Common Property Design Principles and Development in a Honduran Community

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Recent studies of common property have shown that it can provide certain advantages for the rural poor, particularly by fostering equitable access to subsistence resources. Development policies have often discounted or opposed common property regimes without comprehending the ramifications. This paper explores the relationship between processes of development and common property management in a case study of a Honduran community. The discussion focuses on the nature of eight common property design principles, which have been identified by Ostrom (1990) as contributing to successful common property regimes. The community's common property regime fulfills the design principles to various degrees, but they reveal weaknesses that reflect organizational shortcomings and pressures related to development programs. Market integration, agricultural changes, and privatization appear to be undermining the common property forests with potentially negative impacts on poorer households. The study asks whether development processes will be able to find ways to incorporate common property, and if not, whether common property regimes will be able to withstand the generally unfavorable environment created by global trends toward privatization.

Natural resources on non-private lands provide subsistence for millions of people in Asia, sub-Saharan Africa, and Latin America.[1] Most of these communal resources represent economically marginal lands. While some of these lands are open access (lacking a relevant property regime), a portion is held as common property (CP) under the management of local groups. Economists, policy makers, and development agents have tended to overlook CP, or confuse it with open access, to the detriment of CP regimes that have often provided their constituents with important benefits over many years. Recently, community-based development approaches have given greater attention to the potential of communities to manage natural resources as CP. Despite the recognition that communities can manage CP effectively, transferring this knowledge to development programs has encountered difficulties. Community-based approaches have occasionally overlooked existing CP regimes, and have introduced practices that undermined them. In

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other cases, community development programs have made unrealistic assumptions about the feasibility of creating CP regimes. There has been a tendency to underestimate circumstances that may counteract a community's capability to manage CP resources successfully, including inequitable social relationships, macro-level influences, and unpredictable fluctuations in marginally productive environments.[2]

CP theory provides insights concerning the difficulties of creating and maintaining successful community management of natural resources. It reveals the potential advantages of CP regimes for development processes—especially among poor populations—and the conditions in which CP regimes are likely to emerge and survive. The term "CP regime" refers to "a property rights arrangement in which a group of resource users share rights and duties towards a resource."[3] Studies have shown that successful, long-enduring CP regimes tend to share certain characteristics. Described as "design principles,"[4] the presence or absence of these key features relates to the emergence, maintenance, and sustainability of CP regimes. The degree to which design principles are fulfilled has ramifications for the future of CP resources, and whether CP regimes will be able to adapt to antagonistic development processes.

The following discussion will first present an overview of the beneficial and problematic aspects of CP institutions in relationship to development processes. Second, it will evaluate CP design principles in a western Honduras community. It will consider whether the design principles are adequate to protect the CP forests and withstand the threats posed by agricultural innovations, market integration, and privatization initiatives that are linked to national economic development policies. The case illustrates the complex issues related to CP in developing areas, the particular role of CP forests, and the theoretical questions that require further investigation.

Communal Resources, Common Property and Development

Communal resources present two major attributes: subtractability (any use subtracts from what remains for subsequent uses) and difficulty of exclusion (the nature of the resource presents difficulties for demarcating boundaries).[5] Examples of such resources include fisheries, forests, groundwater, and the stratosphere. The nature of the resource does not imply a necessary relationship with a particular property regime. Resources that are subtractable and difficult to demarcate may be held under private, public, or CP tenure, or they may be open access.[6] Communal resources that exist as public property, CP, or open access tend to be scarce, unpredictable, or variable through time and space -- therefore privatization has not been a particularly profitable or efficient option.[7]

Where land is open access, degradation usually occurs because limits on exploitation do not exist (this is the "tragedy of the commons" scenario, which has often been

misinterpreted as applying to all communal resources including those under CP institutions).[8] CP exists when communal resources are owned and managed by the groups that use them, in effect creating joint private property.[9] Similar to private or public management, the sustainability of natural resources under CP management depends upon the decisions made about forms of exploitation, rates of use, and enforcement of user rights. Design principles play an important role in the effectiveness of CP institutions.

For rural communities in the arid and semi-arid regions of India and Africa, communal lands represent high-risk, low productivity areas that nevertheless provide important resources for the population. These include food, fiber, fodder, fuel for cooking, and water.[10] Similar provisions from CP have been found in the developed world as well, including Switzerland and Spain.[11] Historically, CP arrangements in India reflected community concerns to protect fragile ecosystems for collective necessities, and distributed risk by allowing all interested users access to limited resources. Changes in land tenure policies and other programs have tended to eliminate CP regimes, leaving the land as *de facto* open access.[12] Such open access is a ticket to abuse.

As an alternative to open access, CP may provide equitable access and distribution of resources for poor populations. CP can present lower costs of administration and maintenance as compared to a private property system, resulting in efficiencies for higher levels of government and savings in titling fees for poor populations.[13] Privatization into small parcels would not guarantee access to a scarce, mobile, or dispersed resources. Creation of private parcels has often been seen as a solution to rural poverty, but in fact privatization programs have tended to exacerbate the impoverishment of the poorest segments of the population, and exclude relatively powerless groups (including women, children, and minority groups) from formerly common lands.[14] Preservation of CP could be justified as a component of development programs concerned to promote equity and participation. Unfortunately, economic policies, development initiatives, and political convictions based upon an assumed superiority of private property have tended to undermine CP regimes.

CP regimes can encompass the advantages of participatory, community-based development programs and co-management plans. This is particularly true for programs aimed toward sustainable management of renewable natural resources. Local users have a better understanding of their needs and their environment than do external agents, and have often developed institutions that fit uniquely to their needs and circumstances. In Africa, demand for trees and their various resources has led to a complex system of rights; people may own trees by virtue of planting them, and rights to trees are often separable from rights to the land on which the trees grow. People may inherit or obtain distinct rights to the same trees—to their fruits, branches, or leaves. Firewood, however, tends to remain a communal resource unless population density becomes very high.[15] Through

these arrangements, people gain access to the resources that they need for subsistence. Use of these resources is often misunderstood as causing deforestation and inadequate resource management.[16] Given the diversity of communal resources' environmental, socioeconomic, and ownership contexts, development programs that include local people in resource management decisions promise better results than top-down imposition of standard treatments that are often insensitive to local circumstances. A major problem with development programs has been inflexibility, not to mention misleading assumptions, in addressing the wide variation in cultural, environmental, economic and political conditions. CP regimes provide an alternative to traditional development programs. To help define the success of CP regimes, an analysis through design principles may be a useful tool.

Common Property Design Principles

The term "design principle" refers to a feature that contributes to maintaining the institutions and their resource base, and gaining user loyalty for the rules in use. To be "long-enduring," institutions must have survived through several generations of users.[17] To be "successful," institutions must be able to protect their resource bases from excessive exploitation that could lead to permanent degradation of the resources, and they must be able to adapt to environmental and sociopolitical disruptions. If development processes are to integrate CP institutions as assets, and find ways to promote them, understanding these design principles constitutes a fundamental step. Ostrom[18] has proposed eight design principles that characterize long-enduring, successful CP institutions. A description of each principle follows:[19]

(1) Individual access rights and boundaries of the resource must be clearly defined. These conditions must hold for users and outsiders to recognize legitimate group members, the area to which users have rights, and the perimeter that users protect from incursions. Otherwise, the resource exists as *de facto* open access.

(2) Principles governing resource use, and required contributions of labor, material, or money, suit the local situation. User groups are more likely to comply with obligations and abide by constraints if the rules reflect their circumstances and lie within their means.

(3) Collective-choice arrangements allow those with access rights to participate in modifying the rules. When most users have the opportunity to contribute to the creation and evolution of rules that define their rights and responsibilities, they are more likely to find arrangements that are mutually acceptable and adaptable to changes.

(4) Monitoring helps to control CP resource appropriation. Even when rules fit the local circumstances, and users participate in decision-making processes, the temptation to cheat exists. Monitoring increases the likelihood that cheaters will be observed, and can therefore be held accountable. In successful CP institutions, the monitors tend to be users, or are accountable to them.

(5) Appropriators who violate the rules face graduated sanctions. If violators do not face retribution for their transgressions, it will discourage other users from complying. Simple sanctions for minor violations let the transgressors know that they cannot get away with their behavior. If violators persist in breaking rules, sanctions increase proportionally relative to the severity of their crime. Graduated sanctions save the costs that would be required if every transgression were treated as a criminal offense. Initially gentle reminders appear to be more effective than uniformly harsh sanctions. The latter could generate resentment (especially if people break rules out of extreme necessity) and undermine individual or household viability.

(6) Conflict resolution mechanisms exist. Even when users design and modify rules jointly, individuals may differ in their interpretations. These differences can occur honestly, or reflect efforts to dodge obligations. Low cost, readily accessible arenas for addressing conflicts allows users to reach resolutions before disagreements threaten the system.

(7) External government authorities recognize minimal rights to organize. CP regimes cannot emerge or endure for long if higher-level government entities oppose their existence or fail to recognize their legitimacy. When development policies impose privatization or external interventions that usurp local arrangements, they can compromise existing systems and contribute to *de facto* open access conditions.

(8) For larger systems, the design principles are organized into multiple layers of nested enterprises. The term "nested enterprises" refers to interrelated (sometimes hierarchical) organizational components that take on complementary sets of responsibilities. Irrigation systems provide a well-known example of nested enterprises in CP arrangements. For example, the organizational components of an irrigation system along the Segura River in Spain includes: (1) irrigation committees composed of all irrigators in each community; (2) a general assembly formed of the chief executives of each irrigation committee; (3) an executive commission elected from the general assembly; and (4) a water court chosen by the general assembly.[20] Each layer of the nested enterprises makes decisions concerning water use and system maintenance within their relevant range of influence. The water court resolves irrigation disputes. This is but one example. Nested enterprises vary to suit the nature of the CP resource and its context.

While these principles were initially designed by Ostrom to assess the success of long-enduring irrigation systems, evidence for these principles is found in a number of studies.[21] The principles are general because each successful institution reflects its specific circumstances. The data shows diverse manifestations of the design principles that reflect human ingenuity to create arrangements that fit local concerns. Certain regimes lack one or more of the design principles, raising the question of the degree to which an absent or weakly manifested design principle undermines the effectiveness and long-term viability of a system. Through the perspective of design principles, this question is explored more fully by examining the CP forest regimes of La Campa, Honduras.

Fieldwork and Data Collection Methods

La Campa is a *municipio* (similar to a county) located in western Honduras, with a population of approximately eight thousand (1993). Fieldwork conducted in La Campa by the author and assistants over five years (1993 – 1998) provides the majority of the data. Data collection methods included household surveys, a demographic census, formal and informal interviews, oral histories, research in municipal archives, meetings with focus groups, attendance at council meetings, and forest mensuration. The information on design principles and forest management draws mainly from (1) interviews with present and former *aldea* (village) representatives and municipal council members, (2) informal discussions with municipal residents, (3) participant observation in council meetings, and (4) excerpts from seventy-seven years of written *actas* (meeting minutes) recorded for council meetings since the *municipio*'s founding in 1921. The information presented usually draws on multiple sources with confirmation from several data collection methods. Where reported data draws on a more limited sample (as from authoritative sources on specific issues), the reference indicates the date, sources' occupations, and data collection method. To preserve anonymity and to comply with human subjects guidelines, names are not given.

Description of the Area and People

La Campa has maintained CP forests since the colonial period. Located in the Department of Lempira in western Honduras, the *municipio* has a mountainous landscape, steep slopes, and poor soils that are typical of the region.[22] Descendants of Lenca Indians dominate La Campa's population. The people recognize their indigenous heritage, but evidently lost the Lenca language during the early 20th century.[23] Most of the people depend primarily upon subsistence production of maize, beans and banana, and many women produce artisanal pottery.[24]

The area has been experiencing population growth and market integration. Such processes have been seen as detrimental to CP regimes,[25] but some scholars have argued that increasing population density and resource scarcity may provide a catalyst for people to create or strengthen CP.[26] The situation in La Campa offers some support for both of these arguments. Population growth and increasing demands for land appear to be driving a transformation of communal forests into *de facto* private forests and agricultural fields. At the same time, people have tried to impose new regulations to protect their CP forests.

With road improvements and agricultural programs, better-off residents have turned to production of coffee and nontraditional crops for the market. Subsidies and credit for chemical inputs have supported the adoption of more intensive agricultural methods.

Increasing market involvement has disproportionately benefited La Campa's better-off residents, and contributed to greater social heterogeneity.

Municipal government organization and CP forests have roots in Spanish traditions for community governance, imposed during the colonial period.[27] Each of La Campa's eight *aldeas* has a public woodlot for collecting firewood and grazing livestock. Every *aldea* has a meeting house where the residents gather to discuss issues and conduct town business. For the *municipio*, the municipal council constitutes the principal governing body of the CP. The council is composed of a mayor and four to six council members who are democratically elected; it is supported by representatives from each *aldea*: a treasurer, police officer, civil judge, and a secretary. Municipal positions must be filled by residents in good standing.

The *municipio* owns the majority of the land as *ejidos* (common lands granted by the Spanish Crown or the national government). Although the land legally belongs to all municipal residents, a large portion has been claimed for private use. Residents establish use rights by fencing and using parcels of land. Most people obtain council permission prior to fencing through a formal petition. Fencing establishes *de facto* private property rights – residents can buy, sell or inherit these lands. (Land claimed for *de facto* private use will hereafter be referred to as "private"). Technically, it is only the improvements to the land (buildings, fences) that can be bought or sold. The land itself remains under municipal ownership. No nonresident can own rights to La Campa land. This rule is stringently enforced.[28] Land that has not been claimed is CP; most of it lies in pine-oak forests. Some of these forests have been demarcated for CP woodlots and livestock zones, while others are unfenced. The discussion of design principles will address CP arrangements for fenced and unfenced common forests.

Design Principle One: Clearly Defined Boundaries

Resource boundaries: The *municipio's* borders are clearly marked with fences and border markers, which residents check periodically to prevent incursions by neighboring counties. Land titles granted by the national government define borders. Several segments have colonial origins. Many borders were once disputed with abutting *municipios*; accusations of border marker shifting resulted in bitter arguments until traditional markers made of piled rocks were replaced with immobile cement posts.[29]

All of the forests within the municipal boundaries are designated as CP, except for those claimed for private use by residents. CP forests include fenced areas set aside as public woodlots and grazing areas, and unfenced portions remaining in less accessible areas or interspersed with agricultural fields and dwellings. The unfenced forest areas have poorly defined boundaries, and have suffered diminution through expansion of residents' private

plots, particularly those areas near densely populated areas. Conversion to private use has been less typical within fenced CP woodlots and pastures, due to the oversight of committees that take responsibility for these areas.

Definition of the user group: Rights to use La Campa's communal resources, and to obtain land use rights, belong solely to residents. Residents, known as Lacamperos, achieve their status by birth or special approval from the municipal council. The latter is awarded primarily through marriage to a resident, but historical records indicate that few outsiders have obtained residency. Even today, Lacamperos expel squatters who try to stay, unless a resident offers to take them in and serve as a witness for their good character before the municipal council.

Residents prohibit nonresidents from using their forests, harvesting forest resources, or intruding on municipal land. Historically, low population density and the relative inaccessibility of the most densely forested reaches of the *municipio* have made enforcement difficult. At the same time, however, sparsely populated surrounding counties and very few roads meant that the potential for incursions was limited. Today, the area is more heavily populated, and Lacamperos' vigilance has increased through periodic patrols and informal surveillance by farmers living near the borders. The *municipio* relaxes the rules once a year during the festival honoring La Campa's patron saint. During this weeklong period in each February, nonresidents who make pilgrimages to the festival are allowed to cut the wood they need for cooking meals and pitching their tents.

Due to improved transportation, outsiders now visit more frequently, and Lacamperos travel to neighboring towns more often. This has led to increasingly important business and social ties beyond the boundaries of the *municipio*. A recent expansion of coffee production in La Campa's higher elevations has also drawn the attention of prospective coffee-growers from the nearby department capital. Today Lacamperos encounter new challenges to prevent outsiders (with whom they may share friendship and business ties) from buying land. In principle, CP residents do not allow land rights to nonresidents, however tempting the generous offer. Thus far, the municipal council has summarily revoked all substantiated cases of land sales to outsiders. [30] If any were to escape this sanction, the emergence of nonresident landowners would threaten the integrity of the user group, which has thus far been united by shared experiences and similar social responsibilities.

Design Principle Two: Proportional Equivalence between Benefits and Costs, Suitable to the Local Situation

Most residents agree that existing restrictions for resource use and the obligatory labor requirements placed upon them are appropriate. Traditionally, municipal laws regarding

CP resources delineated resident's rights and a number of obligatory duties. Adult men were required to work on road and fence repair, construction and maintenance of public buildings, cleaning public areas, and serving in communal offices. Today the demands for labor have decreased, but men must serve when called as *aldea* representatives, and participate in cleaning water reservoirs, maintaining school buildings, and improving public areas.[31] Committees responsible for communal forest pastures also request help with fence repair from residents who utilize the areas for grazing animals, but leadership problems have undermined cooperation with this duty. Notably, no other labor contributions involve the maintenance of CP forests.

While labor contributions have fallen, regulations still require payments of resident fees and municipal taxes. Shirkers lose their right to request land, and often avoid participating in collective decision-making at council meetings because they would encounter the treasurer (who must collect delinquent taxes). New restrictions and regulations have emerged recently. Many support a locally imposed ban on exportation of firewood or other forest products outside the *municipio*. A majority of the population compelled the council to mandate the ban in 1987, as part of a municipal resolution to expel loggers and end resin-tapping.[32] Since 1987, the council has passed additional restrictions. Residents must obtain council permission to cut any healthy, mature pine tree, and they must pay a nominal fee for each one (dead or diseased pines, used to temper pottery, may be cut without prior approval). No limits exist on the amount of firewood that a household may cut for its own use. However, residents criticize cases of wasteful cutting and successive collectors ensure that little goes to waste. In addition, the council has placed a seven-tenths of a hectare limit on the amount of communal land that a resident may request for a usufruct claim, because the majority of new claims reduce communal forests and involve clearing.[33]

Unfortunately, residents have been more determined to capture benefits from the commons than they have been to fulfill their duties. Pine trees are felled without permission, and the guilty parties generally receive a pardon as long as they utilize the trees for construction. Everyone acknowledges that surreptitious exportation of firewood occurs, but few consider it a serious offense. The council may waive the limit on land requests when claimants represent growing families who need more land to meet their subsistence needs. But certain claims have involved some of the *municipio*'s largest landholders.[34] The people's commitment to preventing outsiders' access to their communal resources has not been matched by a commitment to constrain their own patterns of CP forest use.

Design Principle Three: Collective Choice Arrangements

Every resident has the right to participate in decision-making processes to confirm or transform the principles for managing communal lands. Decisions are made during bimonthly municipal council meetings, in which any adult resident can present requests and concerns. Every resident may express an opinion. When a topic is controversial, the discussions may last for hours, and continue through several successive sessions. The council eventually reaches decisions through three mechanisms—a roll call vote of council members, a public vote (by voice or raised hands), or a decision by the mayor once everyone has spoken. The mechanism depends upon the nature of the issue, the political climate of the moment, and the preferences of the current council members.

Attendance at council meetings is optional except for municipal officials and *aldea* representatives. They must be present, send a valid excuse, or pay a fine. The rest of the population participates sporadically. Most individuals attend only when a matter of personal concern must be addressed (such as a request for land) or when an issue of great public interest must be debated. As a result, those elected to serve on the municipal council have an inordinate influence during their terms of office. The influence of any single person is limited, however, because council membership changes every four years, and *aldea* representatives change annually.

Traditionally, men dominate decision-making processes. All adult males must serve when called as representatives for their *aldea* before the municipal council. Although women serve as municipal treasurers and secretaries, men continue to dominate all of the other elected and appointed municipal positions. Women participate in council meetings when they wish to request land (if widowed or single), lodge complaints, make petitions, and express their opinions.

Design Principle Four: Monitoring

Due to the size and topography of the communal forests, monitoring is difficult. The largest communal forest areas encompass precipitous tracts and inaccessible areas where people pass infrequently. No *municipio* organization appoints or employs forest guards (municipal council members and volunteers compose the periodic border patrol). Every resident bears the responsibility of bringing violations to the attention of the council, but this occurs mainly as a result of residents spotting a serious transgression as they conduct normal routines. Residents do not feel that certain violations merit intervention. For example, landholders adjacent to CP forests occasionally expand their fences into the communal area. Residents tend to accept all but the most blatant examples of this behavior. Nearly everyone with the opportunity to expand their fences has done so, such that those who accuse others of this activity risk bringing similar accusations upon themselves. Besides, people perceive most illegal fencing as an expression of sincere need; what a neighbor does one year, they may need to do the next. The mutual oversight of

common transgressions makes for friendlier relationships. The willingness to forgive fence expansion evaporates, however, if people compete for the same land. Such rivalries generally come before the council, which employs conflict resolution procedures to reach a resolution.

Residents' perceptions also undermine the feasibility of monitoring. Most people perceive forest resources as abundant, even though they recognize that forests have been diminishing.[35] They feel wasteful behavior should be constrained, but they believe most people do not cut trees in excess of their needs. From the perspective of an outsider, Lacamperos' reasoning and actions appear contradictory. They express a consensus that forest resources should be preserved, but many demonstrate a consistent willingness to allow minor transgressions. Shared subsistence needs, social obligations, and traditional standards of behavior outweigh recent laws. The cumulative effect of numerous violations could eventually degrade or eliminate the communal forests and the CP administration responsible for their management. The situation has parallels to a Japanese CP forest case reported by McKean,[36] when a depression drove villagers to desperate measures for survival and rule-breaking was momentarily forgiven. But in the case of La Campa, the situation represents a persistent rather than a temporary suspension of the rules, and occurs within a context of ongoing economic and demographic change.

Design Principle Five: Graduated Sanctions

Graduated sanctions exist, but they have rarely been applied for violations of municipal forest laws. The process starts with a verbal warning; continued malfeasance should lead to more serious sanctions. These sanctions include modest fines, compensatory labor, a combination of fines and labor, or jail time. Local authorities mete out fines and jail time most commonly for disorderly conduct, willful destruction of property, irresponsible supervision of domestic animals, and illegal sales of alcoholic beverages. An examination of municipal records shows few cases of sanctions applied for misuse of communal forests even though laws regarding responsible management appear during the early 20th century.[37] By the 1940s, laws prohibited the felling of trees near water sources, wanton destruction of trees, excessive clearing on steep slopes, and enclosure of communal forest areas used as woodlots.[38] Records suggest that councils have applied sanctions only for cases in which the violators behaved in an exceedingly avaricious and disrespectful manner.

The historical context continues to bear weight in the present. The development of more restrictive municipal laws, as well as national legal constraints, as yet appear to have had little influence upon Lacamperos' attitudes and patterns of exploitation. Many who depend upon communal sources for firewood, lumber, and pasture perceive the privatization of communal forest as a greater threat to their welfare than forest clearing.[39] The council has

not limited forest enclosure and clearing in any significant manner. This issue has been confounded by land sales between residents. Wealthier residents purchase user rights from their poorer neighbors, who sell because of economic necessity and the knowledge that they can obtain more land by appeal to the council. While councils have made declarations to the effect that no one should receive a new land use grant after selling a parcel, council members have not denied land to a destitute household. Moreover, councils rarely reject a land request by any household that protests a legitimate need and the ability to use land productively.

Although illegal export of firewood does occur, most people overlook an occasional sale because few alternatives exist to obtain much-needed cash. People feel differently about large-scale firewood exports; a few wealthier residents who own pick-up trucks have faced such accusations. Clear evidence, however, has been lacking; therefore, no sanctions have been imposed. In short, the graduated sanctions that local laws mandate reflect an ideal, but they are rarely implemented.

Design Principle Six: Conflict Resolution Mechanisms

Conflict resolution mechanisms exist. The municipal council, the municipal constable, and the civil judge, all perform mediation and arbitration for disputes. Resolution mechanisms address a broad range of social and civil problems, but the majority of conflicts relate to land rights. These include disputes over boundaries of private claims, as well as arguments over uses and abuses of communal lands.

Parties to a conflict over land generally air their tensions publicly. If the parties do not reach a resolution through personal confrontation and pressure applied through social networks, then one or both of the parties will present their grievances at the next council meeting. Usually, the community is knowledgeable of the dispute prior to the meeting. The council requests a detailed explanation from the interested parties and their supporters. In most cases, the council appoints *aldea* representatives to meet with the opposing parties on the disputed land in order to review the situation. The visit serves to clarify existing knowledge, and gives the disputants a chance to consider a compromise. At the next meeting, representatives present findings, and each interested party gets another chance to express viewpoints. The council usually suggests a resolution to which both parties publicly agree. In presenting a decision, the mayor and council members provide an explanation based upon locally accepted principles, precedents from previous cases, and municipal laws. The effort at impartiality provides protection for the council. The losing parties generally accept the outcome even though they may harbor resentment. If tensions concerning the issue are explosive, or if the dispute has escalated to threats of physical harm or damage to property, then the council usually refers the case to the local police. If actual damages (short of a felony) have been incurred, the case goes to the judge, who may impose fines to compensate for losses.

In part, the inadequate enforcement of sanctions reflects the success of internal mediation procedures. Conflict rarely requires intervention from external authorities (e.g., military officials, state police, the departmental governor). Avoiding such intervention is an important motivation for residents to find locally acceptable solutions to their problems. Most Lacamperos feel that they are more likely to be treated fairly by fellow residents than an outside agency. There are certain exceptions. In the very rare instances of criminal acts (attempted homicides or larceny), the local authorities turn the accused over to regional authorities. For disputes over municipal boundaries, Lacamperos and the residents of the opposing *municipio* find recourse in arbitration by departmental officials, because they are usually considered neutral parties.

Given the increasing land pressure and population growth, one might expect that conflicts over land would correspondingly increase. The council members questioned on this matter believed that conflicts had in fact been declining. They noted demand for land has required changes in customs regarding land distribution. Formerly, a contradiction existed between customary practice and municipal law. In practice, a plot of fallow land was regarded as belonging to the original claimant until all signs of use vanished. Municipal law allowed unused fields to be reassigned as long as they did not bear signs of recent use. Given this situation, disputes could erupt between an original claimant (or descendants) who wanted to retain fallow land for future use, and new petitioners who argued that the land was not cultivated and therefore available for another claim. To resolve these disputes, the council considered whether evidence of fencing remained on the land. This required interpretation. For example, scattered rocks where a stone fence may once have stood might be considered proof of occupation from the original claimant's perspective. A new claimant could argue that no fence was standing, and that the land was therefore open. The council generally bestowed the benefit of the doubt upon the first claimant, particularly if other witnesses came forward in support. Losing parties might be disappointed, but they still had other land to claim for private use. Today, land is scarcer. The council now follows the letter of the law more rigorously, so that fallow fields are considered eligible for a new occupant if a fence is not constructed to municipal standards (i.e., strong and high enough to keep a cow or horse out). The change benefits a large number of young people and growing households. People have learned that if they wish to keep their land, they must maintain the fences. The council has concluded that consistent rulings have reduced the number of disputes, because everyone knows the rules and understands how they will be enforced.[40] The council's efforts to clarify and enforce residents' rights and duties for private lands contrasts with their failure to do the same for CP forests.

Design Principle Seven: Governmental Recognition of Minimal Rights to Organize

The Honduran government has had a mixed record in regard to recognizing minimal rights to organize (here, this refers specifically to permitting groups to form CP and govern it without opposition from higher-level government institutions, such as national government agencies). Intervention and logging under the auspices of the National Forestry Development Corporation (COHDEFOR) caused severe disruption to La Campa's forests and suspended its CP regimes from 1974 until 1987. In 1987, La Campa ousted COHDEFOR and prohibited logging in the *municipio*. The population passed municipal laws to prohibit outsiders' access to their forest resources, and forbade residents from selling forest products outside the *municipio*. During this intervention, residents lost confidence that the government would respect their CP, but they persevered to reconstruct CP forest management in the aftermath. No government institution has since tried to make a direct intervention in La Campa's forest management decisions without first gaining council approval.

Currently, the National Agrarian Institute (INA, for *Instituto Nacional Agrario*) poses a new challenge to CP arrangements. The INA's programs encourage agricultural improvements and expansion. It is now promoting a program that arranges private titles for farmers working ejidal and untitled lands.[41] This program reflects economic development goals to provide poor farmers with secure land rights, on the assumption that private title will lead to more efficient and sustainable use of resources.[42] While the program appears to be beneficial in parts of rural Honduras where land titles have been disputed or lacking, the situation is different for *municipios* like La Campa that have formal, ejidal titles and long-standing methods of governing land use rights. While it is unclear how the INA's program will affect La Campa, the potential exists for it to end residents' opportunity to obtain free use rights to land, encourage privatization of CP forests, and open the door to outsiders' purchase of La Campa land. If outsiders buy out La Campa farmers' titles, it could create landlessness in a *municipio* that previously has had no landless farmers. COHDEFOR, which is at odds with the INA becuase agricultural expansion often comes at the expense of forests, believes that the INA's privatization initiatives will increase deforestation as farmers obtain titles to forested land and credit to clear it for agriculture. According to COHDEFOR, the INA has been known to grant private titles in protected forests, including national parks, to coffee growers who proceed to clear the land. [43]

Agricultural development initiatives also pose a threat. Programs promoting export coffee production have been offering technical assistance, loans, and road improvement incentives. La Campa farmers have responded by planting more coffee, which has been associated with clearing of CP forests. The possibility of obtaining private titles may contribute to this process. The municipal council has approved forest claims for coffee growers because they bring income to the *municipio* through a national program that pays *municipios* a bonus for road improvements proportional to coffee production.

The current Honduran government generally allows the possibility of CP organization. In favor of CP forests, recent changes to the national municipal code explicitly charges *municipios* with the responsibility of managing their ejidal lands within the constraints of environmental laws. The code also requires the national government to consult *municipios* concerning proposals that could impact the status and sustainability of municipal resources.[44] The law leaves open the possibility for CP regimes to occur at levels other than the *municipio*. Nevertheless, privatization initiatives and development processes threaten the continuation of CP regimes and inhibit the possible formation of new ones.

Design Principle Eight: Nested Enterprises

La Campa contains two levels of nested enterprises. The municipal council has the major responsibility for decision-making with regard to municipal communal resources, and *aldeas* have additional governance rights and duties. These rights provide *aldeas* a degree of autonomy below the municipal level, which is a key feature of nested relationships. The distribution of responsibilities between the municipal council and *aldea* organizations is not altogether clear; it has experienced considerable change through time and varies between *aldeas*. Two major factors shape this situation. First, *aldeas* differ in their histories and the degree to which they assert control over adjacent communal resources at any point in time. While every *aldea* is associated with a territory, most *aldea* boundaries are only loosely recognized. These boundaries evolve with the emergence of new *aldeas*. Second, all *municipio* residents have the right to request land use rights anywhere in the *municipio*, and they may harvest firewood and most non-timber forest products from any communal forest, regardless of their *aldea* of residence. Many residents have parcels spread throughout the *municipio*, and they collect firewood and non-timber products as they travel between their homes and fields. The only resource which is exempted from these broadly defined rights is the forest pasture in *zonas ganaderas* (livestock zones). These zones have been reserved by several of the largest *aldeas* for fenced communal grazing. Any *municipio* resident can collect firewood or other forest products in a livestock zone, but only *aldea* residents are permitted to graze animals there.

La Campa's nested enterprises involve collective choice mechanisms, monitoring and labor contributions. For *aldeas*, residents tend to use the communal forests nearest their homes most frequently. They are best able to monitor them, and benefit more from them than do people who live farther away. Any resident who witnesses unauthorized slash-and-burn clearing, excessive tree-cutting or illegal sales of forest products should report this to the *aldea* representative or the municipal council. The council authorizes representatives to issue denunciations, detain violators, and report transgressions within their respective *aldeas*. Most representatives consider it inappropriate to report any illegal activity occurring in another's jurisdiction. Yet within an *aldea*, residents and representatives

usually dislike reporting against their neighbors because the risk of retribution is high. The council frequently reprimands *aldea* representatives for failing to fulfill their duties, and representatives defend themselves by pointing out the difficulties of denouncing their neighbors, friends and family members with whom they must coexist.[45]

If an *aldea* chooses, it may organize committees and establish rules to oversee its communal forests, and build and maintain fences around them. The municipal council must approve this form of collective choice. It typically results from concern to protect intensively used communal areas from conversion to private usufruct claims, and occurs mainly in areas with higher population densities. These efforts have had mixed success. Where these committees exist, as in the example of livestock zones, they exercise local decision-making power over the possible allocation of usufruct parcels within the forest.

Other design principles do not appear to be nested below the municipal level (although above the *municipio* level there are national laws that take legal precedence over those of the *municipio*). With few exceptions (such as the livestock zones) user groups' rights to and management of CP resources operate at the *municipio* level rather than the *aldea* level. The *municipio* council reserves the power to impose graduated sanctions (although rarely used), and carries out conflict resolution functions. For the most part, collective choice mechanisms occur through the municipal council's operations. As for governmental recognition of minimal rights to organize, there is no prohibition of *aldea* rights to organize CP. National laws do not, however, recognize *aldeas* as legal decision-making entities with regard to land use or allocation. The one exception would be if an *aldea* were to have a legally recognized land title, which is not the case in La Campa.

Discussion

With respect to the design principles, La Campa's CP arrangements demonstrate both strengths and weaknesses. La Campa's greatest CP strength is that its boundaries and user groups are clearly defined. Conflict resolution mechanisms likewise appear to function well within the *municipio*. Collective choice mechanisms function with moderate success due to the mediation of the democratically elected municipal council, and the rights of all adult residents to participate in decision-making processes.

The other design principles present shortcomings. While it is a strength that residents perceive a proportional equivalence between benefits and costs, their benefits are broad but their obligations (costs) to maintain the forests are few. Further, regulations have been poorly enforced. New restrictions on exploitation have been formulated, but they have not changed residents' long-standing habits of CP forest use. Many Lacamperos agree the CP forests could be managed more wisely, but no one expresses a commitment to bearing the social and economic costs related to restricting forest resource use or compelling users to

contribute to forest maintenance. In their estimation, the benefits of stronger CP forest regimes do not outweigh the costs. Therefore, residents have not developed a means to monitor the forest in a systematic way. Nor have they imposed graduated sanctions to compel compliance with extant forest regulations (even though graduated sanctions have been used effectively to elicit cooperation with other communal duties). The national government has a mixed past with regard to recognizing CP forests and minimal rights to organize. A nested hierarchy of certain design principles can be identified between *aldea* and municipal council levels, but aspects of these nested relationships appear to be ineffective.

Processes of development have contributed directly and indirectly to the current state of La Campa's CP design principles. COHDEFOR's past interventions undermined La Campa's CP forests, but the population has tried to renew and strengthen CP arrangements. Increased market opportunities and demand for land have complicated these efforts. The national laws that stipulate municipal stewardship for natural resources provide some support for CP forest regimes, but privatization proceeds under the INA land titling program. Meanwhile, agricultural development programs have encouraged coffee production, which many La Campa residents have perceived as a major economic benefit despite the associated loss of forest. These processes have been making inroads on the CP forests due to weaknesses in the design principles. These weaknesses compromise the sustainability of CP regimes, contribute to forest transformations, and introduce uncertainty for the future of La Campa's CP forests.

Elimination of CP forests would have detrimental implications for the majority of La Campa's residents. Most residents depend upon the CP forests to supply their firewood, timber for construction, pasture for their livestock, and non-timber forest products such as medicinal herbs. CP forests have thus far helped to maintain an equitable access to resources for the residents. People agree the CP forests could not be subdivided into enough productive parcels to provide every household with a private forest large enough to meet their subsistence demands. Privatization of CP forests could leave a number of people without access to cooking fuel because cost effective alternatives are not available. The poor majority of the population would be affected most profoundly, because the wealthier minority has already claimed private forests. The consequences can include malnutrition and increased health problems. For example, forest privatization and deforestation in parts of rural India have been associated with reduced health status for women and children, who do not have enough firewood to cook their food adequately, or must resort to less nutritious foods that require shorter cooking time.[46]

In general, processes of development in La Campa have encouraged greater socioeconomic disparity. The wealthier can afford to invest in coffee crops, fence forests for agriculture and private woodlots, and take advantage of credit opportunities. The

poorer households continue to depend upon subsistence production of maize and beans. They lack the land, the financial resources, and/or the labor to improve their options. Increasing social inequity may be detrimental to potential group organization, as demonstrated by studies that show that large, heterogeneous groups find it more difficult to organize than smaller, more homogeneous ones.[47] Alternatively, Baland and Platteau[48] argue that social inequality within certain parameters may promote effective CP management. If the elite stand to gain by protecting the commons, they may be willing to bear a larger share of the burden of organizing the institution and enforcing its rules. In the case of La Campa, however, it appears that the wealthier people have reduced their dependency upon the CP forests. They have little reason to support CP forests (and given interests to expand their private holdings, they may benefit from undermining CP regimes).

La Campa presents a case in which development processes appear to be undermining CP regimes. The examination of design principles, however, suggests that weaknesses existed prior to these programs. Degradation of CP forests reflects a combination of residents' desires to improve their economic well-being, and their opportunities to exploit and transform CP forests due to design principle inadequacies.

Development processes need not constitute a threat to CP regimes. Degradation or scarcity of a resource may provide the impetus for strengthening a CP institution.[49] La Campa may be approaching this point. Moreover, if development programs and national policies were to recognize the potential benefits of CP regimes for developing areas – particularly in terms of equitable access to natural resources – CP systems might endure. But even if favorable development programs and government policies exist, processes of market integration and agricultural innovations may change the cost-benefit equation that shapes the desirability of CP for a population. As Ostrom[50] points out, people must perceive that their personal and joint benefits exceed the costs if they are to form and maintain CP regimes.

La Campa's situation, and those of other developing communities with CP, indicates that CP does not constitute a panacea for resource distribution and management problems. Yet it can be cost-effective and sustainable under certain conditions.[51] Just as important, it has greater likelihood than private property of providing the poor with equitable access to basic resources. CP may also offer experience in participatory, local governance with positive ramifications for strengthening democratic institutions at multiple levels. Yet changing incentives and development processes increasingly challenge the creation and maintenance of CP. We must therefore ask whether development programs can be designed to support existing CP systems, or encourage the creation of new ones. Policies that recognize minimal rights to organize, including provisions to grant legitimacy to CP, comprise an important step. The remaining design principles (clearly defined group membership and resource boundaries, governing principles suitable to the local situation,

collective-choice arrangements, monitoring, graduated sanctions, conflict resolution mechanisms, and nested enterprises) fall principally upon those who depend upon communal resources for their sustenance and stand to gain the most from their conservation. Supported by solid design principles, CP regimes have the potential to exist as an important component for equitable, participatory and sustainable development in the foreseeable future.

Endnotes

1 Daniel Bromley, "Property Relations and Economic Development: The Other Land Reform," *World Development* 17 (1989), 867; N. S. Jodha, "Common Property Resources and Rural Poor in Dry Regions of India," *Economic and Political Weekly* 21 (1986), 1172.
2Melissa Leach, Robin Mearns and Ian Scoones, "Challenges to Community-Based Sustainable Development: Dynamics, Entitlements, Institutions," *IDS Bulletin* 28, no. 4 (1997), 4-14.
3 Margaret A. McKean and Elinor Ostrom, "Common Property Regimes in the Forest: Just a Relic from the Past?" *Unasylva* 46, no. 1 (1995): 5.
4 Elinor Ostrom, *Governing the Commons* (Cambridge: Cambridge University Press, 1990).
5 D. Feeny, F. Berkes, B.J. McCay, and J. Acheson, "The Tragedy of the Commons: Twenty-Two Years Later," *Human Ecology* 18, no. 1 (1990), 3.
6 Daniel Bromley, "The Commons, Property, and Common Property Institutions," *Making the Commons Work: Theory, Practice and Policy* (1992): 3-16.
7 Daniel Bromley, "Property Relations," 867.
8 Garret Hardin, "The Tragedy of the Commons," *Science* 162 (1968): 1243-1248.
9 McKean and Ostrom, 6.
10 N.S., Jodha*, Common Property Resources: A Missing Dimension of Development Strategies,* World Bank Discussion Paper 169 (Washington, DC: The World Bank, 1992): 2, 12.
11 Elinor Ostrom, *Governing the Commons*; Robert McC. Netting, "What Alpine Peasants have in Common," *Human Ecology* 4(2)(1976): 135-146.
12 Jodha, *A Missing Dimension*.
13 Carlisle Ford Runge, "Common Property and Collective Action in Economic Development," *World Development* 14(5) (1986): 623-635.
14 B. Agarwal, "Environmental Action, Gender Equity, and Women's Participation," *Development and Change* 28 (1997): 1-44.
15 Louise Fortmann, "The Tree Tenure Factor in Agroforestry with Particular Reference to Africa," *Agroforestry Systems* 2 (1985): 229-251.
16 Louise Fortmann and J.W. Bruce, *Whose Trees? Proprietary Dimensions of Forestry* (Boulder: Westview Press, 1988); Melissa Leach and James Fairhead, "Natural Resource Management: The Reproduction and Use of Environmental Misinformation in Guinea's Forest-Savannah Transition Zone," *IDS Bulletin* 25(2) (1994): 81-87.
17 Elinor Ostrom, "Design Principles in Long-Enduring Irrigation Institutions," *Water Resources Research* 29(7) (1993): 1907-1912.
18 Ostrom, 1990
19 See Ostrom 1990: 90-102 for a more thorough discussion.
20 Ibid., 76-77.
21 e.g., Ruth Behar*, The Presence of the Past in a Spanish Village: Santa María del Monte*. (Princeton: Princeton University Press, 1986); Madhav Gadgil and Prema Iyer, "On the Diversification of Common-Property Resource Use by Indian Society," in *Common Property Resources: Ecology and community-*

based sustainable development, ed. Fikret Berkes (London: Belhaven Press, 1989), 240-255; Margaret McKean "Success on the Commons: A Comparative Examination of Institutions for Common Property Resource Management," *Journal of Theoretical Politics* 4 (1992):247-281; Margaret McKean, "The Japanese Experience with Scarcity: Management of Traditional Common Lands," *Environmental Review* 6(2): (1982) 63-88; F. Berkes, D. Feeny, B.J. McCay, and J.M. Acheson, "The benefits of the commons." *Nature* 340 (1989):91-93; Susan Charnley, "Pastoralism and the Demise of Communal Property in Tanzania," *Cultural Survival Quarterly* 20(1) (1996):41-44; James Acheson, "The Lobster Fiefs Revisited: Economic and Ecological Effects of Territoriality in Maine Lobster Fishing." in *The Question of the Commons*, eds. Bonnie McCay and James Acheson, (Tucson: University of Arizona Press, 1987), 37-65; Fikret Berkes, "Common-Property Resource Management and Cree Indian Fisheries in Subarctic Canada," ibid., 66-91; Robert McC. Netting, "What Alpine Peasants Have in Common," 135-146; Harihar Acharya, "Jirel Property Arrangements and the Management of Forest and Pasture Resources in Highland Nepal," *Bulletin of the Institute for Development Anthropology* 7(2) (1989):16-25.

22 Due to the western Honduran topography and poor soils, 97 percent of the land in western Honduras is considered unsuitable for intensive agriculture. See Noé Pineda Portillo, *Geografía de Honduras* (Tegucigalpa: Editorial ESP, 1984), 109-110; Manuel Chavez Borjas, *Cómo Subsisten los Campesinos* (Tegucigulpa: Editorial Guaymuras, 1992), 54.

23 Anne Chapman, *Los Hijos del Copal y la Candela: Ritos Agrarios y Tradición Oral de los Lencas de Honduras Tomo I* (Mexico: Universidad Autonoma de Mexico, 1985), 15. Eric P. Hamp, "The Last Lenca," *International Journal of American Linguistics* 42, no.1 (1976):1243-1248; Lyle Campbell, Anne Chapman, and Karen Dakin, "Honduran Lenca," ibid. 44, no. 4 (1978): 330-332. Although the processes of conquest have profoundly transformed Lenca culture, the people continue to recognize certain beliefs and rituals that distinguish them from the ladino (dominant ethnic group) majority.

24 Anne Chapman, *Los Hijos del Copal y la Candela*; Alessandra Castegnaro de Foletti, *Alfarería Lenca Contemporanea de Honduras* (Tegucigulpa: Editorial Guaymuras, SA, 1989), 260-282; Mario Ardón Mejía, "Panorama de la Alfarería Tradicional de La Campa," *Folklore Americano* 48 (1989): 69-80.

25 Maria Concepcion J. Cruz, "Population Pressure, Deforestation, and Common Property Institutions: An Overview" (paper presented at the annual meeting of the International Association for the Study of Common Property, September 1991), 26-29; Robert McC. Netting, "Territory, Property and Tenure," in *Behavioral and Social Service Research: A National Resource*, eds. Robert Adams, Neil J. Smaller and Donald J. Treiman (Washington, D.C.: National Academy Press), 446-502; J.T. Thomson and C. Coulibaly, "Common Property Forest Management Systems in Mali: Resistance and Vitality Under Pressure," *Unasylva* 46, no. 1 (1995): 16-22.

26 McKean and Ostrom, 8; Jefferson Fox, "Forest Resources in a Nepali Villages in 1980 and 1990: The Positive Influence of Population Growth," *Mountain Research and Development* 13, no. 1 (1993): 89-98; Mary Tiffen, Michael Mortimore and Francis Gichuki, *More People, Less Erosion: Environmental Recovery in Kenya* (Chichester: John Wiley & Sons, 1992).

27 Catherine Tucker, "The Political Ecology of a Lenca Indian Community in Honduras: Communal Forests, State Policy and Processes of Transformation" (Ph.D. Dissertation: University of Arizona, 1996), 227-228.

28 Ibid., 91

29 La Campa Municipal Archives, *Actas* Vol. 5, Sesión ordinaria, February 15, 1930; ibid., August 1, 1930; *Actas* Vol. 25, Sesión ordinaria, February 1, 1964; *Actas* Vol. 10, Sesión ordinaria, April 15, 1937.

30 Interview of a La Campa council member, August 20, 1998; see also Catherine Tucker, "The Political Ecology of a Lenca Indian Community," 91.

31 Ibid., 230-232

32 La Campa Municipal Archives, *Actas* Volume 35, April 20, 1987.

33 Tucker, "Political Ecology of a Lenca Indian Community," 91

34 Observations of bimonthly council meetings, May 15 – June 1, 1995; interviews with La Campa residents and council officials, May 1995.
35 Observation of La Campa council meeting, November 1, 1993; interview with La Campa council member, November 3, 1993; results of open-ended forest perception questions in household surveys, January – July 1994. Also based on interviews with La Campa council members on October 17, 1993 and July 26, 1994, approximately 60 to 80 percent of the municipal land remains in forest.
36 McKean, "The Japanese Experience," 80. Research in La Campa Municipal Archives during April - July 1994 and May - June 1995, review of volumes 1 – 38 (1921 -1995).
37. AFE-COHDEFOR, *Analisis del Sub-sector Forestal de Honduras* (tegucigalpa: Graficentro Editores, 1996), 203.
38 La Campa Municipal Archives, *Actas* Vol. 14, Sesión ordinaria, August 15, 1944.
39 Catherine Tucker, "Private Versus Common Property Forests: Forest Conditions and Tenure in a Honduran Community," *Human Ecology* (forthcoming).
40 Interviews with La Campa council members, July 1997.
41 AFE-COHDEFOR, 171.
42 *La Prensa*, "Sobre la Propiedad Privada se Edifica la Economia Nacional" (January 29, 1997).
43 Interviews with COHDEFOR employees, Department of Lempira, August 1998.
44 AFE-COHDEFOR, 233.
45 Observations of bimonthly council meetings, October 1993 – June 1994, May – June 1995; particularly April 4, 1994.
46 Agarwal, 2-4.
47 T. Sandler, *Collective Action: Theory and Applications* (Ann Arbor: University of Michigan Press, 1992).
48 Jean-Marie Baland and Jean-Phillippe Plateau, "Wealth Inequality and Efficiency in the Commons, Part II: The Regulated Case," *Oxford Economic Papers* 50 (1998): 1-22.
49 McKean and Ostrom, 8.
50 Elinor Ostrom, "Self Governance of Common-Pool Resources," in *The New Palgrave Dictionary of Economics and the Law*, (London: MacMillan, forthcoming). A number of CP case studies have provided current understanding of the specific conditions that appear to support the formation and maintenance of CP. See endnote 21 for several studies indicating the context for successful CP. Ostrom, in her forthcoming "Self Governance of Common-Pool Resources," draws on case studies and theoretical propositions to arrive at key characteristics for resources and appropriators that appear important for CP.

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