Local Institutional Changes and Collective Forest Management in Taohua Village of Lijiang, Yunnan, China[1]

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Abstract

This paper is an extension of a previous study on collective forest management in Taohua village, Lijiang County, Yunnan Province, China. The original paper explored local adaptations in village rules for forest management, and the degree to which multi-ethnic village communities in China can sustainably manage forest resources. This update investigates in greater depth changes in the village's institutional landscape since the implementation of China's logging ban in 1998.

While the original research illustrated ways in which multi-ethnic village communities can sustainably manage forest resources as common property, more recent fieldwork indicates that the logging ban is overwhelming the Taohua village community's power to adapt and enforce rules. As a result, an initiative designed to promote conservation is, in this instance, ironically leading to increased forest degradation as village rules for protecting the forest give way to an open access regime. Additionally, without the considerable share of income that villagers formerly received from forestry, many villagers in Taohua have returned to poverty. This more recent evidence reinforces the overarching conclusion of the original paper -- future forest polices in China should indeed involve general guidelines for forestry management and development, but at the same time leave some flexibility for local government and village communities to adjust guidelines to their specific local situations. Nurturing a better policy environment by allowing for greater participation in decision-making comprises an essential step in this process.

Keywords: Local Institutions, Collective Forest Management

[1] An earlier version of this article was presented at "Politics of the Commons: Articulating Development & Strengthening Local Practices" July 11-14, 2003 in Chiang Mai, Thailand under the title "Building Collective Tenure for Sustainable Forest Management in A Multi – Ethnic Community: A Case Study in Taohua Administrative Village of Lijiang, Yunnan, China". This article has been revised based on continued fieldwork and analyzed from different perspectives.

I. Introduction

This study is an attempt to investigate and analyze an adaptive local system of forest management which demonstrates a continued practice of collective tenure and joint management by several ethnic communities in Yunnan, China. In many places the current situation suggests that community forests are facing increasing pressure from local communities due to an increase of rural population and living standards. Yet most rural community forests are observed to be poorly managed and protected. Moreover, deforestation and forest degradation usually lead to serious environmental problems. Local villagers' livelihoods are seriously affected by a deteriorated environment and the depletion of natural resources. Changes in forest land tenure, unclear use rights and management responsibility, and centralized decisions and planning processes continue.

The case of the continued practice of collective tenure and local management in Taohua Village in northwest Yunnan provides useful insights for broader application. Local forests are shared among several ethnic groups, including the Bai, Naxi, Lisu, Han and Pumi - who, since 1973, have been involved in collective timber production. Throughout the intervening 26-year period to 1999, local groups have not only received economic benefits from the forest (the total amount of timber harvesting is nearly 90,000 cubic meters, representing about 3,460 cubic meters per year. Total income from selling timber and labor contribution is about 10,000,000 Yuan [2], representing about 160 Yuan/person/year based on 1999 population levels), but also the actual area under forest has been maintained at 91.7% in 1993 (according to a government land investigation in that year), and about 90% in 1999 (Su Yufang 2000:14). For northwest Yunnan, which in general is beset by problems of over-logging and serious deforestation, this is rather unusual. This village, therefore, provides an example of sustainable management of forest resources. But how can a single village go against the trend of a broader region and manage their forests in a sustainable manner? It is this question, and this village, which forms the basis of this study. The research further asks how local institutional changes and arrangements operate to enable collective and cooperative action in the use and conservation of forests. Also, can local forest management adapt to changing policy and

[2] Chinese currency, 1 US$ = 8.21 Yuan

market environments? Finally, how and under what institutional conditions can a specific community establish efficient forest management?

II. Historical Development of Forest Management in Taohua

Taohua Village Committee[3] is located in the west of Lijiang County, about 90 kilometers away from the County Seat[4]. It is one of the key forestry areas in Lijiang and administers 18 Village Groups, which spread out across 18 Natural Villages (NVs). In 2003 there were 516 households with 2,422 people, with Bai, Lisu, Naxi, and Pumi ethnic groups comprising 84% of the total population. It is a very special village with four different minority groups co-existing with the Han people, who comprise the final 16% of the village's population. It is also a typical forestry village in which community forest is of great importance to villagers' livelihoods. Historical background always has influence and helps us to understand the present situation. In Taohua Village[5], historical development of forest management has gone through four distinct periods.

The first period was Taohua community and forest management before 1949. The different ethnic groups gradually migrated from different places to Taohua 100 - 280 years ago. During this period, almost all forest land belonged to a few landlords, many landless people served as laborers or even slaves. Forests were only used for subsistence needs. Forest resource utilization was very simple; there were no forest utilization conflicts among different users and groups.

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[3] In China, administratively, it is divided into Provinces, Autonomous Regions and Metropolis at Provincial levels. A province can be subdivided into prefectures or cities which include a number of counties. A county is composed of several townships which may include many Villages. Villages (*cunzhai*) are comprised of "natural villages" (*zirancun*), now non-administrative units delineated by physical boundaries. Within each natural village there are a number of Village Groups (*cunmin xiaozu*), formerly known (and still sometimes referred to) as "communities" (*she*). Village Groups may not be physically contiguous, but instead might be spread out across various parts of the natural village. What was formerly known as the "administrative village" (*xingzheng cun*) is now the Village Committee (*cunmin weiyuanhui*), an elected body responsible for overall village administration. Alongside the Village Committee is the Village Party Branch *(cun dang zhibu*), appointed by the township and the seat of political power in the village. Together they form the core of village government. By law, major decisions made by the Village Committee and the Village Party Branch must be vetted by the Village Representative Assembly (*cunmin dabiao dahui*), comprised of Party members and representatives chosen by groups of 10 to 15 households. Sub-village administration is carried out by heads of Village Groups (*cunmin xiaozu zuzhang*).

[4] The County Seat is the main town in the county.

[5] In the rest of the paper, in order to clearly describe the differences between Taohua Village, its Village Committee (VC) and 18 Natural Villages (NVs), Taohua Village will be called Administrative Village (AV).

The second period was Taohua as a socialist community and changes in forest management after 1949. After the establishment of the People's Republic of China in 1949, Taohua was set up as a socialist community. With land reform in 1952, lands were expropriated by government, all the forest land became a collective holding and all villagers had equal use rights in forest land. Forests were then classified into state forest (*guoyoulin*) and collective forest (*jitilin*) in 1962 (51,300 *mu*[6]) and 1966 (23,956 *mu*). During this period, even though forest size changed twice, and was clearly classified as state forest or collective forest, forest consumption and conservation changed little. Villagers could also use both state forest and collective forest for traditional purposes until 1973. Thus, all villagers could share and enjoy the forest for consumption and conservation. There was little conflict among different users and groups.

The third period represents the transformation from subsistence forest consumption to commercial timber production after 1973. Under a collective model and based on the common interest among leaders' and villagers' for collective timber production, Taohua village began to build a new local economy based on collective timber production and group decision-making. At the same time the village set up institutional arrangements for collective timber production, consumption and conservation. With the implementation of the "Two Hills System"[7] in 1982, collective forest land was increased to 120,265 *mu*[8], and ownership was clearly defined at the Natural Village level. Villagers continued to consider collective timber production and forest management advantageous and adhered to this and many of their traditional practices. Even though there were conflicts among different users and groups, effective institutional arrangements meant they could arrive at a long-term consensus to achieve sustainable timber production, consumption and conservation.

The fourth period is the implementation of the logging ban policy in 1998. Taohua could no longer cut any trees and all timber production activities were stopped. The villagers

[6] 1 hectare = 15 *mu*

[7] Forest areas were to be allocated to households in two modes: as freehold forest land for a household's subsistence use; and as contracted forest land as well as collective forest land. In Taohua freehold forest land amounted to 2,087 mu, or 1.55 mu per person, but in fact the freehold ownership of land was largely a paper classification and in reality there was little difference from the past. In 1984, the VC abolished freehold title, with all freehold forest land reverting to collective forest once more.

[8] It was increased by 68,965 *mu* and 97,100 *mu* compared with 1962 and 1966 respectively.

lost their main income source, and many conflicts between the state and local collective arose. Minor existing conflicts within the community also quickly became more serious. Even though timber production was stopped, the resulting negative impact on villagers' incomes means that the success of conservation and fire protection measures has declined. The result is that many problems have surfaced in the village including conflicts between villagers and the state over these policies; problems between different groups within the village have become more serious; and, forest conservation is also under threat.

III. Arrangement of Collective Tenure and Forest Management in Practice in Taohua

As discussed before, by government policy, the ownership of collective forest was classified at the Natural Village (NV) level, and collective forest is deemed to be under individual household responsibility and the management of natural villages. In practice, Taohua has arranged these allocated forests as a collective single plot under local management of 18 NVs at the village level. How did the villagers achieve local arrangement of collective forest? And how did these systems work for timber production and shared forest resources?

A new local economy based on collective timber production and group decision-making has been initiated, since Taohua village began to implement collective forest tenure in timber production and forest management in 1973. The villagers had representatives to share decision-making on management and selling of timber. Meanwhile, they set up rules for timber production. Key among these were *"Si Tongyi*" (four collective timber production rules) and "*Yibenzhang Hesuan*" (one account book for all timber production). While increasing commercial timber production activities, villagers also continued subsistence use of forest in the context of conservation. Institutions around forest management interact with external conditions and change as those contexts change, and villagers were able to continually both enforce and improve these rules in a practical way.

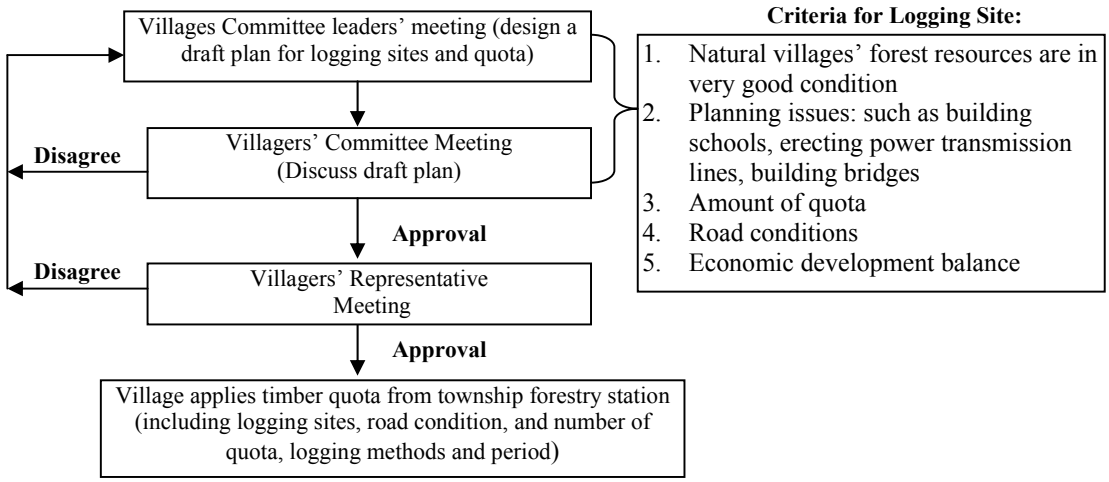
"*Si Tongyi*" First Rule.

The first of the four "*Si Tongyi*" rules is power sharing through group decision-making. The decision is not made by only a few village leaders. Rather, villagers from different

ethnic groups are ensured representation in the decisions on timber production. There is thus a mechanism for collective decision-making (Figure 1).

It's clear that physical conditions, economic benefit and social services are also considered as criteria for logging sites. It means that besides conservation of productive forest, road access and infrastructure construction needs, and the economic development balance among upland and lowland villages and different ethnic groups are also considered as important criteria for logging plans**.**

Figure 1 Collective Decision-making for Timber Production



Source: Discussion with village leaders and groups of older people, 2000.

"*Si Tongyi*" Second Rule.

The second rule is benefit-sharing based on collectively controlled income distribution. Benefits and responsibilities are shared by the larger community of the AV and also within the smaller community of NV members. The concern of the Village Committee, then, is not just with the benefits of logging for collective forest owners (at the NV level), but for the entire community (at the AV level). Meanwhile, the income distribution between NV and AV was changing, as the value of timber, policy, market or public welfare needs were changing (Table 1).

Table 1. Changes in Timber Production Income Distribution, 1973-1998.

	1973~1981	1982~1986	1987~1998
Administrative Village's income	About 80% of total net income	30% of total net income	3% of total net income as forest conservation and fire control funds and 1% for education funds, 40% of the remaining total net income
Natural Village's income	About 20% of total net income	70% of total net income	60% of the remaining total net income
Reasons for the changes	Communal management system. All community resources and products were owned and shared by villagers.	Implementation of the 'Two Hills System', the ownership of collective forest was identified at natural village level.	Increasing infrastructure construction, social services.

Source: village survey, 2000.

At the beginning of timber production in 1973 until 1981, all resources and production were under a communal management system, and the value of timber was not so high. The VC only returned 3 Yuan/cubic meter (about 20 percent of income) to the NV which was the designated logging area. In 1982, with the implementation of the "Two Hills System" policy, collective forest was identified at the NV level and some were distributed to households as free-holding forest. In order to adapt to this policy, 70 percent of total income was returned to NV and 30 percent for AV use. This not only secures the forest owners' access to forest resources and products, but also considers benefit-sharing and stability of forest tenure; even the ownership of collective forests is at the NV level, and more income goes to the owners. But collective timber production has, in practice, been continuous in the village and there is no freehold mountain at all for household use.

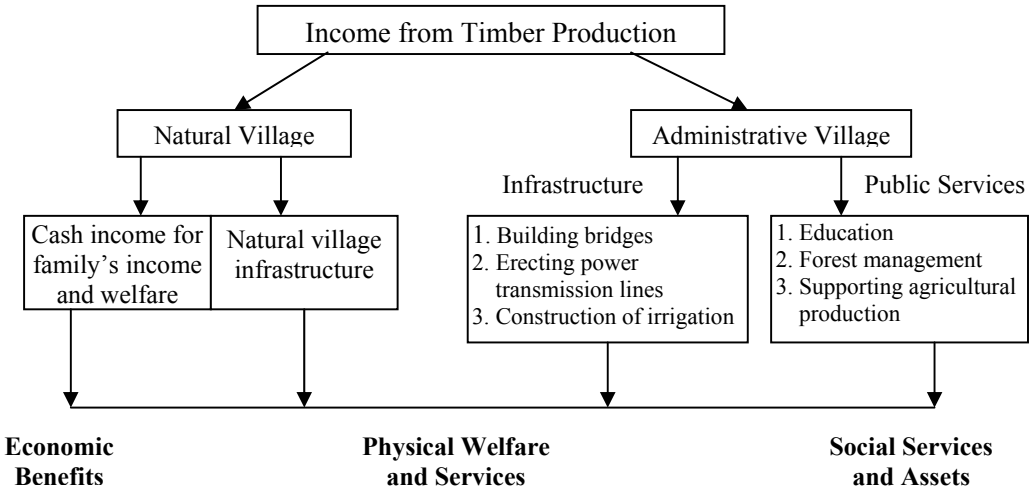
In 1987, with increasing infrastructure and public welfare needs, including the consideration of forest conservation, fire control, and education; this rule was, after discussion with each natural village, adapted to provide for greater sharing of funds for conservation efforts, education and social services. Before total net income was distributed, two percent was allocated for forest conservation and fire control funds, and one percent was collected as education funds. 60 percent of the remaining total income was returned to the NV (tree owners) and 40 percent to the AV (see Table 1).

Almost all income at the AV level[9] was used for villages' infrastructure and public

[9] The AV's total net income from 1974-1998 for timber production is about 2,300,000 CNY (estimated by the former and current village's leaders, 2000).

welfare services. About 2,065,300 Yuan has been expended from the AV level. The highest expenditure is for supporting education at about 891,300 Yuan, while the lowest is for poverty alleviation at about 40,000 Yuan. 14 permanent bridges have been built in more than 10 NVs, power transmission lines were erected in almost all NVs, and irrigation systems were built in many NVs. Moreover, a primary school and its six sub-branch schools were set up. Each year teachers and poor students could receive grants from the VC. Moreover, there were also forest conservation funds used by the VC for forest protection. Therefore, the benefit-sharing based on collectively controlled income distribution and usage has achieved economic and physical welfare benefits, and increased social services and assets.

Figure 2 Timber Income Distribution, Taohua.



"*Si Tongyi*" Third Rule.

The third rule is households' involvement based on a collective arrangement for labor. Every year logging laborers are employed from all18 NVs of Taohua, except if there is a labor shortage. Every household and villager is involved in timber production and related activities. The VC only makes a contract with groups and does not allow contracts with individuals. Laborers' income from logging work is dependent upon their specific contribution and the detailed account of income is designed to control free-riders. Thus, the villagers earn income not only from selling timber, but also from their labor contribution, thus maximizing their income from timber production. So whether they are

from no-logging or intensive-logging areas all villagers could earn income from timber production through the provision of labor or other services.

"*Si Tongyi*" Fourth Rule.

The fourth rule is ensuring a sustainable rate of cut based on managed logging and rotational cutting. Since Taohua first cut trees in 1973, the VC organized villagers for clear-cutting until 1980. As the quota for timber cutting had been rapidly increased, some problems arose with clear cutting, and the VC started to set up rules for logging methods and timber management. First, logging should be implemented by the VC, with individual cutting absolutely prohibited. Second, logging should be on an intermediate rotational basis, with clear-cutting banned by the VC. Local forest management also enables cleared plots to regenerate for more than ten years before the next logging cycle. This is a rotational cutting practice which functions to sustain green areas of the watershed forest as well as the village economy. Third, before logging, a board-chute, skidding road must be built and then a few mother trees (seed trees), which will provide seeds for regeneration, would be selected for protection, and only overmature and adolescent trees will be cut. Trees with a diameter less than 24 centimeters are not allowed to be cut. During the logging process, villagers must also try to avoid damaging small trees. Fourth, during and after logging, the members of the VC strictly check and evaluate the logging processes, and if anything is not up to the required standard or in disagreement with the rules, the logging groups would be penalized. These rules were well enforced. Everyone was governed by these regulations, and so the logging areas could function for water and soil conservation, and also provide good conditions for juvenile trees to grow.

***"Yibenzhuan Heshuan"* One Account Book**

There is only one account book (*Yibenzhuan Heshuan*) for collective timber production. All accounts of income and expenditure (including income from selling timber, income distribution, and costs of timber production, such as labor wages and investment in road construction) are in one accounting book. Every year the final accounting report should be displayed for all villagers. This accounting process allows for the control of free-riders and maintains transparency in the VC's decision-making process for timber production among all groups. Villagers can be aware of what decisions are made, how much income

has been earned and where it is spent.

Other Rules for Subsistence Forest Use in the Context of Conservation

With the increased value of timber and the implementation of the quota system[10] by the national government, a number of rules based on traditional knowledge and practices have been set up with regard to subsistence forest use and conservation. For example, all villagers must apply for permission and a quota from the VC for building houses and collecting fuel wood. The household wood-use management tries to maintain equality and keep decision-making in villagers' hands. All villagers also have obligations and rights for forest protection and forest fire control. Moreover, the VC has a reward and punishment system, which rewards those who conform, and punishes those villagers who break the rules.

A forest administrative system is also set up. Besides full-time staff from the local government, there are 19 full-time forest guards who are hired by the VC to take care of each NV's particular forests. The guards also earn payments directly based on their performance.

Meanwhile, the villagers have also adopted some traditional knowledge for forest conservation from different ethnic groups. For example, the forests were classified into five types based on traditional knowledge and practices of lowlander Naxi and Bai people: conservation forest, watershed forest, fertilizer forest, fuel wood forest and timber forest (Table 2). Using this classification, forest resources with different functions are well conserved.

Table 2. Five Types of Forest Comparison

Items	Location	Function	Utilization Patterns
Conservation Forest	Behind village, besides field and road	Prevent soil erosion	No utilization permitted
Head of Watershed Forest	Head Watershed area	Conserve water sources and prevent soil erosion	No utilization permitted
Fertilizer Source Forest	Nearby village, enrich soil	Provide fertilizer	Collect pine needle for fertilizer making.
Fuel Wood Forest	Close to village (overgrown with	Provide fuel wood	Planned cutting once a year, after obtaining permission.

[10] A policy has been implemented since 1985 to set a logging quota for each area to control tree felling. An annual logging quota is set in Beijing for the whole country to ensure that cutting each year does not exceed total forest recovery growth. The total quota is then divided among provinces, which in turn allocate the cut to prefectures and counties throughout each province.

	brambles)		
Timber Forest	All other forest areas	Used for timber production and building house etc.	After obtaining permission and quota, can be used for timber production and household use.

Source: village survey, 2000.

The collective management system, in addition to improving management rules, has encouraged villagers to participate in forest management and improve forest resource conservation and development. From 1973 to the end of 1998, Taohua village has practiced collective timber production as well as timber management, and produced about 90,000 cubic meter of timber, but it has not degraded forest resources. Indeed, the collective forest not only provides a good environment and meets villagers' subsistence needs, but also improves villagers' economic development. Until now, there are still more than 30,000 mu over-mature forest, and about 17,000 cubic meters could be used for selective cutting. If the "logging ban" policy had not been implemented in 1998, Taohua would continue its collective timber production, which involves sustainably cutting, utilizing, and managing forest.

IV. Collective Management as an Adaptive Mechanism in Forest Management

The existing situation in Taohua, and their sustainable collective forest management practices, lead us to ask the questions of why the village implemented collective tenure for timber production and forest management. Why were these institutional arrangements so well established and implemented? Clearly, there are strategies which work to maintain effective local adaptability in negotiating state policy, and to guarantee access to forest resources and markets, and to gain economic benefits and positive environmental outcomes. There are some key conditions that influence the sustainable forest management under collective tenure based on experiences learnt from Taohua.

- **Negotiating with State Policies for Timber Production in the Context of Market Opportunities**

Despite historical changes, the people of Taohua administrative village, in response to changing policies and market opportunities and with their former experiences of collective management in agriculture, have built and maintained collective tenurial arrangements for timber production. When the "Two Hill System" policy was

implemented, Taohua had already gained nearly ten years experience in the practice of collective timber production. During this process, the village leaders tried to negotiate with the township government and forestry station to enlarge the collective forest areas as much as possible. Therefore, the community forest areas increased about five-fold in 1982 compared with that in 1966. The result is that Taohua has a greatly increased area available for collective timber production.

Meanwhile, in order to comply with government policy, Taohua also made changes in their local policies. As discussed before, under the "Two Hills System" collectively controlled income distribution was also changed, and income for the natural village was increased from 20 per cent to 70 per cent of the total net income. Most of the income from timber was retained by the community forest owners. But in Taohua, villagers still considered it advantageous to maintain collective timber production and forest management. Except for the change in income distribution, other practices remain the same. Actually, there was not only common interest in collective timber production, but also in the Taohua villageas an adaptive management body to negotiate state policy and with the government.

The villagers in Taohua also use their effective collective management of forest resources to demonstrate their management ability and negotiate with local government and forest station to be more responsive to their needs and support their activities. Local government played a very important role in local conflict resolution and maintenance of forestland and forest resource tenure. And because of their successful collective management of timber production, they have been able to receive an increased timber quota from the Township Forestry Station, a quota which is much larger than other villages.

- **Collective Control of Timber Production and Forest Management under Differential Access to Forest Resources**

This study argues that collective control of resource management is an adaptive management mechanism that creates and maintains local power or authority over resources. This local control is necessary to achieve independent decision-making, flexible involvement, equal resource sharing and effective timber production. Collective

control of forest management means that 18 NVs join together for collective timber production at the AV level. These different NVs have variable access to forest resources, and forest area per household is quite different in each village. There is also differential access to roads as well as to timber markets.

The collective control of timber production helps in balancing the unequal access to forest resources among NVs, and in resolving conflicts. Different NVs, as well as different social groups have differential access to forest resources. Collective timber production not only claims a larger area for rotational cutting, increases access to forest resources and balances the differential access to forest resources, but also provides enough labor for logging, and attracts enough capital for timber production investment. Collectively controlled timber income distribution also balances the variability between villages. Whether they are no-logging areas, reduced-logging areas, or intensive-logging areas, all NVs share economic benefits, physical welfare services, and social services and assets. It is evident that collective management can be an effective strategy to adapt to the ecological differentiation across all NVs, and can ensure that all have access to the benefits derived from timber production.

- **Ethnic Diversity and the Construction of Shared Values**

In Taohua, local conditions are re-created as workable incentives for forest management. A key condition that determines the community's ability to manage resources collectively is local social cohesion and willingness to set and strive for common goals. Analytical attention must also, however, be devoted to the wider historical context. Historical and social conditions affect whether villagers are more or less willing to work together regarding their forest management. From the historical development of forest management, it can be seen that with the establishment of the People's Republic of China, the five different ethnic groups became equal co-existing members of the community with leaders drawn from each of the five groups. Whether they are Bai, Naxi, Pumi, Han, or Lisu, all groups could identify themselves as Taohua villagers. The villagers cooperate with one another rather than compete.

Moreover, all households share similar economic conditions and livelihood strategies. Forest resources therefore play a key role in determining villagers' livelihoods, and they

have common interests in how these resources should be managed. Even though different groups at different economic levels may have different livelihood strategies, in each household, the income from timber production and related activities provided over 55 per cent of total income. Therefore, all groups have a similar attitude towards management of forest resources. These groups realize that their livelihoods depend on forest resources, so they must take care of the forest for long term sustained use. Therefore, with increased dependency on timber production, different groups have actualized their shared values and meanings in collective timber production and forest management.

- **Complexity of Tenurial Arrangements, Rules and Practices as Adaptive Mechanisms**

Forests are one of the most important common resources. Collective forest management refers to all kinds of forest management carried out on the basis of group action. In Taohua, the formal policies on forest tenure have changed many times. But the policies "on paper" can never respond to the actual field-level complexity of the forest tenure practices. Therefore, with the complexity of tenurial arrangements, Taohua could adapt to changing policies and market conditions, and maintain benefits from collective timber production while balancing differential access to forest resources. Taohua village demonstrates a particular situation of strength, stability and complexity of forest tenure.

Institutions at the local level together with the incentives they generate are at the center of explanations of forest use and conditions (Ostrom, 1990). The decision-makers of forest management should be those people who are the direct beneficiaries, or an organization that can fully represent these people. In the case of Taohua, rules already existed which determine the make-up of the decision-making body as well as the process which they carry out and the criteria by which they must abide. It is clearly identifiable, then, that the decisions of the group are also the decisions of the entire village.

It is also important that the headman and his counselors are members of the community and owners and users of the collective forests, since they are more easily accepted by the villagers as their own than people from an outside agency. This is not always the case, however, and forest management cannot depend solely on the personal character of local leaders. The key issue is that there exist incentives and rules to regulate the leader's behavior and the rules to select better leaders and "fire" poor leaders. Thus, a good leader

is always accompanied by good rules, and Taohua is a case in point.

Local control in terms of local organizations and rules help communities in terms of power sharing, independent decision-making, and shared values to improve adaptability to the changes of internal and external conditions. With the construction of shared values, different groups realize that they must depend on each other for sustained timber production. The complex tenurial arrangements and rules allow for greater flexibility of involvement and participation in timber production and forest management by different groups and villagers. All villagers are equally involved in decision-making, benefit-sharing, and the distribution of differential access to forest resources. Moreover, collective control of timber production can not only maintain large areas for rotational cutting and balance the differential access to forest resources, but also provide enough labor and capital investment for timber production. Therefore, the community can create strong adaptability to both internal and external changes to achieve sustainable collective timber production and forest management. Here, sustainable forest management means not only an emphasis on appropriate technology, environmental conservation and benefit sharing, but also, and most importantly, local control over forest resources.

V. The Difficulties after the "Logging Ban"

Even though collective timber production has achieved sustainable management, the economy of Taohua is highly dependent on timber production and related activities. With the implementation of the logging ban and natural resource conservation policies in 1998, the villagers could no longer harvest trees, and all of the benefits from timber production as well as their main income source were lost. They have subsequently faced many problems. There are, however, a number of issues to consider.

First, the income from timber production, and relevant activities such as labor services, transportation and relevant services has been drastically reduced. It is estimated by the village's leaders that in 1999, total village income decreased by 2,000,000 Yuan, or about 800 Yuan per capita; the net income also decreased from 600 Yuan in 1999 to 290 Yuan in 2003. About 50% of the population returned to living in poverty. Due to the rapid decrease of income, many plans of the VC for natural village infrastructure projects could not be fulfilled. This led to conflicts between the VC and villagers and had impacts on the

authority of the VC and collective action. With the loss of financial and food support from both the VC and their families, about 150 (50 per cent of the total) students have discontinued their studies at Taohua primary school, particularly those from poor upland villagers.

Second, the price for agricultural products and by-products has been greatly reduced. According to villagers, from 1998 to 1999, the price of rice decreased from 1.25-1.35 Yuan/kg to 1-1.05 Yuan/kg, pork dropped from 6-7 Yuan/kg to 4-5 Yuan/kg, and cattle decreased from 1,600-1,800 Yuan/head to 900-1,000 Yuan/head. The prices of medical herbs, vegetables and fruit were also slashed. All of these led to serious problems for villagers' livelihoods as well as agricultural production.

Third, the decline in opportunities for labor services and the increasing number of surplus laborers led to problems of social security and ethnic conflicts. The upland villagers such as Lisu and Pumi have mainly depended in the past on forestry for their livelihood, and 80 per cent of their grain ration was bought by using income from forestry. Now they have to sell illegally cut trees for survival.

Fourth, and somewhat ironically, forest conservation and fire control activities in the area are also facing difficulties as a consequence of government policies to promote conservation. The illegal cutting of trees by villagers is very difficult to control. After 1998, when the forest within which they lived could no longer legally be of any commercial benefit to them, villagers lost any personal interest in conservation and fire control measures. In the opinion of many villagers, forest fires can even be a good thing because after the fire they are able to easily gather fuel wood and mushrooms which they are able to sell.

Until now, even though the villagers have tried hard to find alternative incomes, and government also implemented a one-year poverty alleviation project in Taohua, the villagers still could not find more stable income sources. Meanwhile, it is estimated by the villagers that every year more than 2,000 cubic meters of over-mature trees are dying, but villagers could not harvest them for sale in the fast growing timber market in Lijiang town. This not only wastes local forest resources, but also destroys forest resources in

other areas[11]. The villagers say that they fully support environment conservation, but that national policies should also give them local flexibility for forest conservation and utilization.

VI. Major Findings of the Study

1. Local institutions, including both organizations and rules regulating behavior at the local level are crucial for sustainable timber production and collective forest management. These institutions lie at the center of explanations of forest use and conditions. This case study has indicated that there is a need for organizations engaged in collective management to improve the governance of forest resources. It also suggests that the managers of forests and decision-makers in forest management should be people who are actually direct beneficiaries or organizations that can fully represent the interests of these people.

Local organizations and institutions are both mechanisms and tools to empower people for improving capacity and enthusiasm in resource management. If sufficient conditions can be created and maintained, people's participation in forest management could be greatly enhanced and encouraged through organizational and institutional development.

2. Forest tenure is one of the largest and most complex issues in forest resource management. Forests need to be managed in large units, particularly where they are being managed not only for their environmental protection value, but also for timber production. In terms of economies of scale, especially of management costs, the experience of Taohua also argues against fragmentation of forest ownership and management. Common property rights give resource owners an incentive and an opportunity to manage their forest resources sustainably over the long term.

3. In China, as governments and policies change, and as market opportunities or structures change, the effect has generally been to centralize decision-making and undermine local forest management. It is clear that giving communities the flexibility to

[11] According to the village's leaders, most of the timber for infrastructure construction and building houses in Lijiang import from other countries.

adapt local rules to broader policy guidelines can itself be a source of stability. The sustainable collective forest management means local control over forest resources.

VII. Conclusions and Recommendations

Policy-makers need to be aware of the importance of local capacity-building. Acknowledgement of local institutional arrangements which are responsive to local conditions and which are locally managed should be incorporated into policy and planning. From this case study, it can be seen that the logging ban policy ignored the differentiation of local communities and the needs of local people, and resulted in some serious problems. The logging ban policy only paid attention to the impacts of a reduction of government revenue and the survival of government timber companies, but didn't seek alternatives for local people's livelihoods. The villagers in forest areas not only had problems obtaining enough wood for household use, but also lost the income from timber production and related activities on which they were dependent for their livelihood. Moreover, the logging ban policy negates use rights of collective forest. Local communities, which are the owners of collective forest, could only conserve the forest, but could no longer use the forest for any other purpose.

Institutional adjustment is necessary to create a better participatory environment for establishing rules for resource management. It is necessary to establish decision-making rules and constitutional rules to create better participatory environments and maintain sustainable participation in collective forest management. Policy and administrative leadership from county and township government levels is necessary to assure local communities that their choices and institutional adjustments are recognized and supported by the government. Nurturing a better policy environment at different levels of government is key to supporting local communities' forest management activities. Some of that policy will take the form of higher levels of government "getting out of the way" and allowing local experimentation. Indeed, sensitive and flexible application of policy, based on local conditions and prospects, could protect the future of rural communities as well as the forests upon which they depend.

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