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**Negotiated Autonomy:
Transforming Self-Governing Institutions for Local Common-Pool Resources
in Two Tribal Villages in Taiwan**

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Abstract

The current literature on common-pool resources suggests that appropriators' autonomy in determining access and harvesting rules is a pre-condition for successful local self-governance. Yet few studies have been done to examine how local communities that are faced with outside intrusion can regain such autonomy. This paper examines this issue by studying how two mountain tribal villages in Taiwan have attempted to rebuild their indigenous rules governing the use of their local stream fisheries. One village, Shan-Mei, has been more successful than another village, Li-Chia, in restoring its indigenous rules and fishery, because villagers in Shan-Mei were able to attain a negotiated autonomy by developing mutually beneficial relationships with external stakeholders.

Key words: negotiated autonomy, common-pool resources, fisheries, self-governance, Taiwan

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Introduction

Common-pool resources are defined as natural or humanly created resources that are large enough to be utilized by multiple actors, but one actor's use of the resource subtracts from what is available to others (Ostrom, 1990). Examples of common-pool resources include water systems, forests, grazing lands, fisheries, roads, and computer networks. These resources are susceptible to serious problems of overuse or degradation if no effective rules exist to regulate their appropriation and use, and potential appropriators are trapped in a "tragedy of the commons" in which every actor scrambles to appropriate the resources ahead of others (Hardin, 1968).

Two conventional recommendations for resolving these commons dilemmas have been either the imposition of government control or the development of private property rights (Ophuls, 1973; Demsetz, 1967). Yet, in the past two decades, a rapidly growing body of theoretical and empirical literature in the social sciences has demonstrated the importance of a third possibility. That is, many common-pool resources can be sustained more effectively by resource appropriators themselves through self-governance. Considerable knowledge is now available about what attributes of the resources, appropriators, and institutional development processes are associated with a higher likelihood of successful self-governing arrangements.¹

One such critical attribute is appropriators' autonomy "to determine access and harvesting rules without external authorities countermanding them" (Ostrom, 1997: 16). As shown by numerous case studies, appropriators are more likely than external authorities to develop access and harvesting rules that are appropriate to their own physical and social circumstances (Lam, 1998; Ostrom, 1992; Ostrom et al., 1994; Schlager et al., 1994; Tang, 1992). If external authorities, however, insist on imposing on the appropriators all governance and management decisions regarding a local common-pool resource, it will be more difficult for appropriators to sustain it. Appropriators' efforts to govern and manage their common-pool resources will also be frustrated if the rules they adopted for governing their resources are deemed illegal by external authorities.

Unfortunately, the erosion of autonomy for local self-governance is fast becoming a major challenge in many valuable common-pool resources worldwide. Local self-governing associations for many long-enduring common-pool resources such as local fisheries, forests, and water systems are challenged when the traditionally secluded local communities are open to the outside world and subject to interferences by outside authorities.

Numerous examples exist in which outside government entities attempted to exert their authority on forests and inshore fisheries that were formerly governed by local appropriators (Arnold and Campbell, 1988; Feeny, 1988; Thomson et al., 1992; Jodha, 1996; Dasgupta, 1982). These government entities often turned out to be less effective than local appropriators in governing these resources, and in some cases led to their ruin. In other cases, no direct attempt was made by external authorities to take control of the resource, but outsiders to the community began to make claims on the resource. Most of these outsiders no longer shared the same understanding of and respect for the indigenous access and harvesting rules, and to

¹ For various theoretical and empirical studies see Agrawal and Gibson, 1999; Belsky, 1999; Benjaminsen, 1997; Daly and Cobb, 1989; Faber, 1998; Gibson and Koontz, 1998; McDaniel, 1997; Ostrom, 1990; 1997; 1998; Ostrom et al., 1994; and Pooley and Townsend, 1998.

make things worse, activities by these outsiders were often considered legal by the larger political regime. Reckless appropriation by these newcomers often resulted in rapid depletion of the resource.

To restore sustainable uses for these resources, local residents can no longer assume the autonomy they traditionally enjoyed. When developing any new institutional arrangements for governing and managing the resource, these local appropriators need to take into account the constraints posed by their external political, social, and economic environments. While they will need to regain a considerable level of autonomy for making and enforcing access and appropriation rules, local appropriators can attain it only by actively interacting and negotiating with their larger institutional environments.

How can such local autonomy be attained? The existing literature provides no clear answer to the question. Many existing studies note that governing arrangements for most common-pool resources are nested, that is, a resource is simultaneously subject to rules set and enforced by multiple layers of governing regimes. Considerable knowledge has been accumulated about what strategies larger governing regimes can adopt to enhance the performance of those at the local level. It was, for example, shown that larger regimes can facilitate local self-organization by providing appropriators with scientific information about the resource, by providing a forum for conflict resolution between different communities of appropriators, and by granting legal recognition to indigenous rules (Blomquist 1992, Ostrom, 1997; Tang, 1992). Little, however, has been written about what strategies local governing regimes can adopt to seek necessary autonomy, recognition, and assistance from the larger regimes.

In an initial attempt to fill this gap in the literature, we examine the experience of Shan-Mei Village, a tribal mountain community in Taiwan. The village had been for hundreds of years reliant on a set of tribal norms for governing fishing activities in a nearby stream. The fishing norm, however, was challenged when the village was gradually opening up to the outside world a few decades ago. Outside visitors who shared no common norms with the indigenous villagers began to show up. Some of them began to catch fish by electrocuting them. Local residents found it difficult to patrol against these poachers, many of whom were armed and might actually attack the patrollers. As a result, fish in the stream became almost extinct.

About a decade ago, the situation was gradually turned around under the leadership of a local priest who had frequent contacts with the outside world. He successfully mobilized the joint efforts of fellow villagers in developing and enforcing new rules regarding access and harvesting in the fishery. These new rules were initially challenged by some outsiders who refused to recognize their legal standing. The villagers were able to prevail over these outsiders by obtaining support from the media and outside political authorities. They were also able to gain additional resources for the community by developing tourist attractions that are consistent with preservation of the fishery and the surrounding natural environment.

In the rest of this article, we document the evolution of the institutional arrangements for common-pool resource governance in Shan-Mei Village, focusing on the issue of local autonomy as a precondition for effective use. Next, we briefly discuss the experience of another mountain village in Taiwan, Li-Chia, which experienced similar outside intrusion into their local common-pool resources. The village, however, has been less successful in obtaining the necessary autonomy to transition to an effective governing regime for the resource.² In the concluding section, we examine how the two cases illustrate the role of negotiated autonomy in common-pool resource governance.

² In addition to relevant mass media reports and scholarly writings, we conducted intensive interviews with a variety of stakeholders in Shan-Mei and Li-Chia. In addition to the major leaders of both villages (including the Village Chiefs Mr. Kao in Shan-Mei and Mr. Yang in Li-Chia, the former Village Chief of Shan-Mei, Mr. An, and the General Executive of the Association for Community Development in Shan-Mei, Ms. Chuang), we also interviewed a principal of a local primary school (Ms. Pu), a policeman (Mr. Wen), a stream patroller (Ms. Wang), a grocery-shop keeper (Ms. Chuang), a local hotel owner (Ms. Chuang), and several anonymous tourists in either Shan-Mei or Li-Chia Village. Outside the villages, we

Transformations of Self-Governing Institutions in Shan-Mei

Shan-Mei Village is located in a mountainous region in south-central Taiwan. The village sits on the Danayiku Valley, with the Danayiku Stream (about 18 kilometers long) running through it. Residents of Shan-Mei Village (now around 650) mostly belong to a native tribe, named Tsuo (meaning “human” in its native language).³ Until about half a century ago, these tribal people (now only several thousand) had lived in isolation from the outside world, with their livelihood dependent on hunting and fishing, and growing millet and yam. Since they depended heavily on natural resources for a living, these people had a strong incentive to maintain these resources’ long-term viability (Bernard and Yong, 1997).⁴ They indeed had developed an elaborate set of local self-governing institutions that regulated their hunting and fishing activities.⁵

The village was governed by a clan (*aemana*). This clan consisted of four major united families (*ongo-no-emo*), each of which was made up of several families (*emo*) that were related to each other by blood or foster relations.⁶ The Danayiku Stream was once divided into four sections (called fishing grounds) that belonged to four different united families.⁷ Within each fishing ground, fish and shrimp were owned collectively by the united families. Harvesting was restricted to members of respective united families and to such instruments as forks and rods.

interviewed three officials in charge of the county's environmental (Mr. Lin), social (especially minority welfare, Mr. Tang), and cultural (Mr. Hsu) affairs respectively. We also had informal conversations with two senior local newspaper reporters, Mr. Hsieh of the *China Times* and Mr. Yeh of the *United Daily*.

³ The people of Tsuo, one of nine bigger mountain tribes in Taiwan, have physical features that are quite different from the majority Han population from Mainland China. Tsuo is also culturally quite different from other mountain tribes in Taiwan. There was not an integrated administrative body governing the entire tribe of Tsuo. The Tsuo people were governed by eight major sub-tribal divisions, *hosa*, which were actual political and administrative bodies with their respective Chieftains (*peogsi*) and Committees of Clan-Seniors as the highest decision-making apparatus. Under each *hosa*, there were clans (*aemana*). Each clan consisted of united-families (*ongo-no-emo*), which were in turn made up of several families (*emo*). After a century of plagues, wars, and intermarriages and assimilation with neighboring tribes, two *hosas* survived before such a primary governance structure was totally replaced by the modern administrative system in the 1950s. See Wang (1990).

⁴ Tsuo is unique among other mountain tribes in Taiwan, in terms of its cultural heritage in governing stream fishing. Most other tribes only emphasized the governance of hunting grounds.

⁵ For more details about these institutions, see Shan-Hai Wen-Hua Tsa-chih-She [Mountain and Sea Culture Magazine Company], 1995.

⁶ For example, the Wen family might adopt a foster son, Mr. Wang, who could later establish another member family within the same united families. Intermarriages within the same united-families were forbidden.

⁷ Interview record with Mr. Wen on Jan 24, 2000.

In special occasions such as festivals or times of food shortage, some families or the entire united families would fish collectively by using poisonous ivy to paralyze fish in specific segments of the stream. Ivy poison was ideal for preserving the fish stock from over-harvesting: The fisher would pick up the well-grown fish and leave behind the younger ones, which would come alive shortly after the effect of the poison faded away. In these harvesting activities, fishers had to fulfill some ritual requirements, which contributed to the governance of the commons. For instance, after harvesting, fishers had to leave some yams at the side of the stream to signal that mature fish were gone at that spot. Those who came afterward could take some of the yams as a compensation for not fishing at that particular spot.⁸ Further, when fishing activities took place near section boundaries, fishers were expected to spread some salt into the downstream flow, because salt was considered an effective antidote of ivy poisoning. By doing so they prevented possible disputes with families from other domains.

In addition to arrangements governing regular fishing activities, tribal norms also required broader coordination in preserving the fish stock across different sections. During dry or spawning seasons,⁹ clan seniors might announce a ban on fishing across different fishing grounds. In extraordinary circumstances when the fish stock was found to be depleting too fast, seniors of several clans might jointly announce a large-scale ban across different streams. Sometimes the ban could last as long as several years. In such cases, when the ban was eventually lifted, a big festival for collective fishing might be arranged. Fish harvested during the festival would be distributed to individuals based on their social status, age, and other criteria.¹⁰

Although violators of fishing rules were seldom punished harshly, they were subject to fines and in extreme cases, open castigation. Observance of rules governing fishing and other food gathering activities was also reinforced by the religious belief that there were gods governing various fisheries, hunting grounds, and arable lands. Under the watch of these gods, humans were supposed to take no more than what they needed, and they were obligated to respect natural laws of resource replenishment. Overall, self-governing institutions and religious belief had enabled the Tsuo people to sustain their fisheries and other natural resources effectively for generations.

Intrusion by Outsiders and the Ruin of the Local Fishery

⁸ Some interviewees mentioned that the yams would be chopped and spread into the stream as an antidote for ivy poisoning. Interview record with Mr. An, the former Village Chief, on Jan 24, 2000.

⁹ During the dry season the stream might dry up and become separated ponds in which fish are contained. In this situation, the fish can be caught easily.

¹⁰ Interview record with Ms. Chuang, the General Executive of Shan-Mei Association for Community Development, on Nov. 16, 1999; and interview record with Mr. An, the former Village Chief, on January 22, 2000. According to Chi (1999), an indigenous tribe in China's southern boarder, Miao, has retained a similar tradition called Fish-Killing Festival.

Crises emerged about three decades ago after transportation facilities to the mountainous region were improved, and restrictions on nonresident's entry were lifted.¹¹ After paved-roads to the region were completed in the 1970s, communities along the roads have increased their contacts with modern society and have developed closer ties with the urban economy. Better transportation, for example, enabled natives in the mountain communities to sell locally generated products to urban markets. From then on, fishing has been gradually transformed from being a subsistence to a commercial activity. The incentives for village residents to break self-governing rules increased dramatically.

What eventually led to a rapid collapse of the self-governing system, however, was not just an increased incentive for native residents to break the rules, but also the mass intrusion of urban visitors after the military had lifted entrance control to the mountainous region. The urban visitors started to explore this region for possible leisure activities such as hiking and fishing. These recreational activities generated new demands for stream fish, especially Kooye Minnow. Unfortunately, these new comers did not share the same governing rules or the same respect for preserving natural resources inherent in tribal traditions. The boundary rule of the tribal community became untenable because the indigenous people were no longer considered by the larger society the only legitimate users of the commons, and the right of local communities to enforce boundary rules was questioned by outsiders. These outsiders also brought in new technologies, which undermined traditional restrictions on fishing techniques. Rather than using rods, forks, or poisonous ivy, these outsiders began to use chemical poisons, electric shock, and dynamite to kill almost all living creatures in the stream. Though illegal, such reckless activities were hard for government authorities to crack down mainly because of a lack of government-employed patrollers.

Outsiders claiming their right to fishing basically played a one-shot-game in their harvesting activities: They worried neither the need for repeated interactions with other users, nor the long-term preservation of the resources. With quite different incentives from those of local residents, these outsiders would recklessly extract the resources by all means without suffering the negative impact of their activities. Local residents found it difficult to stop these destructive behaviors not only because their indigenous self-governing institutions were not recognized and supported by governmental regulations, but also because some of the outside visitors were themselves armed and prone to violence.

These outsider activities quickly caused the withdrawal of villagers' commitment to long-existing self-governing rules. Villagers themselves began to learn and apply all the new fishing techniques. As a result, the indigenous self-governing system collapsed and the fish stock in the stream was rapidly exhausted under the vicious harvesting competition among both outsiders and native residents. The central government intervened by enlisting one of the most highly demanded fish in the stream, Kooye Minnow, as an endangered species to be protected from catching, sale, and keeping. That effort, however, was proved to be futile mainly because of a lack of patrolling.

Grassroots Initiatives in Restoring and Renovating Indigenous Institutions

Although it was quite rational for individuals in the circumstance to react by joining the harvesting competition, the collective outcomes were disastrous. Once a beautiful and secluded place as described by its name, a land of providence,¹² the Danayiku Valley was soon left devastated, with the fisheries and other

¹¹ Another challenge against indigenous norms was the introduction of Christianity. When Christianity was gradually replacing the old value system, the traditional respect for natural resources waned and tribal control over individual behaviors was loosened. After some major leaders (including the tribe chieftain and several clan seniors) were converted to the monotheistic Christianity, they destroyed some important fetishes and abolished traditional rituals praising the guarding gods of fishing and hunting grounds. Consequently, the respect for wildlife associated with these gods was quickly diminished.

¹² The name originated from a legend that some tribal fellows ran away from plague and eventually survived by settling down in that valley. Interview record with Mr. Kao on Nov. 16, 1999.

natural resources mostly in ruin. Being angry about these disasters, a priest of the local church, Mr. Kao, started to mobilize a grassroots movement to try to reverse the conditions of various common-pool resources. In his opinion, the villagers should conduct a two-stage effort not only to control damages, but also to take advantage of the current situation by opening the valley further to the outside world. As he envisioned it, the first stage effort was to mobilize local collective efforts in preserving natural resources in the community. In the second stage, the restored resources, together with the natural scenery of the region, would become major tourist attractions.¹³

Mr. Kao believed that Shan-Mei Village could have unique educational value for the general public by restoring a sustainable stock of Kooye Minnow in the stream, thus creating a model for maintaining a harmonious relationship between humans and nature.¹⁴ He initiated such grassroots efforts by mobilizing his family members and churchgoers to re-nourish the famous Kooye Minnow. Their efforts involved two essential parts. First, they caught young fish from upstream and nourished them. To protect the nourished fish from being poached, Mr. Kao further proposed in 1989 to restore the fishing ban tradition in the Village Assembly. A village-wide consensus was eventually reached, stipulating a total fishing ban in the stream.

Although traditional experiences in fishing bans did help the Village Assembly to reach consensus, the enforcement of such a ban required more than that. The village had to meet the challenge of restoring a monitoring system to enforce it. It was, however, no longer possible for the tribal leaders to order individual villagers to patrol the stream, as their authority had been much eroded after the advent of modern government authorities into the region. Neither did the village have a budget for hiring patrollers. To cope with these problems, the village initiated a call for voluntary participation in patrolling the stream.

As argued by James Q. Wilson (1995), participation in voluntary associations may be supported by three types of incentives—material, solidary, and purposive. All three types appear to have played a role in this case. First, local residents at that time had been economically impoverished because of the social discrimination they suffered from the larger society and of the government preservation policy that prevented mountain communities from engaging in large-scale agricultural, industrial, or commercial activities. When hunting and fishing became a less reliable source of income, local residents started to grow and sell agro-forestry products such as bamboo shoots and timbers as sources of income. Some also found part-time jobs in the nearby tea farms or factories. Nevertheless, these sources of incomes were not only low but also unstable, because prices of these products could easily be manipulated by a few oligopolistic wholesalers and tended to fluctuate dramatically.¹⁵ A concrete plan to improve the local

¹³ While “tourism” was not a new idea for many poor mountain communities in Taiwan, few of them were able to develop it well, because capital financing has always been a major problem. The former Village Chief, Mr. An, originally suggested that the village invite private enterprises to construct theme parks in the area as a way to solve its economic problems. His proposal was not supported by either villagers or governmental agencies. Interview record with Mr. An on Feb. 22, 2000.

¹⁴ This idea of development coincides with the concept of “ecotourism” that combines the objectives of ecological conservation and tourism (for a discussion of related issues, see Benjaminsen, 1997; Young, 1999). Ecotourism becomes more feasible in Taiwan when more middle-class tourists seek to combine intellectual and recreational purposes in their trips to bucolic destinations.

¹⁵ Governmental efforts to improve household incomes in these mountainous areas were ineffective and environmentally controversial. Cultivation of fruits, betel nut, and wasabi (a spice for the Japanese food, Sashimi) on slope lands could be much more profitable for the indigenous people. Nevertheless, environmentalists are concerned about the negative effects of pesticide use and deforestation on soil erosion, mudslide, and water resource preservation. Under the protests of many environmental groups, the

economy by commercializing their conservation results was an attractive proposition for many local residents. In other words, the promise of *material incentives* in the form of improved economic opportunities was an inducement for the villagers' voluntary participation in patrolling the stream.

These material incentives alone would not have been a sufficient inducement for participation, because the temptation for free-riding on others' efforts still remained. *Solidary incentives* appear to have also played a role in this case. Since tight social networks had remained basically intact in the community, once the conservation movement had gained enough momentum and recognition from the villagers, solidary pressure began to emerge among them to treat the patrolling duty as a social obligation.¹⁶ Patrolling the stream had also become a popular social event in which friends accompanied each other to have fun together by the side of the stream. Eventually, all male villagers from 15 to 50 years of age participated in the patrolling efforts. With more than 70 available patrollers during the peak period, the burden of labor was so widely shared that the voluntary system became sustainable in the long run.

In addition to solidary incentives, a *purposive incentive*, the appeal of tribal pride, might also have contributed to sustaining the patrolling system. Partly due to the less favorable governmental policies toward tribal minorities and partly due to their perceived inferiority in social and economic status, residents of Shan-Mei, like many other indigenous tribal peoples in Taiwan, had long suffered from low self-esteem. A movement to restore the ecological system of the village offered an opportunity for tribal members to showcase their fine cultural heritage to the outside world. In addition, the movement's success would also help to prove tribal members' ability in self-reliance, and to restore their tribal pride.

Mobilizing collective action internally to enforce a fishing ban was only an initial step for healing the fishery. A greater challenge, however, was to overcome the resistance from outside. An unfortunate fact was that the villager's agreement on a fishing ban could apply only to the villagers themselves. No government laws or regulations actually gave legal standing to any of the self-governing arrangements adopted by the villagers. Without a proper legal status, the villagers faced serious challenges in trying to enforce their rules on outsiders.

Some informal measures were applied at the early stage. First, patrollers were trained to enforce rules in a more sophisticated manner. Moral persuasion was the major means for gaining compliance when fishing activities were spotted.¹⁷ Since visitors were there for fun, most of them would avoid trouble and take advise to leave. The village also recruited some local policemen, mountain rescuers, and forest rangers as volunteer patrollers. Even though these tribal fellows were only patrolling the stream off duty, their official status gave credibility to the enforcement system.¹⁸ Their training in public laws also enabled them to cite governmental regulations and policies that indirectly supported the local rules.¹⁹

government has been torn between protecting the environment and combating poverty of indigenous people.

¹⁶ A female patroller said in an interview that she gave up her job to become a full-time patroller (with minimal compensations) just because her friend registered for her, and she felt embarrassed to deny the responsibility. Interview record with Ms. Wang on Jan 24, 2000.

¹⁷ For example, the patroller would often inform the violators about the settlement history of the Tsuo people in that mountainous area and the traditional rights of these indigenous people to local resources.

¹⁸ These off-duty public servants would still be wearing their uniforms when patrolling the stream to maintain an image of authority. Later when the financial conditions of the village had improved, patrollers were provided with identifiable uniforms.

Nevertheless, some of the better-educated offenders did challenge the legal standing of the self-governing rules. For example, one off-duty police officer from the urban area argued fiercely for his right to rod-fish in the conservation area. After failing to persuade him to leave, Mr. Kao eventually forced him out by threatening to undertake a civil arrest. A wide public discussion about Shan-Mei's fishing ban ensued after the police officer called his reporter friend to reveal the incident in a newspaper, condemning the villagers' "barbaric" behaviors. Nevertheless, with public opinion mostly in favor of the villagers, the police officer was eventually forced by his superior to formally apologize for his rough manner to the villagers. Such episodes and the ensuing public discussion not only demonstrated the villagers' determination for self-governance, but also helped gain legitimacy for the local self-governing institutions from the larger society.

A key strategy for the village to gain public support in this matter was to commercialize their conservation efforts. One example of such commercialization efforts was the annual Kooye Minnow Festival, during which the fishery was open to the public. Outsiders were allowed to fish in the stream for a small fee.²⁰ In 1995, the village designated a certain portion of the valley to be Taiwan's first privately-managed ecology park, in which several endangered indigenous species, including the famous Kooye Minnow, had been successfully re-nourished. By paying a small entrance fee, visitors can hike along ancient hunting trails, watch fish in the stream, enjoy traditional dance shows, and taste various tribal foods. Incomes for the village grew substantially, as more visitors were attracted to the park. The village was subsequently able to hire full-time stream patrollers, and it was also able to develop programs to improve local infrastructure and various social services (such as scholarships, allowances for seniors, and marriage loans) for local residents. These activities further strengthened villagers' support of the conservation project.

Commercialization not only helped to build a stable financial source for further conservation efforts, it also helped to reduce the suspicion by the outside world about villagers' exclusive control over such publicly-owned natural resources as Kooye Minnow. Through a series of promotion programs, the villagers rigorously publicized their intention and efforts to the outsiders. First, the village's commercial activities and media exposures raised the public's attention to the Tsuo people's distinctive culture and tradition, affirming that the tribe had settled in this mountainous region long before any one else. Such a fact reasonably implies that their indigenous institutions should be respected. Widespread recognition of the self-governing right of native residents has been a major source of legitimacy for their locally initiated rules.

Second, the commercial activities launched by the village, which often included rich images about the cultural heritage and conservation efforts of the Tsuo people, helped to create a positive image for the tribe. Many private enterprises, which were eager to build a green reputation, offered to sponsor conservation activities in the valley.²¹ The mass media was also interested in reporting legendary stories about the tribe to the general public.

¹⁹ For example, after the central government stipulated Kooye Minnow as an endangered species later, it became illegal to catch it.

²⁰ The government's ban on keeping, catching, and selling Kooye Minnow was lifted after the initial success of Shan-Mei's re-nourishing efforts, by which the stock of the fish had become large enough to be safe from extinction.

²¹ For example, the 7-Eleven Convenience Stores and the China Times Foundation had sponsored the Festival for several years.

Third, commercialization also offered more opportunities for outsiders to access the fishery, and thus reducing outside resistance to the villagers' fishing ban. By providing the general public with reasonable ways to access local resources, the local community formed a tacit, fiduciary relationship with the larger society in guarding the natural resources. Such an implicit understanding essentially resolved the legitimacy problem of local self-governing arrangements. It also provided a way of linking local self-governing arrangements with broader market institutions.

Another informal source of legitimacy for the village was the acknowledgement of its conservation achievement by the central government. After receiving the "Paragon for Preserving Ecology" award from the Council of Agricultural Affairs²² in 1992 and several subsequent awards and block grants from the central government, Shan-Mei has consolidated its nationwide reputation as a model of community-based governance of natural resources. For many, these awards and supports also signify an encouraging attitude of the central government towards grassroots conservation projects, a change made possible by the democratization of the larger political system during the same period (Tang and Tang, 1997).

Challenges for Transforming Self-Governing Institutions in Li-Chia

The experience of Li-Chia Village poses an interesting contrast to Shan-Mei. Li-Chia is another village of the Tsuo people, located near Shan-Mei, with the Li-Chia Stream running through it.²³ Suffering from very similar common-pool resource problems, villagers of Li-Chia started their conservation efforts (on Kooye Minnow) even earlier than Shan-Mei. Their rescue effort was initiated by Mr. Yang who, after spending several years in the urban area, returned to the village about a decade ago to find out that visitors had destroyed the local ecological system, with garbage replacing fish in the stream. Mr. Yang advocated a motion in the Village Assembly to restore such traditions as fishing bans and an enforcement system in which adult villagers took turns to patrol the stream against fishing.

Almost an identical story as Shan-Mei, collective action was successfully mobilized to implement a fishing ban partly because of the tight social relationships in the indigenous community, where tribal members share the common goals of improving their living standards and restoring tribal dignity.²⁴ What

²² Council of Agricultural Affairs is a cabinet-level agency in charge of agricultural, fishery, forestry, and conservation affairs.

²³ Except for a smaller population in Li-Chia (now about 350), the length of its major stream (Li-Chia Stream) and many other socio-economic conditions of Li-Chia are very similar to those of Shan-Mei. The difference in population sizes is less a cause than a consequence of their conservation movements. In Shan-Mei, the population has grown larger in recent years because the younger generation began to return from the urban area once local job opportunities had increased with the success of ecotourism. In contrast, Li-Chia did not have a similar experience.

²⁴ An interviewee, Mr. Tang (Deputy Chief of the Social Welfare Bureau in the County Government) commented that the quality of leadership made a difference in the two cases. In the case of Shan-Mei, Mr. Kao was good at providing visions and at mobilizing collective efforts internally. In addition, the Wen family, whose members occupied several key cadre positions in the community, has been very effective in attracting external resources for local projects. Mr. Tang praised these leaders in Shan-Mei for their heading ecotourism projects that are compatible with governmental policy. In contrast, Mr. Yang as the major leader of Li-Chia, did not offer such visions for his fellow-villagers. Interview record with Mr. Tang on Jan 26, 2000.

made Li-Chia different from Shan-Mei, however, was that residents in Li-Chia had a stronger sentiment against any form of outside intrusion.²⁵ Little efforts were made by them to relate their self-governing system to its larger institutional environments, nor was there any systematic communication between them and other outside stakeholders. In other words, they maintained a simple intention of restoring indigenous institutions, but neglecting possible conflicts with the outside world.

One recent incident illustrates the insensitivity of Li-Chia residents toward possible conflicts with the outside world. Several urban youngsters went down the stream shore nearby Li-Chia and were caught fishing on the spot by some native patrollers. According to the village's self-governing rules, poaching was subject to a huge fine to be collected by the Village Office. Refusing to pay the fine, these youngsters argued with the patrollers intensely while the patrollers called for backup by radio. Upon arrival, many armed villagers surrounded the youngsters and forced them to pay the fine, at least at a discounted rate. These youngsters yielded to the threat but later reported to the police station for "being robbed" and revealed the incident to the media. Confirming that the villagers had no right in collecting such a fine against non-villagers, the Village Chief later had to refund the money and apologize openly to the youngsters in order to settle the case.

Such incidents repeated several times in the past several years, revealing Li-Chia's failure to acknowledge the need to negotiate its autonomy with the outside world. Unlike Shan-Mei, there were almost no commercial activities in Li-Chia.²⁶ Its self-governing arrangements were largely unknown to the larger population, many of whom could be quite hostile to such secluded ways of conservation. Although the success of Shan-Mei could have made similar efforts in Li-Chia more understandable by the general public, Li-Chia's indigenous institutions have yet to attain full support from the larger society. A close-door policy ignoring the need to integrate indigenous rules into the larger institutional environments has made Li-Chia a less successful case.²⁷

Discussion and Conclusion

The case of Shan-Mei illustrates that grassroots movements in restoring indigenous institutions can be an effective way for preserving common-pool resources. In contrast to Shan-Mei's bottom-up approach in preserving Kooye Minnow, a parallel effort has been undertaken by the central government to preserve Taiwan trout (*Oncorhynchus Masou Formosanus* or Formosan Landlocked Salmon) in the mountainous region in central Taiwan. Although the government had spent millions of dollars to build research centers, to organize patrolling teams, and to establish preservation areas, the achievement has been less remarkable. The fish stock has remained small and the species is still endangered after almost two

²⁵ Unlike the Shan-Mei Valley which has only one major entrance, Li-Chia has several outlets for visitors to access to the stream. This makes the patrolling job in Li-Chia much more difficult, and may have led to a harsher attitude toward intruders. Interview record with Mr. Wen on Jan. 24, 2000.

²⁶ Recently Li-Chia has also tried to attract tourists by opening specific sections of the stream for recreational fishing.

²⁷ Li-Chia might not have been a failure in terms of mobilizing collective efforts to restore a sustainable stock of Kooye Minnow. Nevertheless, its achievement is precarious because the recurrence of conflicts with outsiders may ultimately undermine local authority over the commons. Further, its voluntary patrolling system has encountered various problems. For example, the opportunity costs for volunteers have been very high, because many patrollers had to give up their jobs necessary for earning a living for the whole family. Without external support, it is unclear for how long the patrolling system will remain self-sustainable. Finally, Li-Chia has also been inferior to Shan-Mei in terms of improving the local economy, in raising tribal dignity, and maybe in promoting environmental awareness of the public.

decades of preservation efforts. Some argued that the lack of indigenous governing institutions and the apathy of local residents were the major reasons for the failure of these governmental efforts (Lin Yi-Ren, 1998).

For local residents to govern their common-pool resources more effectively, it is often easier to restore and adjust indigenous institutions than to set up brand-new ones. Since community members are familiar with traditional rules, they tend to be receptive to their restoration, as shown in both the cases of Shan-Mei and Li-Chia. The key challenge, however, is to overcome the problems that had originally caused the demise of the indigenous institutions. In both cases, in addition to socio-economic changes within the community, a major cause for the failure of the original institutions was the mass intrusion of outsiders into the previously exclusive community. Being unable to enforce the boundary rule (controlling who had the right to access the resources) and the technology rule (controlling the techniques for harvesting resources), the local community failed to govern the local resources effectively. In an attempt to restore the viability of their self-governing institutions, residents in Shan-Mei were successful not only in organizing collective action among themselves, but in gaining recognition and support from the larger social and political regimes. The experience of Shan-Mei contrasts with that of Li-Chia, which has failed to attain a negotiated autonomy.

In many countries that are faced with serious environmental problems, there is not a strong tradition of home rule as in the United States. In these countries, it is less feasible for individual communities to obtain autonomy for governing the commons by advocating a nationwide legislation supporting local empowerment. Our two cases, however, show that it is possible for communities to negotiate for such autonomy in less formal manners. First, although commercialization may not be a good approach for preserving many forms of natural resources, in the special circumstances of Shan-Mei, it turned out to be an effective way for the local community to gain public supports, legitimacy of their conservation efforts, and eventually partial autonomy for self-governance of the commons. In this case, commercial activities create gains for almost all stakeholders—local residents, private enterprises, the mass media, tourists, and even local politicians who can claim credit for supporting ecological festivals. With the convergence of interests from more and more stakeholders, an advocacy coalition (Sabatier and Jenkins-Smith, 1993) is in place to support the community's self-governing arrangements.

Second, open communication is important for creating mutual trust between local residents and the larger population. In the case of Shan-Mei, mass media reports and commercial activities by the village helped to educate the public about its distinctive tribal culture, its tradition for wildlife preservation, and its voluntary efforts to re-nourish Kooye Minnow, thus reducing the public's suspicion about the village's attempt to "enclose public lands for private gains." Such understandings have also made the public more willing to acknowledge the villagers' right for self-governance, thus enhancing the legitimacy of indigenous rules. The case of Li-Chia, in contrast, illustrates how a failure to communicate with the outside world may undermine the viability of indigenous rules.

Finally, Shan-Mei residents did not entirely close off the local commons to the outside world. Instead, it controlled access to them through small entrance fees and temporary fishing licenses. Since outsiders were given reasonable means to access the resources, they were more receptive to indigenous rules developed by the villagers. Further, by accepting entrance fees from the public, Shan-Mei residents are now considered as agents for managing common-pool resources on behalf of the larger society.

Shan-Mei's experiences may not be readily replicable in other communities. Many communities that are faced with common-pool resource problems, for example, are located in regions without a great potential for ecotourism. What works for Shan-Mei may not work for other communities. Yet the cases of Shan-Mei and Li-Chia do illustrate the importance of adapting indigenous institutions to changes in the surrounding world. Local communities must solve not only collective action problems within the community, but also obtain trust, recognition, and support from the outside world in order to sustain their self-governing regime.

As argued by Ostrom (1998), most “tragedies of the commons” can be coped with only by a polycentric governance system, in which multiple governing units function simultaneously at varying scales. In such a system, local governing unit must attain considerable autonomy in setting and enforcing rules, such that mutually productive relationships among members of the unit can be maintained. Yet self-governing arrangements at the local unit are sustainable in the long run only if they are not in conflict with larger communities of interests. Patterns of reciprocity must exist not just among members within the local governing unit, but also between the local unit and other larger governing entities (Oakerson, 1988). Our research is a step toward learning more about the array of strategies a community can adopt to maintain such patterns of reciprocity and to achieve a negotiated autonomy for governing local common-pool resources.

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