

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

Ching-Ping Tang<sup>1</sup> and Shui-Yan Tang<sup>2</sup>

---

*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 the other village, Li-Chia, in restoring self-governance in fishery conservation. Shan-Mei's relative success is explained by its villagers' willingness and ability to develop mutually beneficial relationships with external stakeholders and to attain a negotiated autonomy from the larger society.*

---

**KEY WORDS:** negotiated autonomy; common-pool resources; fisheries; Taiwan.

### 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

<sup>1</sup>Department of Political Science, National Chung Cheng University, Min-Hsiung, Chia-Yi, 621, Taiwan, ROC. e-mail: polcpt@ccu.edu.tw.

<sup>2</sup>School of Policy, Planning, and Development, University of Southern California, Los Angeles, CA 90089-0626. e-mail: stang@usc.edu.

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 (Demsetz, 1967; Ophuls, 1973). 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 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.<sup>3</sup>

One such critical attribute is appropriators' autonomy "to determine access and harvesting rules without external authorities countermanding them" (Ostrom, 1997, p. 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). 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 interference 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 & Campbell, 1986; 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. In some cases, outside government entities attempted to impose new management systems in these resources, which turned out to be incompatible with the social and economic circumstances of the local communities. Rapid deterioration of the resource began once the traditional governing arrangements broke down, and the new management system failed to effectively regulate appropriation activities.

<sup>3</sup>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.

In other cases, no attempt was made by external authorities to take direct 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 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 use of 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, 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 gradually opened up to the outside world a few decades ago. Outside visitors who shared no common norms with the indigenous villagers began to appear and some 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 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, but the villagers were able to prevail 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 consistent with preservation of the fishery and the surrounding natural environment.

In the remainder 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 local common-pool resources. The village, however, has been less successful in obtaining the necessary autonomy for transition to an effective governing regime for the resource.<sup>4</sup> In the concluding section, we examine how the two cases illustrate the role of negotiated autonomy in common-pool resource governance.

## **TRANSFORMATIONS OF SELF-GOVERNING INSTITUTIONS IN SHAN-MEI**

Shan-Mei village is located in a mountainous region in south-central Taiwan. The village sits in the Danayiku Valley, with the Danayiku Stream

<sup>4</sup>Since no scholarly work on the two villages had been published before, we relied mainly on relevant media reports and face-to-face interviews in our research. In our fieldwork, we selected interviewees by "snowball sampling" (McCall & Simmons, 1969). We first identified key stakeholders in Shan-Mei and Li-Chia by studying media reports. Then we interviewed these key stakeholders to get further details of major events. To verify the statements made by these interviewees and to correct possible bias, we further conducted face-to-face interviews with as many other stakeholders as possible who were mentioned by our first-round interviewees. After these two rounds of face-to-face interviews, we tried to reconcile any conflicting statements by conducting additional face-to-face or telephone interviews. We also interviewed some villagers we met on the street to verify the information from our earlier interviewees and for villagers' attitudes, understandings, and opinions toward the conservation efforts. In addition to the major leaders (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. Outside the villages, we interviewed three officials in charge of the county's environmental (Mr. Lin), social (especially minority) welfare, (Mr. Tang), and cultural affairs (Mr. Hsu). We also had informal conversations with two senior local newspaper reporters, Mr. Hsieh of the *China Times* and Mr. Yeh of the *United Daily*. This research began in May 1999, and will continue until July 2001. Most interviews mentioned in this paper were conducted before June 2000. Additional information about the two villages can be found in the Master's Thesis by Lu Chia-Hong (2000), who participated in many of these interviews.

(about 18 kilometers long) running through it. Residents of Shan-Mei village (now around 650) mostly belong to a native tribe, the Tsuo (meaning “human”).<sup>5</sup> Until about 50 years 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, these people had a strong incentive to maintain these resources’ long-term viability (Bernard & Young, 1997),<sup>6</sup> and as we shall discuss later, the villagers had indeed developed an elaborate set of local self-governing institutions that regulated their hunting and fishing activities.<sup>7</sup>

The village was governed by a clan (*aemana*) that 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.<sup>8</sup> The united family was once the major unit within which members fished, hunted, and grew crops together. The Danayiku Stream was once divided into four sections (called fishing grounds) that belonged to the four major united families.<sup>9</sup> 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.

On special occasions such as festivals, or at times of food shortage, some families or 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 recover after the effect of the poison wore off. For these harvesting activities, fishers

<sup>5</sup>The people of Tsuo, one of nine larger mountain tribes in Taiwan, have physical features that are quite different from the majority Han population from mainland China. Tsuo are also culturally quite different from other mountain tribes in Taiwan. The Tsuo 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, intermarriages, and assimilation with neighboring tribes, two *hosas* survived before the primary governance structure was totally replaced by the modern administrative system in the 1950s. See Wang (1990).

<sup>6</sup>The Tsuo are unique among mountain tribes in Taiwan, in terms of cultural heritage in governing stream fishing. Most other tribes only emphasized the governance of hunting grounds. Nevertheless, as for other mountain tribes, fish was not a reliable source of food so Tsuo also relied on field crops and wild animals in the forest.

<sup>7</sup>For additional details of these institutions, see Shan-sai Wen-hua Tsa-chih-she [Mountain and Sea Culture Magazine Company], 1995.

<sup>8</sup>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.

<sup>9</sup>Interview with Mr. Wen, Jan 24, 2000.

had to fulfill some ritual requirements that 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.<sup>10</sup>

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,<sup>11</sup> 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.<sup>12</sup>

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

### **Intrusion by Outsiders and the Ruin of the Local Fishery**

Crises emerged about 30 years ago after transportation facilities to the mountainous region were improved, and restrictions on non-resident entry

<sup>10</sup>Since no one was supposed to take all the yams at one time, subsequent latecomers could still have a share of the yams. Some interviewees mentioned that the yams would be chopped and spread into the stream with salt as an antidote for ivy poisoning. Although this practice had a long tradition, we are not aware of any scientific proof of its effectiveness. The enforcement of these largely normative guidelines was not an easy task. Nevertheless, social cohesion and authority from the clan elders helped maintain such a tradition. Interview with Mr. An, the former village chief, Jan 24, 2000.

<sup>11</sup>During the dry season the stream might dry up and become separated ponds. In this situation, catching fish becomes so easy that the fishery can be easily depleted.

<sup>12</sup>Interview with Ms. Chuang, the General Executive of Shan-Mei Association for Community Development, Nov. 16, 1999; and interview with Mr. An, the former village chief, on January 22, 2000. According to Chi (1999), an indigenous tribe on China's southern border, Miao, has retained a similar tradition, called Fish-Killing Festival.

were lifted. After paved roads to the region were completed in the 1970s, communities along the roads increased their contacts with modern society and 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. Fishing was gradually transformed from a subsistence to a commercial activity, and 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 the increased incentive for native residents to break the rules, but also the mass intrusion of urban visitors after the military lifted entry 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 newcomers 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 as 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 on mainly because of a lack of government-employed patrollers.

Outsiders claiming the right to fish worried about 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 outsiders were armed and prone to violence.

These outsider activities quickly caused the withdrawal of villagers' commitment to long-standing self-governing rules. Villagers themselves began to learn and use 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 residents. Although the central government formally enacted the Wildlife Conservation Law in 1989 to prohibit fishing by chemical poisons,

electric shock, and dynamite,<sup>13</sup> the Law failed to reverse the trend because of a lack of enforcement.

### **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, the Danayiku Valley was soon left devastated, with the fisheries and other natural resources mostly in ruin. Angry about these disasters, a local priest, Mr. Kao, started to mobilize a grassroots movement to try to reverse the destruction of the common-pool resources.

This grassroots movement for natural resource preservation can also be seen as part of the larger “ethnic identity movement” by indigenous peoples, which began around the mid-1980s,<sup>14</sup> protesting the social stigma imposed on them by the majority Han people,<sup>15</sup> as well as various social problems in their communities believed to be caused by discriminatory policies.<sup>16</sup> Although the movement had limited success in creating more favorable governmental policies, it helped strengthen the self-consciousness of the indigenous people and encourage them to improve their economic conditions and social status by their own efforts. Under this self-help ethos, Mr. Kao proposed plans to revitalize his homeland. As he envisioned it, the first stage 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.<sup>17</sup>

<sup>13</sup>Article 19 of the Wildlife Conservation Law.

<sup>14</sup>In the mid-1980s, Taiwan was at the initial stage of its democratic transition. Many social movements emerged as the ruling party loosened its control (Tang & Tang, 1997) involving many causes—anti-nuclear power, consumer protection, veteran’s pension, campus democracy, farmers’ welfare, compensating pollution victims, as well as ethnic identity of indigenous people (Shu & Sung, 1992).

<sup>15</sup>For an empirical study on the biased images of mountain aborigines, see Fu, 1994.

<sup>16</sup>For example, the segregation policy originating from the Japanese colonial era had caused poverty and low self-esteem in the indigenous communities, which in turn led to many other problems, among them child prostitution, extinction of aboriginal culture and heritage, and aboriginal xenophobia against the mainstream Han society. In an attempt to address these problems, several intellectuals with minority backgrounds started a movement seeking self-determination for aboriginal communities (Shu, 1992).

<sup>17</sup>While “tourism” was not a new idea for many poor mountain communities in Taiwan, lack of capital financing meant few of them were able to develop it well. 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 with Mr. An, Feb. 22, 2000.



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.<sup>18</sup> He initiated such grassroots efforts by mobilizing his family members and churchgoers to restore the famous Kooye Minnow. Their efforts involved two essential parts. First, they collected young fish from upstream and fed them. And to protect the fish from being poached, in 1989 Mr. Kao further proposed the restoration of the fishing ban tradition in the Village Assembly. A village-wide consensus was eventually reached for a total fishing ban in the stream.

Although traditional experience in fishing bans did help the Village Assembly to reach consensus, the enforcement of such a ban required more. The village had to meet the challenge of restoring a monitoring system to enforce the ban. 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. Nor 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 appear to have played a role in this case. First, local residents at that time had been economically impoverished because of both the social discrimination they suffered and 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. 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.<sup>19</sup> A concrete plan to improve the local

<sup>18</sup>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.

<sup>19</sup>Government efforts to improve household incomes in these mountainous areas were ineffective and environmentally controversial. Cultivation of fruits, betel nut, and wasabi (a spice for 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 government has been torn between protecting the environment and combating poverty of indigenous people.

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 be essential in the process. 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.<sup>20</sup> 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 self-reliance, and restore tribal pride.

Mobilizing collective action internally to enforce a fishing ban was only an initial step for healing the fishery. A greater challenge was to overcome the resistance from outside. The unfortunate fact was that the villagers' 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 they adopted. Without proper legal support, 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.<sup>21</sup> Since visitors were there for fun, most of them would

<sup>20</sup>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 with Ms. Wang, Jan 24, 2000.

<sup>21</sup>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.

avoid trouble and heed advice to leave. The village also recruited some local policemen, mountain rescuers, and forest rangers as volunteer patrollers. Even though they were only patrolling the stream off-duty, their official status gave credibility to the enforcement system.<sup>22</sup> Their training in public laws also enabled them to cite governmental regulations and policies that indirectly supported the local rules.<sup>23</sup>

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 journalist friend to report the incident in a newspaper, condemning the villagers' "barbaric" behavior. 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, for example, the annual Kooye Minnow Festival, during which the fishery was open to the public, and outsiders were allowed to fish for a small fee. In 1995, the village designated a certain portion of the valley as Taiwan's first privately managed ecology park, in which several endangered indigenous species had been successfully restored. For 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 outside suspicion

<sup>22</sup>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.

<sup>23</sup>In addition to numerous minor quarrels, about 12 serious confrontations occurred between intruders and villagers in the past decade. Interview with Ms. Chuang, the General Executive of Shan-Mei Association for Community Development, June 30, 1999. In less serious situations, the patrollers could cite relevant laws such as the Fishery Law (Article 48) to stop fishing activities by intruders.

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 exposure raised the public's attention to the Tsuo people's distinctive culture and traditions, affirming that the tribe had settled in this mountainous region long before anyone else. 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 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.<sup>24</sup> The mass media was also interested in reporting legendary stories about the tribe to the general public.

Third, commercialization also offered more opportunities for outsiders to access the fishery, 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 Affairs 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 on the part 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 & Tang, 1997, 1999).

### **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 Tsuo village, located near Shan-Mei, with the

<sup>24</sup>For example, the 7-Eleven Convenience Stores and the China Times Foundation sponsored the Festival for several years.

Li-Chia Stream running through it.<sup>25</sup> Suffering from similar common-pool resource problems, the villagers of Li-Chia started their conservation efforts (on Kooye Minnow) even earlier than Shan-Mei.<sup>26</sup> Their rescue effort was initiated by Mr. Yang who, after spending several years in the urban area, returned to the village about ten years ago to find that the local ecological system had been destroyed, with garbage replacing fish in the stream. Mr. Yang put forward a motion in the Village Assembly to restore traditions such as fishing bans and an enforcement system in which adult villagers took turns to patrol the stream.

As in 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.<sup>27</sup> What made Li-Chia somehow different from Shan-Mei, however, was that its residents had a stronger sentiment against any form of outside intrusion.<sup>28</sup> Few efforts were made 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, while neglecting the potential for conflicts with the outside world.

One recent incident illustrates how unaware Li-Chia residents were of possible conflicts with the outside world. Several urban youngsters were caught fishing by some native patrollers. According to the village's

<sup>25</sup>Except for a smaller population in Li-Chia (now about 350), the length of its major stream and many other socio-economic conditions are very similar to those of Shan-Mei. The difference in population sizes might be 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 and living conditions improved with the success of ecotourism.

<sup>26</sup>Conservation efforts of the two villages were initiated separately although they are very close geographically. There is a trail of 15 kilometers connecting the two valleys.

<sup>27</sup>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 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 with Mr. Tang, Jan 26, 2000.

<sup>28</sup>Unlike the Shan-Mei Valley, which has only one major entrance to the valley, Li-Chia has several entrance points for visitors to access the stream. This makes the patrolling job in Li-Chia much more difficult, and may have led to a harsher attitude toward intruders. Interview with Mr. Wen, Jan 24, 2000. A harsher attitude may also be a result of the isolated location of Li-Chia. In contrast to Shan-Mei, which is located in the middle of a county road leading to other villages, Li-Chia is located at the very end of a road, making the village even more isolated from the outside world. This isolation might have created a stronger feeling of marginalization and victimization among the villagers.

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 fiercely with the patrollers who 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. The youngsters yielded to the threat, but later reported to the police station that they were “robbed,” and revealed the incident to the media. Confirming that the villagers had no “authority” to collect such a fine from non-villagers (who are not subject to the ruling of the Village Assembly), the Village Chief later settled the case by refunding the money and apologizing openly to the youngsters.

This incident aroused divided responses from the mainstream society. Some sympathized with the villagers’ conservation efforts and condemned the government for not empowering them to manage their local fishery and other natural resources. Others argued from a legal perspective and criticized the “barbaric” misconduct of those aborigines who abused their privilege of keeping hunting rifles.<sup>29</sup>

Confrontations with outsiders have occurred several times in the past several years, revealing Li-Chia’s reluctance to adjust its institutions to the larger society and to negotiate its autonomy with the outside world in a more sophisticated manner. This reluctance may partly be caused by the aborigines’ unpleasant encounters with the Han society in the past. The recent “ethnic identity” movement might also have strengthened the villagers’ resolve to control their own fate.

Since there were almost no commercial activities in Li-Chia,<sup>30</sup> its self-governing arrangements were largely unknown to the larger population. Although the success of Shan-Mei could have made similar efforts in Li-Chia more understandable to the general public, Li-Chia’s indigenous institutions have yet to attain full support from the larger society. From a political perspective, a closed-door policy ignoring the need to integrate indigenous rules into the larger institutional environments has made Li-Chia a less successful case.<sup>31</sup>

<sup>29</sup>Guns, rifles, and all kinds of weapons are under tight government control in Taiwan. The mountain indigenous people, however, are allowed to register their rifles for hunting.

<sup>30</sup>Recently Li-Chia has also tried to attract tourists by opening specific sections of the stream for recreational fishing. One may argue that its unfavorable location and access has made it harder for Li-Chia to commercialize its natural resources.

<sup>31</sup>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 may be in promoting the public’s environmental awareness.

## 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 to 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 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, 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 new ones. Since community members are familiar with traditional rules, they tend to be receptive to their restoration, as shown in the cases of both 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 socioeconomic 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 nationwide legislation supporting local empowerment. Our two cases, however, show that it is possible for communities to negotiate for such autonomy in a less formal manner. 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 & 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, 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 restore 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 to 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. 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, the 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 level 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.

## ACKNOWLEDGMENTS

Research for this article was supported in part by grants from the National Science Council (in Taiwan) and the Chiang Ching-Kuo Foundation for International Scholarly Exchange. We thank the useful comments by Dr. Gisli Pálsson and anonymous reviewers. We also thank Lu Chia-Hong for his assistance in field research.

## REFERENCES

- Agrawal, A., and Gibson, C. C. (1999). Enchantment and Disenchantment: The Role of Community in Natural Resource Conservation. *World Development* 27(4): 629–649.
- Arnold, J. E. M., and Campbell, J. G. (1986). Collective Management of Hill Forests in Nepal: The Community Forestry Development Project. In National Research Council, *Proceedings of the Conference on Common Property Resource Management*, National Academy Press, Washington, DC.
- Belsky, J. M. (1999). Misrepresenting Communities: The Politics of Community-Based Rural Ecotourism in Gales Point Manatee, Belize. *Rural Sociology* 64(4): 641–666.
- Benjaminsen, T. A. (1997). Natural Resource Management, Paradigm Shift, and the Decentralization Reform in Mali. *Human Ecology* 25(1): 121–143.
- Bernard, T., and Young, J. (1997). *The Ecology of Hope: Communities Collaborate for Sustainability*. New Society Publishers, Gabriola Island, BC.
- Blomquist, W. (1992). *Dividing the Waters: Governing Groundwater in Southern California*. ICS Press, San Francisco, CA.
- Chi, Chiang-Hung. (1999). Ching-hsui-chiang Pan Sha-yu-chieh [Fish-Killing Festival on the Shore of Ching-Hsui River]. *Ta-ti [The Earth-Geographic Monthly]* 140: 132–143. (In Chinese)
- Daly, H. E., and Cobb, J. B. Jr. (1989). *For the Common Good: Redirecting the Economy toward Community, the Environment, and a Sustainable Future*. Beacon Press, Boston, MA.
- Dasgupta, P. (1982). *The Control of Resources*. Harvard University Press, Cambridge, MA.
- Demsetz, H. (1967). Toward a Theory of Property Rights, *American Economic Review* 62: 347–359.
- Faber, D. (1998). *The Struggle for Ecological Democracy: Environmental Justice Movement in the United States*. The Guilford Press, New York.
- Feeny, D. (1988). Agricultural Expansion and Forest Depletion in Thailand, 1900–1975. In Richard, J. F., and Tucker, R. P. (eds.), *World Deforestation in the Twentieth Century*. Duke University Press, Durham, NC.
- Fu, Yang-Chi. (1994). Taiwan Han-ren tui Yuan-chu-min She-ching-kun-ching de Ko-ren-kuei-yin Yu Chieh-kou-kuei-yin [Personal and Structural Attribution of Mountain Aborigines' Socio-economic Difficulty by Taiwan's Han People]. In Yi, Chin-Chun (ed.), *Taiwan Min-chung te She-hei-yi-hsiang [The Social Image of Taiwan: Social Science Approaches]*. Academia Sinica, Taipei.

- Gibson, C. C., and Koontz, T. (1998). When 'Community' is Not Enough: Institutions and Values in Community-Based Forest Management in Southern Indiana. *Human Ecology* 26(4): 621–647.
- Hardin, G. (1968). The Tragedy of the Commons. *Science* 162: 1243–1248.
- Hsu, Mu-Chu. (1992). Taiwan Yuan-chu-ming te Tsu-chun-ren-tung Yuan-tung [The Tribal Identity Movement of Taiwan's Aborigines]. In Shu, Cheng-Kuan and Sung, Wen-Li (eds.), *Taiwan Shin-shing She-hui-yun-tung* [Taiwan's Emerging Social Movements]. Chu-Liu, Taipei. (In Chinese)
- Jodha, N. S. (1996). Property Rights and Development. In Hanna, S. S., Filke, C., and Maler, K. G. (eds), *Rights to Nature*. Island Press, Washington, DC.
- Lam, W. F. (1998). *Governing Irrigation Systems in Nepal: Institutions, Infrastructure, and Collective Action*. ICS Press, San Francisco, CA.
- Lin, Yi-Ren. (1998). *Yin-cheng te Lieh-ren* [A Hunter Drinking Poison]. Yuan-tsun Wen-hua, Taipei. (In Chinese)
- Lu, Chia-Hong. (2000). She-chu-yin-tsoai Yong-shu-fa-chan Chung te Chiao-se [The Role of Community Development in Sustainable Development]. Master Thesis, National Chung-Cheng University, Chia-Yi, Taiwan. (In Chinese)
- McCall, G. J., and Simons, J. L. Eds. (1969). *Issues in Participant Observation*. Addison-Wesley, Reading, MA.
- McDaniel, J. (1997). Communal Fisheries Management in the Peruvian Amazon. *Human Organization* 56(2): 147–152.
- Oakerson, R. J. (1988). Reciprocity: A Bottom-Up View of Political Development. In Ostrom, V., Feeny, D., and Picht, H. (eds.), *Rethinking Institutional Analysis and Development*. ICS Press, San Francisco, CA.
- Ophuls, W. (1973). Leviathan or Oblivion. In Daley, H. E. (ed.), *Toward a Steady State Economy*. Freeman, San Francisco, CA.
- Ostrom, E. (1990). *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge University Press, Cambridge.
- Ostrom, E. (1992). *Crafting Institutions for self-governing Irrigation Systems*. ICS Press, San Francisco, CA.
- Ostrom, E. (1997). Self-Governance of Common-Pool Resources. Workshop in Political Theory and Policy Analysis, Indiana University, Bloomington, IN.
- Ostrom, E. (1998). Coping with Tragedies of the Commons. Workshop in Political Theory and Policy Analysis, Indiana University, Bloomington, IN.
- Ostrom, E., Gardner, R., and Walker, J. (1994). *Rules, Games, and Common-Pool Resources*. The University of Michigan Press, Ann Arbor, MI.
- Pooley, S. G., and Townsend, R. E. (1998). A Community Corporation Approach to Management of Marine Fisheries: With Some Potential Applications to Hawaii. In Baden J. A., and Noonan, D. S. (eds.), *Managing the Commons*. Indiana University Press, Bloomington, IN.
- Sabatier, P., and Jenkins-Smith, H. (1993). *Policy Change and Learning: An Advocacy Coalition Approach*. Westview Press, Boulder, CO.
- Schlager, E., Blomquist, W., and Tang, Shui-Yan. (1994). Mobile Flows, Storage, and Self-Organized Institutions for Governing Common-Pool Resources. *Land Economics* 70(3): 294–317.
- Shan-Hai Wen-Hua Tsa-chih-She. (1995). *Tsuo-tsu te Sheng-huo-shih-chieh* [The Living World of the Tsuo People]. Shun-yi Taiwan Yuan-chu-min Po-wu-kuan, Taipei. (In Chinese)
- Shu, Cheng-Kuan, and Sung, Wen-Li. Eds. (1992). *Taiwan Shin-shing She-hui-yun-tung* [Taiwan's Emerging Social Movements]. Chu-Liu, Taipei. (In Chinese)
- Shu, Mutsu. (1992). "Taiwan Yuan-chu-ming de tsu-chun-ren-tung yun-tung" [The Tribal-Identity Movement of the Aborigines in Taiwan], in Shu Cheng-Kuan and Sung Wen-Li eds., *Taiwan Shin-shing She-hui-yun-tung* [Taiwan's Emerging Social Movements]. Chu-Liu, Taipei. (In Chinese)
- Tang, Shui-Yan. (1992). *Institutions and Collective Action: Self-Governance in Irrigation*. ICS Press, San Francisco, CA.

- Tang, Shui-Yan, and Tang, Ching-Ping. (1997). Democratization and Environmental Politics in Taiwan. *Asian Survey* 37(3): 281–294.
- Tang, Shui-Yan, and Tang, Ching-Ping. (1999). Democratization and the Environment: Entrepreneurial Politics and Interest Representation in Taiwan. *The China Quarterly* 158: 350–366.
- Thomson, J., Feeny, D., and Oakerson, R. J. (1992). Institutional Dynamics: The Evolution and Dissolution of Common-Property Resource Management. In Bromley, D. W. (ed.), *Making the Commons Work: Theory, Practice, and Policy*. ICS Press, San Francisco, CA.
- Wang, Sung-Shan. (1990). *Alishan Tsuo-tsu te Li-shih yu Cheng-chi* [*The History and Politics of Tsuo*]. Tao-hsian Chu-pan-she, Taipei. (In Chinese)
- Wilson, J. Q. (1995). *Political Organizations*. Princeton University Press, Princeton, NJ.
- Young, E. H. (1999). Balancing Conservation with Development in Small-Scale Fisheries: Is Ecotourism an Empty Promise? *Human Ecology* 27(4): 581–620.