PingShang Bamboo Group: A Case Study of a Community Enterprise in China’s Bamboo Sub-sector

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Glossary
CCDRC Community-Based Conservation & Development Research Center
CNY Chinese yuan
CRS Contract Responsibility System
DFID Department for International Development
EPB Environment Protection Bureau
INBAR International Network for Bamboo and Rattan
NGO Non-governmental organization
NNR National nature reserve
PBG PingShang Bamboo Group
PRA Participatory rural appraisal
SFA State Forestry Administration
UNESCO United Nations Educational, Scientific, and Cultural Organization

Acknowledgments
The authors would like to acknowledge the essential contributions and support of the following individuals: Xiaojie Bai, Brian Belcher, Youhua Deng, Yuhe Guan, Nengbing Guo, Qin Qin He, Mingjie Huang, Xilian Huang, Xuequan Jiang, Ewan Lamont, Yongqiang Liu, Maxim Lobovikov, Yiping Lou, Taixia Luo, Augusta Molnar, Alexander Potter, Xiaodong Ren, Manuel Ruiz Perez, Erich Schienke, Chunfeng Wang, Yunli Xu, and most importantly the villagers of PingShang. As well, we acknowledge the British Embassy in Beijing and the British Consulate in Chongqing for their support of the project in PingShang.
1. Country background

According to the last survey of forest resources in 1998\(^1\), the People’s Republic of China had a forested area of approximately 153.6 million hectares (State Forestry Administration 2000). China’s forests are broadly divided into two categories of ownership: state forests and collective forests. Collective forests compose 58.4 percent (89.7 million hectares) of the entire forest estate. Importantly, the term ‘collective forest’ encompasses a wide array of schemes with a range of managers and owners from county or township governments to individual households. The many types of collective forests are in part due to the regular tenure reforms that have occurred since the founding of the People’s Republic of China in 1949 (Liu 2001; Grinspoon 2002). In the 1970s substantial reforms, often termed the Three Fixes, put forestland management and many rights back in the hands of individuals. These changes included, \textit{inter alia}, distribution of non-forested land to rural households\(^2\) and the implementation of the Contract Responsibility System (CRS)\(^3\).

Pure and plantation bamboo forests constitute roughly 4.6 million hectares\(^4\) of the total forest area (State Forestry Administration 2003) and more than sixty percent of the bamboo forests can be found in the provinces of Fujian, Hunan, Jiangxi, and Zhejiang. Additionally, there are 3.0 million hectares of “mixed and mountain natural bamboo stands” (Lobovikov 2003; State Forestry Administration 2003). There are between 300 and 500 species of bamboo in China, depending on taxonomic criteria, of which more than 100 species have commercial value (Zhu \textit{et al.} 1994). Bamboo forests contribute significantly to the international and Chinese domestic supply of bamboo products and are an important source of revenue in bamboo producing and processing regions. According to the State Forestry Administration (1999), unprocessed and processed bamboo products were valued at US$2.8 billion\(^5\) (23.14 billion CNY). Jin (2003) reports that in 2002, Chinese bamboo exports were worth approximately $380 million, constituting a significant percentage of the world trade in bamboo that is estimated at between $2.5 billion and $10 billion annually\(^6\) (Hunter 2003; Jin 2003; Lobovikov 2003; Wardle 2003).

At present there is no national data quantifying the total number of community forestry enterprises or their aggregate contribution to the economy. However, the China Township Enterprise Yearbook (1997-2002) records the number of enterprises with

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\(^1\) This report does not include data from Taiwan, the Tibetan areas outside military control, and the special administration regions of Hong Kong and Macao.

\(^2\) In Chinese, this type of land is called 皙之乡.

\(^3\) In Chinese, the land distributed to households in the CRS is called 宅隄室. The CRS was modeled after the Household Responsibility System in the agricultural sector.

\(^4\) The 1998 survey of forest resources (published in 2000) reported approximately 4.2 million hectares of bamboo forests, however the Chinese Forestry Yearbook in 2003 documented an area increase to 4.6 million hectares.

\(^5\) All subsequent dollars will be U.S. dollars. US$1.00 equaled 8.08660 Chinese 元 (CNY) on November 3, 2005. The Chinese currency is also called 人民币 (RMB).

\(^6\) Estimates range widely due to difficulties in quantifying domestic markets and an ineffective system of coding bamboo products in international trade.
production value greater than or equal to 5 million CNY. Since 1996, the number of township-level enterprises and employment in those enterprises declined through 2002. This trend was also true for forestry enterprises and can be attributed in part to the increasing privatization of previously state-run enterprises and the current policy environment that stifles much of the forest sector. In 1996 there were almost 78,000 township-level forestry enterprises that employed 2.8 million people. By 2002, the number of township-level forestry enterprises decreased to 8,120 with 1.3 million people employed. Furthermore, forest sector wages are lowest according to national statistics that compare data from over 60 categories or sectors (Ruiz Pérez et al. 2004).

Despite the forest sector’s general downward trend in employment and township-level forestry enterprises, much of the bamboo sub-sector of forestry demonstrates substantial growth in contrast to its timber sector counterpart. Part of this can be accredited to differing policies in the bamboo sub-sector. The traditional forest sector is restricted by several policies and programs, including the log-harvesting quota, the logging ban (a component of the Natural Forest Protection Program - NFPP), high rates of taxation, tenure and rights insecurities, and transportation restrictions that limit the sector’s capacity to provide forest products and contribute more to livelihoods. However, bamboo forests are not governed like conventional timber forests and thus are less burdened by these regulations. Moreover, bamboo grows quickly, can be harvested annually or biennially, can be made into multiple products, and has lower investment costs than timber alternatives (Ruiz Pérez et al. 2003). This has created a trend in which forestland owners and managers are increasingly choosing bamboo over other forestry opportunities because of the accompanying management, use, and benefit rights. As well, other factors widely credited with facilitating the growth of the bamboo sector include the government permitting (1) the sale of bamboo in excess of state quotas, (2) joint ventures with foreign investors, and (3) Chinese nationals to keep foreign currency earnings (Ruiz Pérez et al. 2003). The result is that the area of bamboo and the production of bamboo products increased markedly over the last decades. In 1980 there were 3.2 million hectares of pure or plantation bamboo forests that produced 4.4 million tonnes of bamboo products. By 1999, there were 4.3 million hectares of pure or plantation bamboo forests producing 14.2 million tonnes of bamboo products (Ruiz Pérez et al. 2003).

The growth of the bamboo sector in Anji County in Zhejiang Province is well documented. In the mid-70s, individual households had not yet begun managing bamboo forests and a state cooperative monopolized the market, purchasing bamboo at fixed rates from collectives. Ninety-six percent of the bamboo was shipped elsewhere for processing. Nineteen local enterprises processed the remainder, generating $670,000 and employing 460 workers. By 1998, the county was importing bamboo for processing in its 1,182 processing enterprises. That same year, the bamboo-processing sector employed 18,914 employees and grossed $105 million. Notably, there was only marginal growth in the number of bamboo farmers (111,000 farmers to 123,000 farmers) and area of bamboo (51,400 hectares to 57,400 hectares) during this period (Ruiz Pérez et al. 1999; Ruiz Pérez et al. 2003). Similarly, in Lin’an County, Zhejiang, the bamboo sector has flourished. In Lin’an County, the production value of bamboo products grew from $2.48
million (20 million CNY) in 1983 to $142.42 million (1.15 billion CNY) in 2002 (Zhu 2003). The cases of Anji and Lin’an Counties highlight a thriving bamboo sub-sector amidst a more laggard forest sector.

In such a vast and varied nation like China, it is difficult to simply characterize the production chain for the numerous bamboo products that exist. Furthermore, the quantity and the general organizational structure of the many enterprises are uncertain. However, there is general agreement that the vast majority of enterprises in the bamboo sub-sector are either state or privately owned. Zhu (2003) estimates that 90 percent of bamboo processing is done by small to medium scale rural enterprises that have been initiated by farmer entrepreneurs. Though the number of community enterprises pale in comparison to those owned by state or private interests, over 93 percent of bamboo forests are collectively owned and as a result of the aforementioned policy reforms, like the Three Fixes, households are managing approximately 80 percent of China’s collective forests (Hyde et al. 2003). Although community enterprises do not produce the majority of bamboo products, communities and rural households play an integral role in supplying bamboo products to domestic and international markets, as they are the primary source of the bamboo resources.

2. Overview of country case study

PingShang Village, Hushi Township, Chishui County, Guizhou

PingShang Bamboo Group (PBG) is located in the natural village of PingShang on the northern border of Chishui National Nature Reserve (NNR), in Hushi Township, Chishui County, Guizhou Province. The region has a moist monsoon climate, being in a mid-tropical zone and the landscape typically consists of purple sandstone, streams, waterfalls, primeval forests, and uninterrupted views of vast bamboo forests. The village is geographically isolated from the county capital, being a scattered community at high elevation in one of the highest bamboo forests of the Chishui NNR. PingShang is some 400 kilometers north of the provincial capital Guiyang. The village has no road, so villagers use a stepped path to reach the nearest forestry road and then it is another 30 kilometers to the township capital Hushi.

In 2004, the village was home to 354 people in 72 families, all from the Miao ethnic group. The core village area is eight hectares in size, half of which is arable land. The village produces approximately 20 kilograms of rice and 200 kilograms of sweet potato per person annually. Additionally, each family has one to two pigs. Average annual household income is approximately $50 (400 CNY) and derived almost exclusively from the sale of forest products. Three-quarters comes from the manufacturing and sale of bamboo chopsticks and the other one-quarter comes from various other forest products, but chiefly the sale of whole culms of moso bamboo (*Phyllostachys heterocycla* var. *pubescens*). The Guizhou Environment Protection Bureau (EPB) estimates that 50,000 households in Chishui County have direct economic links to bamboo forests.

The village has exclusive access to over 130 hectares of bamboo forests most of which are contiguous to the village boundaries. Forty percent of the bamboo forests to which
PingShang has rights are within the boundaries of the nature reserve. The village has had special resource access rights in Chishui NNR since the area was first delineated for protection. The forest area surrounding the village is chiefly natural, pure bamboo stands of varying species, intermixed with other forestlands of deciduous and coniferous trees and shrubs; slopes and small valleys are deep – commonly in excess of 60 degrees. Chishui NNR is home to 1300 species of flora and fauna and the lower valleys of the nature reserve are home to a rare woody fern (*Alsophila spinulosa*) from the Jurassic Period that can grow in excess of eight meters and the primary reason that the area was first protected in 1984. The protected area became a national-level nature reserve in 1992, at which time its boundaries were extended to encompass 13,300 hectares. Tourists know the area as the “Sea of Bamboo”.

**PingShang Bamboo Group (PBG)**

Community producers’ groups in the bamboo sector are rare in China as a consequence of, among other things, hierarchical, local government and a certain resistance to empowering initiatives of any grouping which may hint at a formal association of farmers. Much production of chopsticks in the bamboo rich areas of Chishui County is in the hands of single-family units linked to single, wholesale buyers. At present, PBG is probably unique in Guizhou Province.

The community in PingShang had a rudimentary chopstick production system in operation for more than a decade prior to the establishment of PBG in July 2004. In the prior system, PingShang made the most basic quality of unfinished chopsticks that were irregularly collected and taken down the mountain to buyers that, unconsciously or not, took advantage of PingShang’s poor market knowledge.

Practitioners of the Guizhou Participatory Rural Appraisal (PRA) Network facilitated the formation of PBG. Some of the nature reserve staff were trained in PRA methods and are members of the 6-year old network. They are now receptive to that manner of facilitating rural development. Thus, most parties, including PingShang, were ripe for a self-help, but donor-based initiative. The process that established PBG emphasized local knowledge and enabled local inhabitants to analyze production possibilities and make more informed decisions about the direction of the community enterprise. For the project in PingShang, PRA was de-emphasized in favor of a strong core of technical extension. The long-term thinking is that successful poverty reduction will be more permanently empowering than the product of a dominating social science tool.

PBG primarily produces two bamboo products: chopsticks and whole bamboo culms. Upon forming the enterprise, PingShang began producing packaged chopsticks for immediate use by the consumer, whereas prior to the formation of PBG, chopsticks were unfinished and produced in bulk. The producers’ group is involved in all aspects of the production chain including forest management, harvesting, production, packaging, marketing, and delivery.

Typically the production of bamboo chopsticks in PingShang includes the following steps: (1) A male villager harvests the culms from the bamboo forest; (2) A female
villager, usually a wife, or child cuts the culm portions into raw chopsticks (splits) at the harvest site; (3) The raw chopsticks are transported to a central village location; (4) The chopsticks are subdivided from the culm and an adult male fashions the raw chopsticks with a hand operated machine to yield basic shaped chopsticks; (5) Several trained adult males smooth the raw chopsticks in an electric machine; (6) Trained males bevel or flatten the ends of the chopstick by machine; (7) Males sterilize the finished chopsticks with peroxide; (8) The sterilized products are air dried and re-collected by females; (9) Children package the chopsticks in shrink-wrap into bundles of ten and attach a basic label; (10) The group manager takes stock and arranges for the chopsticks to be collected or shipped to Hushi; and (11) Upon sale, the group manager distributes funds to the village members.

PBG’s management committee established goals for its first year of official operation, advised by a representative from the nature reserve and based upon various study tours to other bamboo products enterprises. These goals included (1) mechanizing chopstick production, (2) packaging the finished products in the village, (3) investigating means of more intensive bamboo propagation, and (4) using all parts of the bamboo culm more efficiently. The shorter-term vision of PBG is to increase production and to improve the skills of its members, however its longer-term vision is to become an empowered and representative “council”, chiefly for facilitating improvement to all poverty-linked challenges in the village and to help preserve the village’s unique form of Miao culture, particularly by stemming migration. As PBG matures as an enterprise, it is possible that environmental stewardship in partnership with reserve management teams could begin in the enterprise. PBG already has a working partnership with the Chishui NNR.

The long-standing PingShang village committee manages the bamboo stands and access to all forest products, which is a separate entity from PBG. The producers’ group committee manages production and sales. As well, PBG is working with managers from the nature reserve to increase their qualitative and quantitative understanding of the bamboo resources, particularly with regard to sustainability, regeneration, and culm quality and how it relates to soil conditions a micro-site location.

3. Enterprise organization, management and governance

Management structure, internal rules and procedures

In many instances across China, village governments also control commercial interests, however the PingShang village committee permitted the formation of a separate management committee to act as directors for PBG. Village inhabitants elected the management committee of PBG and the committee in turn elected two co-chairpersons and subsequently a manager for the producers’ group. The manager position was created after the other positions, as one of the committee members became the chief liaison for PBG with outside visitors. The Chishui NNR has a single, permanent seat on PBG’s management committee. The management committee has twelve members, including the representative from the nature reserve. PBG’s management committee meets quarterly,
or at short notice to deal with any major problems or issues. Villagers approach a member of the management committee to discuss any issues of importance.

Although most of PingShang lies outside of the Chishui NNR, PBG is closely linked to the nature reserve and greatly influenced by the nature reserve’s staff. Managers of the nature reserve have a vested interest in the welfare of the village. This logic is extended to most National Nature Reserves (NNRs), where annual income of villagers living within core zones can be as little as 25 percent of the county average outside the reserve and considerably less than the capital city and other municipal and urban areas. There is concern that at some degree of impoverishment, villagers will disregard the boundaries of the nature reserve and exploit resources beyond the areas allotted for PingShang’s use. Both the village and enterprise committees seek the counsel of the nature reserve staff on a variety of matters.

PBG established internal rules to govern how it operates its business. The rules include a mission statement in which the enterprise endeavors to improve livelihoods, use resources sustainably, better the skills of its members, and improve the enterprise. PBG submits to Chinese law and acknowledges the support of the Chishui NNR. The rules continue to establish the management committee and outline the responsibilities of the elected members. Finally, the rules list the rights and obligations of the general members. General members have the right to manage, produce, and participate in the bamboo enterprise and to access all enterprise information. Members of PBG are obligated to (1) observe the rules, laws, regulations, and policies of PBG and China, (2) study material supported by PBG, participate in training, and partake in propagation of bamboo activities, and (3) supervise and manage the enterprise and work initiatives when so required.

The sustainability of existing species is the primary forest management objective in PingShang. Moso bamboo is the most important species for chopstick making in the village and community members inherently understand that scattered harvesting does the least damage to the root structure, permitting future harvests. There are also efforts made to ensure that the forests maintain the natural composition of species and prevent the unnatural incursion of non-bamboo species. An agreement between the village administration and PBG governs the enterprise’s use of resources on the forestlands to which PingShang has exclusive rights. This agreement limits the amount of bamboo that the producers’ group can harvest annually in an effort to ensure that the producers’ group venture is sustainable. Managers at the nature reserve who work with the PingShang village committee helped determine the amount made available for use based upon their experiences with bamboo regeneration in the reserve. In PingShang, moso bamboo requires three to five years to reach an optimal size for the production of chopsticks and for sale as a whole culm. With some early success and renewed interest in chopstick production in PingShang, the managers of the nature reserve are reviewing the biomass agreed as accessible by the villagers and is amenable to some propagation in the future. The main interest in propagation is that the villagers seem to want a more convenient resource on their doorstep. Much of the landscape surrounding the extended village is

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7 See Annex 1
sloped in excess of 60 degrees. In the main Chishui valley and watershed, conversion of farmland to bamboo production is increasingly popular, including trials with hybrids – so-called super species. These novelties would be precluded from PingShang.

**Role of community and resident members in decision-making**

Approximately 50 families have two or three family members working on an ad hoc basis for the producers’ group. The remaining families are not involved for a variety of reasons, primarily due to age, poor health, or too few laborers in the family. The producers’ group does not have any non-village members in its employ. Villagers do not require a permit to harvest bamboo, though the village committee oversees that the producers’ group does not harvest more than the allowable amount. Villagers are permitted to use bamboo for any purpose excepting substantial use as fuelwood.

This ad hoc management structure has benefits. PBG members have great control over their involvement and thus production and decision-making. Community members can work as much or as little as they need or wish, which is unique when compared with many other enterprises. Though PingShang’s historical experiences and expertise lie with the sustainable harvesting and shipping of bamboo culms with lowest return and a low business challenge, upon the formation of PBG community members were keen observers of production methods in households of the valley floor and adaptable and receptive to technical training.

**Ability to address diverse goals and mediate any internal conflicts**

As discussed in the previous section, PBG’s goals were fourfold for the first year of operation. The enterprise was better able to meet some of its diverse goals than others. PBG mechanized much of their chopstick manufacturing and began packaging finished products in the village. However, the enterprise is still investigating means of more intensive bamboo propagation and using all parts of the bamboo culm more efficiently. The latter two goals are ongoing processes and given the ad hoc nature of business in PBG, members have not been assigned to aggressively pursue these initiatives, although it is expected that the reserve representative will encourage a more structured, focused energy, which befits his management experience.

The enterprise has basic procedures for dealing with internal conflicts. The manager is the first to deal with an issue, followed by the co-chairpersons, and finally the management committee. The first rules for the first year of operation were basic. The PRA facilitator encouraged a quick start and prompt training, and the villagers expected, in the first year, that the co-chairmen would be trusted to be fair adjudicators. There were no major conflicts, in what was a year of re-energization. However, for disagreements or differences in opinion that do arise, the villagers go to the manager for a decision, rather than engage the management committee. If there is a disagreement between PBG and a buyer over product quality, they refer to the normal product quality standard for Chishui County. If there is a widespread drop in quality, all members of PBG will be brought together for a meeting.
4. Economics of the enterprise

**Production, harvesting, processing, marketing**

Each family undertakes all of the activities in the chopstick production chain, seeing the product through from raw resource to finished product. As of yet, PBG does not plant or propagate bamboo, though there is plenty of expertise in the region. Training in planting techniques, seedling care, fertilizer use, and nursery operations are a necessary first step to initiate propagation activities. In addition to the 130 hectares of bamboo forest that PingShang has access to, the village also has rights to land not suitable for farming that could be converted to bamboo forests.

In the management plan developed by the village committee and the staff at the nature reserve, the producers’ group is permitted to harvest up to 100,000 culms annually. PBG harvests approximately 20 percent of the allotted quota. Zhong et al. (1998) report that in Anji County intensively managed bamboo forests can be up to 12 times more productive than poorly managed bamboo forests and they estimate that moso bamboo can biennially produce up to 1000 culms per hectare. Given production rates in other parts of China, the allowable annual harvest in PingShang may be ambitious considering that the estimated upper limit of production from the literature would still not sufficiently supply enough bamboo for PingShang’s management plan.

Before the establishment of PBG, the residents of PingShang produced 30,000 pái\(^8\) of unfinished chopsticks and a negligible quantity of finished chopsticks annually. In PBG’s first full year of operation, the enterprise produced 40,000 pái of unfinished chopsticks and 40,000 pài of finished chopsticks. Additionally, an unspecified quantity of whole culms was sold.

In addition to delivering chopsticks to Hushi, buyers are now coming to the village to purchase product. All sales are wholesale to intermediaries that often re-package the chopsticks and distribute them elsewhere. There are no restrictions limiting PBG from selling to any consumer. Chopsticks from PingShang are transshipped from Chishui to destinations throughout the province and China, although there is no means to identify PBG chopsticks once the chopsticks are re-labeled in the county capital. There is presently no evidence that PingShang chopsticks are included in international exports.

With regard to marketing, PBG is beginning to take advantage of a township economic program that alerts buyers to finished products. The township includes several businesses that are mostly industrial and thus significant employers, chiefly the production of (unfinished) bamboo flooring, and industrial matting. Thus Hushi Township can promote products from cottage industries through to factory production. With the energetic re-organization at PingShang, Hushi Township can now begin to think of assisting with an eco-brand for PingShang products, given the economic (tourism) relationship between Chishui NNR and PingShang.

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\(^8\) One pài is 10 pairs of chopsticks.
Financial and efficiency data, profitability, reinvestment

Currently, PBG is selling its finished chopsticks for $0.43-$0.56 (3.5 CNY- 4.5 CNY) per pài. This is a sales price increase of roughly $0.18 (1.5 CNY) more per pài compared to the sales price obtained before the establishment of PBG. Whole, unprocessed culms less than ten centimeters in diameter sell for $0.37 (3 CNY) and those greater than ten centimeters sell for $0.74 (6 CNY).

A bottleneck in the production chain is one of PBG’s greatest inefficiencies. Though most of the chopstick-making process is mechanized, the unfinished chopsticks are still fashioned by hand. The machines can sit idle at times, as shaping and finishing by machine takes less time than making the unfinished chopsticks. As well, the machines are located in one of the village houses, which is not most conducive to productivity.

Producers in PingShang envied the valley-floor households, which were already mechanized and running relatively smooth and profitable operations. After one year, profitability has been judged to double based on the doubling of household income. It is estimated that each pài brings PingShang a profit of $0.01-$0.06 (0.1 CNY - 0.5 CNY). The greater volume of chopsticks produced by PBG and the higher price for finished chopsticks are directly responsible for the increased average annual household income. The benefits can be measured in social terms as well, with some families moving out of extreme poverty, as demonstrated by flow of currency chiefly at this early stage, and a spirit of optimism. Benchmark indicators later will include school attendance and numbers of children progressing to middle school, women’s health (monitored by the county family planning clinic), and confidence in food security. In the meantime, rules of the group ensured that families in insoluble hardship would not go without assistance.

PBG does not pay wages for labor, nor divide revenue evenly between its members. Rather, revenue generated from the sale of chopsticks is distributed to members based upon the amount of product made by each member. Members pay directly for consumables, such as electricity, peroxide and packaging, which are purchased in bulk by the group. In the first year, no sales income was retained for re-investment or levy charged to members of the producers’ group. There is hope that another donor will become involved to cover the costs of any developmental expenses incurred by the enterprise.

Technical support and outside finance/donor support

PBG received both technical support and outside financial support. The Community-based Conservation & Development Research Center (CCDRC) of Guizhou Normal University, located in the provincial capital Guiyang, facilitated the formation of the enterprise. The CCDRC also provides fire-fighting support when requested and is presently aiding PBG in finding a new donor agency for further development of the enterprise. A company in the township capital of Hushi arranged training sessions for members of PBG and Chishui NNR supports initiatives of PBG from its seat on the enterprise’s management committee. The nature reserve staff was proactively involved in establishing the producers’ group in cooperation with the township enterprise initiative, as it has a vested interest in seeing PingShang’s economic and social conditions.
improve since the village will be less likely to make unwarranted incursions into the nature reserve to use resources. Outside financial support came from the United Kingdom’s Department for International Development’s (DFID) Small Grants Scheme, facilitated by the British Embassy in Beijing, and totaled slightly more than $4800 (39,072 CNY). Managers of the project that oversaw the establishment of PBG earmarked one-third of the grant to be given to the producers’ group, for the first year of operation. The producers’ group purchased equipment that included two new manufacturing machines to make both round-end and square-end chopsticks, an electric motor to operate the machines, two label-printing machines, packaging bags, and a dryer. Project expenditures are shown in Annex 2. PBG wants to purchase an electric shaper for the unfinished chopsticks at a cost of just less than $1500 (12,000 CNY). With the addition of this machine, the entire production chain would be mechanized with the exception of labeling, which is usually done by children. Project managers estimate that an additional input of roughly $3000 (25,000) will make PBG long-term players in the production of high-quality chopsticks.

Support in the region from other organizations has created an enabling environment that also benefits PBG. With funding from the Ford Foundation, the International Network for Bamboo and Rattan (INBAR) implemented the three-year program “Community-based Bamboo Development Demonstration for Poverty Alleviation and Environmental Protection in Chishui, Guizhou Province” which ended in June 2005. In this program and in others across China, INBAR has undertaken many pro-bamboo initiatives. The Ford Foundation has sponsored a major project to form share-holding cooperatives in several bamboo villages in Chishui County to supply industrial bamboo processors with the raw material they require to operate. The European Union and the WWF are interested in sustaining the whole Chishui River basin as a complex of bamboo communities and geological and natural resources, which means inter-provincial cooperation. The Chishui River arises in Yunnan, and then runs through Guizhou, before emptying into the upper Yangtze in Sichuan.

**Specialty markets / eco-labeling**

Prior to the formation of PBG, PingShang produced a low quality, low cost unfinished chopstick. The village was not attuned to the merits of brand, quality control or packaging. Due to PingShang’s proximity to and close relationship with Chishui NNR, opportunities exist to market PBG chopsticks under an eco-label. CCDRC is campaigning for a Guizhou eco-label, first aiming for a common label for the 7 national nature reserves in Guizhou Province. As well, Hushi Township’s economic development program is seeking markets for eco-brands.

**Competitive advantage and position in domestic and international marketplace**

There is a tremendous regional, national, and global demand for chopsticks that shows no signs of abating, so competition in the region and the sector is primarily based on quality and not quantity. As an enterprise composed of over 70 families, PBG is the largest coordinated producer of chopsticks in the county. Despite that status, PBG contributes less than one percent of the county’s production of packaged, table-ready chopsticks.
There are several reasons for PBG’s successes. The great demand for chopsticks provided a market that could accommodate all the chopsticks produced in PingShang. Furthermore, PBG benefits from the fact that its management committee is not also the village government, circumventing problems that could arise with one management group overseeing two distinct entities. PBG’s relationship with the managers of Chishui NNR is an advantage that the enterprise has over its competitors, as there is the potential to market its chopsticks as a conservation grade product. Another advantage enjoyed by PBG is that the numerous state and private enterprises that dominate the bamboo products’ sector are chiefly interested in industrial bamboo products, including parquet flooring and fiber sheeting for construction sites, eschewing products like chopsticks. Thus, the overlap between the two types of organizations is primarily in rights to bamboo stands, which may cause conflict at some point in the future. The current rate of harvest in surrounding bamboo forests by state and private enterprises indicates that there will be a growing interest in community bamboo forests. There are instances of illicit activities and some grey-area harvests by companies perhaps overlooked for now by Forestry Bureau stations. The Chishui NNR is addressing this issue, as encroachment into the PingShang bamboo forests, outside the reserve, could have detrimental effects on the core reserve.

Even though PingShang is unlikely to be pushed out of chopstick making, it faces some disadvantages when compared to its competitors at lower elevations. Many villagers are afflicted by ill health (chiefly women, who remain untreated for cultural or economic reasons), attributed to elevation, diet, and living conditions, that are less prevalent in the lower valleys and the main, extended Chishui River valley. Moreover, there is a greater level of mechanization in many other parts of the county and PingShang’s location prevents easy transport of products.

5. Environmental benefits, conservation values, impact on biodiversity

Social returns from the enterprise, culture, and livelihoods

PingShang is afflicted by poverty, a poor system of education and where few children are educated beyond 12 years of age, ill health (particularly illnesses affecting women, and the general effects of elevation in cold, damp winters), cultural loss, and a stable food supply (the elevation and climate is sub-optimal for pig and rice production). Income improvement and an empowering sense of hope already ease social challenges.

Cultural products, cultural knowledge and identity

PingShang is a Miao village. The Miao ethnicity is the largest in Guizhou. The Miao people have a distinct culture, including language, customs, and beliefs. Miao clothing, song, and dance are varied and nuanced by geographic location. Isolated Miao communities, such as PingShang, have evolved their own versions of these culturally invaluable activities and articles. In PingShang, as in other remote locations around China (Long et al. 2003), there are spiritual ties and customs that bind the communities to their surrounding bamboo forests. As of now, the village’s indigenous knowledge of its
surrounding natural resources has not been recorded or catalogued. Already, fewer young people in PingShang are learning the many aspects of the village’s unique Miao culture. The system of rotating bamboo crops and harvesting other products is informally learned indigenous knowledge. In other parts of Guizhou, tourism is a source of revenue that helps maintain the Miao cultural identity and a sector that could benefit the village, especially given its proximity to a nature reserve. Following the first survey of PingShang by CCDRC, it was recognized that the location and Miao culture lent itself to so-called backpacking forms of tourism – a brand of tourism being endorsed in some other protected areas by CCDRC. Later, PBG may consider this form of economic diversification.

**Subsistence products**

PingShang sources a few other products from the bamboo forests other than the raw material necessary to sell whole culms and make chopsticks. These are chiefly for domestic use. The bamboo forests also provide fuel, food, and material to make agricultural and domestic tools, often coming from other less economically important bamboo species. Fruits, fungi, vegetables, and medicines are collected from the bamboo forests and neighboring deciduous woodlands as well. Some of the bamboo species in the province are used for making musical instruments like the flute-like *lusheng*. That the art of making such instruments locally is dying out reflects a lack of adhesion in respect of transfer of skills.

**Investment in social infrastructure**

PBG does not yet invest directly in social infrastructure, though since the annual per capita income doubled, community members have more disposable income to spend on educational, communication, and health services. Many villagers yearn for a road that would connect the village to the rest of the township, however the engineering challenge is formidable and an unlikely outcome in the near future. At the PRA meeting that established the producers’ group, village members identified the following issues as ones that should be addressed by the producers’ group: production skills, training, road, food security, income, market knowledge, livelihoods, health, taxation, and product packaging.

**Professional training or skills building of community members**

PBG has initiated a technical training program for chopstick production, but training does not extend to other life skills. However, the reserve representative on the PBG committee is also a permanent liaison officer with the village, and with this association comes a greater opportunity for structured change compared to mountainous villages without the advantage of enlightened, scientific neighbors.

**6. Intersection with government regulations and policies**

The government initiative that created Chishui NNR had a pronounced and far-reaching affect on PingShang. The boundaries of the nature reserve include land traditionally used by the people of PingShang. Since the formation of Chishui NNR, the villagers’ traditional use of the land and the resources now contained within the park’s boundaries
has been restricted. However, managers of the nature reserve have taken an active role in PingShang to ameliorate living conditions and ensure the villagers do not encroach on nature reserve lands not allotted for use. A beneficent attitude of the style seen at Chishui NNR goes beyond the pleasant, proactive demeanor of the reserve’s director, in this case. There are seven national reserves in Guizhou province – three of them designated by UNESCO as Man & Biosphere sites – and all are members of the Guizhou PRA Network. Further, the federal Forestry Bureau for Guizhou, based in Guiyang, is a member, which indicates a national endorsement for the NGO. Generally, national nature reserves in China are heavily policed, with managers commonly wearing police or forest ranger uniforms; and driving marked cars; scientific staff members are usually subservient in the management regime. This authoritarian emphasis is noticeably changing, partly due to influence of the PRA Network and multiplicity of PRA practitioners, all of who are volunteers.

In general, taxation is another form of government intervention that has had a great effect on the forest sector, especially in more traditional forestry activities like timber production. In many instances across China, forestland managers have shifted their land use to other forest activities like orchards and bamboo forests that are subject to a lower rate of taxation. Government taxes still influences the sector, even though the manufacturing of bamboo products is subject to a lower rate of taxation. The Hushi Township initiative for economic development helped ease the tax burden in PingShang, especially with regard to the grant from the project donor to the village that established PBG. Moreover, there is at present no tax levied on the cottage production of chopsticks, so PBG is not required to pay tax on the bamboo products that it sells.

The ambiguity surrounding rights to land and resources limits the successes in PingShang and the forest sector in general. In PingShang, uncertainty over ownership of bamboo forestlands means that some land goes unmanaged. As well, obtaining permission to harvest in timber forests is a burdensome process. Though less complicated in the bamboo sub-sector of forestry, it is still a required bureaucratic endeavor that can be daunting for rural people unfamiliar with the necessary procedures. However, in the last twelve months, commentators on social forestry in south-west China have welcomed the recent initiatives by national government to reward farmers with annual payments for stewardship of trees. Perhaps this policy may yet be adapted to preservation of bamboo stands.

7. Ways forward and opportunities

Changes needed in the enabling environment

Changes in the policy environment could benefit both PBG and the forest sector in general. Firstly, the entire forest sector would benefit greatly from a clarification of China’s forestland ownership laws. Though the de jure situation seems to differentiate clearly between state and collective forestlands, the de facto situation is ambiguous. Collective forestland owners do not necessarily have all the rights normally associated with ownership. For example, harvest rights are in many instances severely restricted.
As alluded to previously, cottage processing of bamboo is not viewed as competitive to vested interests. However, on the fringes of Chishui NNR, there is increasing competition for bamboo because of industrial processing in the township and region, including the possibility of one substantial bamboo processing facility being constructed in the next five years – a feasibility study has been completed. In this competitive regime, there is some indication that Forestry Bureaus do not lean towards a genesis of social forestry, continuing to support the status quo, which favors industrial exploitation of bamboo.

**Challenges for future or continued success**

With regard to PBG, there are improvements that can be made within the enterprise. The ergonomics of the enterprise are not conducive to efficiency. The machinery is located in one of the village houses and this location is not the most opportune. As well, there are bottlenecks in the production chain. For example, the village has finishing machines, but work leading up to the point where the finishing machines can be used is done by hand. The slower manual labor means that the finishing machines are under utilized. There was insufficient funding to mechanize the entire the process. As well, the enterprise operates on an ad hoc basis, so when its members are busy with other tasks, no chopsticks are produced. This fact may lead to an undependable supply of chopsticks and a point of frustration for customers. PBG would benefit from formalizing its membership structure. A shareholding system in which members contribute levies to cover the costs of operation and equipment acquisitions and maintenance would contribute to the long-term survival of PBG.

**Potential to expand or replicate the experience**

There is potential for the enterprise to increase its operations and to expand into new markets. Building a stock of product would enable the enterprise to market its wares more proactively, especially if it took an eco-theme approach considering its relationship with Chishui NNR. The producers’ group in PingShang promises to be a flagship project for other communities on neighboring nature reserves. Actually, a similar project is underway in Guizhou Province’s Fanjingshan NNR. Based upon the successes in PingShang, there is an initiative to establish a honey producers’ group to relieve pressure on natural resources in the nature reserve where the rare Guizhou golden monkey (*Rhinopithecus brelichi*) is found. In Guizhou there are seven national-level nature reserves and 120 local-level nature reserves. There are opportunities for the successes in PingShang to be transferred to other villages throughout the province and the nation. PBG may also be able to diversify into other forest products like wild fungi and edible bamboo shoots.

**Literature Cited**


Annex

Annex 1. Comparison of incomes in national nature reserves and in neighboring towns or counties.

<table>
<thead>
<tr>
<th>Nature Reserve</th>
<th>Average Annual Per Capita Income</th>
<th>Associated Town/County</th>
<th>Average Annual Per Capita Income</th>
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<tbody>
<tr>
<td></td>
<td>CNY</td>
<td>US$</td>
<td>CNY</td>
</tr>
<tr>
<td>Cao Hai NNR*</td>
<td>591</td>
<td>$73</td>
<td>Weining Town**</td>
</tr>
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<td>Chishui NNR*</td>
<td>1200</td>
<td>$148</td>
<td>Chishui County*</td>
</tr>
<tr>
<td>Fanjing NNR*</td>
<td>591</td>
<td>$73</td>
<td>Jiangkou Town**</td>
</tr>
<tr>
<td>Maolan NNR*</td>
<td>620</td>
<td>$77</td>
<td>Libo City**</td>
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<tr>
<td>Xishui NNR*</td>
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<tr>
<td>AVERAGE</td>
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<tr>
<td>Guiyang**</td>
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<td>$296</td>
<td>Guiyang**</td>
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</table>

* CCDRC, Guizhou Normal University/Guizhou PRA Network
** Guizhou Statistical Yearbook 2002

US$1 = 8.08660 CNY on November 3, 2005

Annex 2. Breakdown of expenditures for the project that established PBG.

<table>
<thead>
<tr>
<th>Expense</th>
<th>Amount (US$)*</th>
<th>Amount (CNY)</th>
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<td>Initial Investigation</td>
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<td>Meeting INBAR, Beijing</td>
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<td>Translation</td>
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<td>CNY 39,072.0</td>
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* 1 USD = 8.08660 CNY on November 3, 2005