been supported. The part of the reserve claimed by La Campa, while falling entirely within the disputed area with Caiquín, presents the most dense and best preserved forest in the reserve. It has been the most consistently monitored, and rules have been enforced. The sections that Caiquín monitors also have well-protected forest, and Santa Cruz, with the least interest in the reserve, provides no monitoring, but at least one landowner has protected an area kept in fallow.

The more interesting elements in Camapara's creation lie in the grassroots efforts that achieved their objectives. Camapara is protected in La Campa because people made a

commitment to negotiate with the ones who posed threats to the water and the forest. The process took time, and rather than resorting to force, the farmers on the mountain were pressured in a friendly but determined way to reconsider their perspectives. When they finally left the reserve, they did so voluntarily and peacefully. The farmers felt that their demands had been heard, because they received compensation for their sacrifice. In the end, they became supporters of the reserve.

The common perception among policy-makers, development agents, and environmentalists is that rural communities lack the capacity or interest to create strictly protected areas. In many parts of the world, multiple use protected areas are the best that can be hoped for, because too many people depend on the resources for livelihood or mere survival. Moreover, water scarcity has also often been regarded as an obstacle to collaborative resource management. The case of Camapara shows that water can provide an incentive for cooperation, collective action, and community-building even in contexts of conflict and competition for land.

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