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# **ACCESS MATTERS: THE LITTLE MAN WITH THE BIG STONE -- A COMMODITY CHAIN ANALYSIS ON THE CASE OF CHINESE FIR IN P COUNTY, HUNAN PROVINCE, CHINA**

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## **Access Matters: The Little Man with the Big Stone**

**-- A commodity chain analysis on the case of Chinese fir in P County, Hunan  
Province, China\***

Xiuli XU, Ting ZUO<sup>#</sup>, Tianlai GOU, Gubo QI<sup>∞</sup>, Ribot JESSE<sup>‡</sup>

### **Abstract**

That poverty persists amidst an abundance of valuable resources presents a challenging dilemma in China. This paper applies the commodity chain analysis as a method for analyzing how and for whom the Chinese Fir Market operates. The paper calculates the income and profit earned of each actor in the Chinese Fir at different nodes in the commodity chain, and identifies a range of legal, structural and relational factors that shape the flow of benefits. Ultimately, the paper argues that property rights matter, but not always, and never alone. It is access as seen in everyday practices that matters more. The move from a focus on formal property to a broader access approach is a shift from prescriptive back to empirical political economy. It contributes to the empirical challenge to the abstract notions of markets in neoclassical-economics. It argues that state-based and non-state based controls are endogenous to the existence and functioning of markets.

**Key words:** poverty, access, property rights, commodity chain, China

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# **Access Matters: The Little Man with the Big Stone<sup>1</sup>**

## **-- A commodity chain analysis on the case of Chinese fir in P County, Hunan Province, China**

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### **1. Introduction**

In China's socialist system context, forestland falls into two categories: state-owned and collective-owned. The forests (forestland plus trees and varying products) are accordingly divided into state forests and collective forests further delineated into a complex tenure system.<sup>2</sup> Collective forests preponderantly account for almost 60 percent of the total forest area in China (SFA 2006), which are critical in maintaining the livelihoods of forest dwellers by supplying timber, non-timber forestry products (NTFPs), employment opportunities in forestry enterprises, and other forestry products and opportunities (Zheng 2003; Miao *et al* 2004). The booming domestic demand and growing export-oriented processing industry in the forestry market are commonly deemed to create great opportunities for hundreds of millions of forest dwellers in China (Xu *et al* 2004). However, in many areas rich with forest resources, poverty still prevails. Of the 592 Key Working Counties<sup>3</sup> (KWCs) in the National Poverty Alleviation Strategy, two-thirds are located in the mountainous areas of China (World Bank 2001). Li and Veeck (1999) discovered a correlation between plentiful forest resources and poverty in China.

That such abject poverty remains amidst an abundance of valuable resources presents a challenging dilemma for the Chinese government and academics. It not only hampers the fulfilment of China's Millennium Development Goals (MDGs), but also undermines previous assumptions of the collective ownership arrangement within the Chinese socialist context, mainly that local farmers could greatly benefit from their own

lands after being liberated from the landlords. It further fails to meet the expectations of China's continuing decentralization of forest management and the open market policy; ultimately frustrating the macro ecological goal of enhancing the incentives of forest dwellers to adopt good forest management practices through the reform policies.

How can local farmers' benefits from forest resources be improved to resolve the above dilemma? In China's government and academic circles, calls for the enforcement and reform of the existing collective property rights are overwhelmingly strong. However, the authors argue the "property right" approach is incomplete. On their own, rights and even control over the resource are not sufficient for rural people to derive benefits from natural resources especially in present-day China's transitional economic context (where market factors and government control are mixed), because other actors who are better-placed along the commodity chain could override their rights through various technical, structural, relational and *even* policy mechanisms. Most profits are not located at the farm gate. They are spread throughout the market hierarchy in the purchase and resale of forestry products along the commodity chain, from the forest to the centers of consumption and end use. This paper, taking Chinese Fir in P County in Hunan Province as a case, will apply the commodity chain analysis to assess how and for whom such market conduits operate in the sphere of collective forests. This study shall assess who benefits from Chinese fir commercialization and the mechanisms that allow them to benefit.

This paper is organized into seven sections. Section 2 first provides the theoretical framework of the paper through a literature review of property rights and access, and second, a review of the commodity chain analysis. Section 3 situates the commodity chain by discussing China's broad context and introducing the case sites. Section 4 identifies the actors along the commodity chain of Chinese Fir. Section 5 and 6 respectively calculates the income and profit distribution along the commodity chain, and elaborates on the access mechanisms of each actor along the chain. Section 7 provides a conclusion and a discussion. Overall, Section 3 provides the external

context of the commodity chain, and Sections 4, 5 and 6 present the internal governance, or structure, of the commodity chain.

## **2. Theoretical framework**

### *(a) Property right and access*

Both property rights and access are popular in the benefit analysis. The term "property" is used to refer to a right or a set of rights with respect to the ownership of material resources (Bromley 1989b; Bruce 1998; Cronon 1983; Furubotn and Richter 2000; Hann 1998; Macpherson 1978), which has the connotation of a claim to a benefit stream (Macpherson 1978; Meinzen-Dick and Knox 1999). The term "property rights" is used to make the connotation of "property" clear (Bruce 1998). However, both terms are used interchangeably in academic writing.

Property is usually defined as the exclusive right to possession, use or disposal of anything. Property is imbued with the social privilege to exclude others from the use of, or deriving a benefit stream from, any particular resource (Rangan 1997). Rights to certain things are only meaningful if other people abide by these rights (Bromley 1989a, 1989b; 1992; Cronon 1983; Schlager and Ostrom 1992). In other words, the duty of people to respect one another's ownership embodies the meaning of rights. Rights and duties are governed by a set of rules (Schlager and Ostrom 1992). To sum up, the term "right", the core principle of "property", implies an acknowledged claim that society supports, whether through law, custom or convention (Ribot and Peluso 2003).

Access, however, is the freedom or ability to obtain, make use of and benefit from material resources (Merriam-Webster 1993; Ribot and Peluso 2003). The term "ability" is broader than "right", resting solely on the act of demonstrating without the need for any socially articulated approval. "Right" is a prescriptive term, and "ability" is a descriptive term. "Property" is de jure, while "access" includes the de jure and the de

facto (Ribot 1998). Besides right, other structural and relational access mechanisms include social identity, social relations, coercion and trickery, material wealth, and physical circumstance (Ribot 1998, 2003).

Accordingly, it is insufficient to focus solely on property in the benefit analysis. Legal ownership, tenure and title are just a few mechanisms among many that people use to support their ability to benefit (Ribot 1998, 2003, 2005). Therefore, access analysis or mapping is necessary to explore the benefit mechanism. It should be emphasized that "access" does not replace the term "property". Rather, it encompasses property, putting property rights in place among the whole array of mechanisms, structures and relations at work. As Ribot (1998) states, "possession" may be, as the old adage goes "nine tenths of the law", but "law" may be only a fraction of "access".

*(b) Access mapping: commodity chain analysis*

Systematically exploring the access mechanisms of different actors for a given commercialized natural resource is challenging. Commodity chain analysis can shed light on the analysis. A commodity chain is a series of interlinked exchanges through which a commodity and its constituents pass: extraction or harvesting, production, transformation, transport, distribution, wholesale, retail and end use. As such, commodity chains serve as conduits through which commercialized natural resources are ushered from the land to their final users (Ribot 1998). Commodity-chain analysis is a method for analyzing how and for whom such market conduits operate. It is a tool for understanding who benefits from natural resources and how they benefit (Ribot 1998).

According to Ribot (1998, 2005), access mapping along a commodity chain consists of: ① identifying the actors along the commodity chain; ② evaluating income and profit at each level of the commodity chain; ③ evaluating the distribution of income and profit within each group along the chain; and ④ mapping the mechanisms by which access to benefits is maintained and controlled.

Additionally, Rangan (1997), Gibbon (2001) and Gereffi (1999b) stress the importance of institutional framework or broad social, economic and political context, especially with historical review, in discussing the access mechanisms of the commodity chain. Gibbon (2001) and Gereffi (1999b) also highlight the internal governance of the commodity chain in their analyses to understand who drives the chain, or what the spaces are for upgrading the weaker agents in the global commodity chain. This paper will follow Ribot's commodity chain methodology, with special attention to the external context and its internal governance structures.

### **3. Situating the commodity chain in the Chinese context**

#### *(a) China's decentralization context in forest management*

During the past 50 years, China has experienced dramatic political, social and economic changes, extensively impacting forest management, particularly that of the collective forest. Nationwide political reform led to the gradual decentralization of forestry administration and governance, with more rights and responsibilities allocated to local governments and village communities (Schwarzwalder 2001; Xu 2002; Dupar and Badenoch 2002). However, this decentralization trend was not a pre-designed, well-prepared and fully anticipated process accompanied by debate and deliberation. China's State Forestry Administration (SFA) alternated between centralization and decentralization to meet a variety of forestry demands. Despite this, the forestry sector is still the most centralized in China. The collective forest is often much more, if not wholly, government controlled, rather than a voluntary social grouping with rights like those held by private forest owners internationally (Miao *et al* 2004).

Since the early 1980s, and within the sphere of natural resource management, the central government has carried out several decentralization policies. The Individualization of Forestland Use Rights (1982), and Wasteland Auctions (1994), allocated forestry land use rights to individual households. According to these policies, responsibility for forest management was shifted from the central government to local

villages and privatized to individuals (Zuo 1995; Zhang 2000). The central government further increased the power of township authorities to manage natural resources in 1994 by transferring the management of government stations – the stations of forestry, agricultural extension, irrigation management, and water and soil conservation – to the township level. In order to strengthen the basis of participatory decision-making at the grassroots level, the Village Organic Law, issued in 1998, provided for natural resources management responsibilities to be allocated to the Village Committees (Xu 2002). According to this law, the Committees may develop their own regulations for community natural resources management as long as they are in full compliance with the Chinese Constitution and laws, and with the regulations and policies of the county. To improve farmers' benefits from the commercialization of collective forests, the timber market was opened between the end of the 1980s and the early 1990s. Previously, as one of the key resources for the modernization of the entire country, forests were purchased, transported and distributed in a monopolistic manner, with state-owned timber companies being the only legal actors in the forestry market.

Throughout the aforementioned decentralization reforms, the central government has transferred the managerial responsibility of natural resources to local governments, especially the local communities, with the expectation that the condition of the resources would be improved. The conventional view, however, judged it to have failed in achieving this goal (William 1994 in Dupar and Badenoch 2002), as the trends of deforestation, soil erosion, and flooding continued. After the heavy flooding of the Yangtze River, a logging ban was enacted in 1998, which implied "the failure of past 15 years of forest policies, characterized by decentralization to lowest level" (Zuo and Xu 2001).

What is the reason for the failure of the decentralization policies? Zuo and Xu (2001) see the fault in "simply transferring forest use rights and management responsibility to local communities, but without strengthening the coordination and supporting



structures for sound environmental governance.” The Individualization of Forestland Use Rights Policy did not work well due to the lack of participation of local villagers, who remained unclear about responsibility and benefit sharing, and uncertain of their long-term tenure. It even resulted in a wave of deforestation in some cases (Xu 2002). The transfer of control over government stations to the township level did not create effective natural resource management units. This was because the township authorities were preoccupied with the obligations and objectives of the central government, such as poverty alleviation, family planning, and tax collection, which are often insufficiently funded or unfunded altogether. The Fiscal Responsibility System, introduced in 1994, accompanied by village autonomy in 1998, proved to be a counter-incentive to sound environmental management (Dupar and Badenoch 2002). With this reform, the majority of revenue gained from tax collection would accrue to the upper levels of government, that is, the national and provincial levels at which officials are still appointed, leaving the local government with even less revenue. Village committees have neither the financial resources nor the decision-making power to influence upper level government. Meanwhile, the mandate of collecting taxes from villagers was transferred to village committees, which reduced the popularity of elected village leaders (Xu 2002).

Even after the decentralization policy has been implemented in China, local populations are *still* relegated a carefully circumscribed set of roles in relation to natural resources, where little autonomy is created and few new benefits are actually devolved. The central government still maintains control over decision-making through the supervision of management plans. In this sense, the trend of “decentralization” of natural resource management in China can be better interpreted as “de-concentration” and “delegation”, where decision-making power is primarily centralized, but the responsibility of management has been transferred to local level governments and communities.

An example, typical of the lack of transferred decision-making power, is the Policy of Harvest Quota. Forest harvest quotas are commonplace in several countries around the world, but they are almost exclusively government initiatives for public forests (Bull and Schwab 2002). In China harvest quotas are also instituted for collective forests. Annually, since 1985, the SFA has been setting the log-harvesting quota based upon the statistics from the national forest survey and the volume harvested from the previous year. The quota is divided and distributed at each level of government, resulting in the ultimate assignment of the quota at the village level. Farmers planning to cut timber must first apply for the harvest quota first with the Township Forestry Station, which is then approved by the County Forestry Bureau. Additionally, along the commodity chain, if timber is to be transported out of the township, various varieties of transport licenses according to the precinct of transportation, plus quarantine licenses, are needed in the inspection stations. If timber processing is involved for distribution or retail, the owners should, respectively, apply for processing licenses, distribution licenses, or retailer permits first. Strictly speaking, the harvest quota should be transferred from the forest farmers to the wood merchants, then to the processing plant owners and finally, to transporters/distributors to ensure each batch of timber could be commercialized legally.

The Harvest Quota Policy in collective forests poses an inconsistency with the Forest Law, allowing collectives to use their forests. Farmers have always had great difficulties in gaining access to the quotas. The introduction of the logging ban component of the Natural Forest Protection Program in 1988 reduced the harvest quota from 1.6 million m<sup>3</sup> to 210,000 m<sup>3</sup> (Yang 2005), compounding the problem of access to an already restricted supply of harvestable volume.

*(b) Case sites description*

Hunan Province, lying to the south of the middle reaches of the Yangtze River, ranks second<sup>4</sup> in terms of the collective forest area across China, accounting for 8.8% of the total amount. It also ranks second in terms of gross forest production according to the State Forest Administration (SFA). P County is located north east of Hunan Province. It

is one of the 27 Key Forest Counties in Hunan Province, with a forest cover rate of 57.3 percent in 2005. However, P County is one of the 592 KWCs in China. The local farmer income is 2408 RMB<sup>5</sup> per capita, only 18% of which is derived from forest production and trade. The commercialization of Chinese fir in P County is rather developed, especially after 1994, when the provincial government permitted private individuals to enter the exchange market.

Three townships in P County, out of a total of 27, were selected and compared in the case study. H Township ranks first in terms of the quality and quantity of forest resources, and also at the top of the list in terms of forest resources per capita, due to its low population. Local farm livelihoods rely heavily on the forests, which contribute up to 60% to farmers' incomes. It is a remote mountainous area with only one road connecting P County. Joint management characterizes the local forest tenure. Three models of joint management<sup>6</sup> are practised in the township: one between households and the township enterprise, between households and state forest farms, and between households and Village Committees. JT Village, among 15 villages, with joint management between households and township enterprises is especially under scrutiny.

Both W Township and J Township are much bigger than H Township in terms of the population and the number of villages. The contribution of the forests to the farmers' income is much lower, respectively 10% and 20%. Accordingly, the farmers' livelihood strategies are more diversified, including migration, farming, animal husbandry, and small business due to their proximity to the city. More attention was paid to the household management style in W Township, and the collective management model in J Township, though the two types of management styles exist in both townships. XP Village in W township, HX Village and SY Village in J Township were analysed to gather more detailed information.

**Table 1: Profile of three research sites**

Research Sites	Households and population	Forest endowment (forestland area, cover rate and volume)	Net income per capita from forests	Forest tenure under scrutiny	Physical distance to the city
H Township	1,076 hh. in 15 villages	17,299 ha.; 86.72%; 739,297 m <sup>3</sup>	60%	Joint mgt.	72 Km
W Township	13,923 hh. in 47 villages	17524.9 ha.; 58.25%; 10,4221 m <sup>3</sup>	10%	Household mgt.	25 Km
J Township	13,342 hh. in 46 villages	16682.2 ha.; 63.45%; 162,637 m <sup>3</sup>	20%	Collective mgt.	42 Km

Source: Statistics of P County; Interview with the head of the township forestry stations

#### 4. Actors along the commodity chain

Chinese fir is one of the major types of commercial timber forests in the Southern Collective Forest Region. It ranks first in terms of the volume of P County, which supplies over 80,000 m<sup>3</sup> timber each year, earning the moniker “leading timber forest” in P County. Relative to other timber tree varieties, it can be harvested as timber relatively quickly, reaching the minimum market requirement of 10-12cm diameter<sup>7</sup> after about ten years. It is usually processed into sawn-wood or panels in the village-based or township-based mills or large-scale enterprises, and then transported and distributed to the counties or municipalities in Hunan Province or other provinces to be further processed (generally, into finished furniture) or retailed directly. The whole process is more or less monitored by forestry agents under the Harvest Quota Policy, which not only controls logging, but also manages the processing, transportation and distribution of the timber by issuing licenses and permits, carrying out inspections, as well as imposing charges and fees.

The commercialization of Chinese fir timber in P County primarily proceeds in the following order: ① forest farmers, ② wood merchants, ③ owners of the processing mills, ④ panel distributor (wholesaler) and finally ⑤ panel retailer. Due to the implementation of the Harvest Quota Policy, forestry agents (especially the Township Forestry Stations and the County Forestry Bureaus) are found at every node of the commodity chain. They are responsible for issuing harvest quotas, transport licenses,

processing licenses, permits, checks and fines. The detailed interaction between different actors is to be elaborated in Section 6.

It should be noted that parallel channels and multiple strands of a single chain co-exist for the production, processing, transportation and distribution of the Chinese Fir in P County, e.g. the wood can be directly purchased from the hands of the forest farmers and transported to other provinces directly by major wood merchants, or it can also be processed into panels, or finished furniture locally by small-scale mills or large-scale enterprises, which are mostly invested by "big bosses" from more developed eastern areas across China (e.g. Zhejiang and Guangdong provinces). The authors however will focus only on analysing the profit distribution and access mechanism along the single chain above.

## **5. Mapping the profit distribution along the chain**

This section will display the income and profit of each actor along the commodity chain of the Chinese Fir. It will focus more on the vertical dimensions of the chain, while leaving the horizontal dimensions (e.g. distribution) for the access analysis. The evaluation (Table 2) is done based on the following preconditions: firstly, due to the variable nature of the price of wood and panel in P County<sup>8</sup>, the price of the 12cm-diameter Chinese Fir wood in autumn 2005 is taken as a representative case; secondly, a rough evaluation with the estimated average, rather than the exact calculation, is adopted in the mapping exercise since the real profit is generally hidden and widely varies among different actors even at the same level in the chain. Additionally, an official statistics system for the monitoring and evaluation are absent. Thirdly, in order to sharpen the comparison of the profits between forest farmers and other actors along the chain, the lower expenses of the forest farmers are adopted to show the general maximum profit normally, while the higher expenses of others are taken to display their minimum profits.

It should be noted in reading Table 2, the margin of farmers, 367 RMB/m<sup>3</sup>, is greatly exaggerated, as aforementioned. Few farmers could really gain such high profit margins, since it does not reduce various labor costs (e.g., farmers often ignore their household's and even relatives' labor investment in the economic calculation). But even with the maximum, forest farmers still reap the least profits from the commodity chain, in terms of the contribution of the net income from the forest production to their livelihood, only accounting for 7.79%, and without even considering the costs of the harvesting, transporting, as well as the costs of ten years of fostering. The forest fees and charges make up the major costs in the first node of the chain.

Wood merchants, owners of the processing mills, as well as the panel distributors are getting more and more amalgamated, thus creating a trend of vertical integration along the commodity chain in P County. Those with abundant financial capital can span the three levels of the market to grab higher margins along the chain of over 100 RMB/m<sup>3</sup>. However, this number is still lower than that of the forest agency, which is 110 RMB/m<sup>3</sup>, inclusive of only those forest fees and charges on the forest producers, and not including the fees, charges, fines and payoffs from other actors. Owners of the processing mills and the panel retailers profit the most from the commodity chain of Chinese Fir in P County, earning twice their living costs, with the number even larger if they have a larger market share. Whether merchant, processing mill owner, panel distributor, panel retailer, or even forest agent, they can fully rely on the forestry market to make a living, while the forest farmers cannot, even though it is they who own the forest resources.

It should be noted the income and profit distribution listed in the table is never static. It is dynamic, with price fluctuations, adjustments of forest fees and charges, alterations of the costs of labor and transportation, as well as increases or decreases in the quantities of the wood or panels controlled by different actors vertically or horizontally with different access mechanisms, which will follow in the proceeding analysis.

**Table 2: Income and profit distribution among different actors along the chain**

---A case from P County, Hunan Province, China in 2005

	<b>Forest Farmer</b>	<b>Wood Merchant</b>	<b>Owner of Processing Mill</b>	<b>Panel Distributor</b>	<b>Panel Retailer</b>	<b>Forestry Agent</b>
<b>Price</b> (RMB/m <sup>3a</sup> )	534	574	736	791	888	134 <sup>e</sup>
<b>Expenses</b> (RMB/m <sup>3a</sup> )	167	552	688	760	838	24
- Forest fees and charges <sup>b</sup>	167	0	0	0	0	0
- Wood/panel cost	0	534	574	736	791	0
- Labor cost	0	0	102	0	30	0
- Transportation	0	12	0	16	0	16
- Diverse costs <sup>c</sup>	0	6	12	8	17	8
<b>Margins</b> (RMB/m <sup>3</sup> )	<b>367</b>	<b>22</b>	<b>48</b>	<b>31</b>	<b>50</b>	<b>110</b>
<b>Quantity<sup>d</sup></b> (m <sup>3</sup> /person.year)	0.51	700	700	700	700	130
<b>Net Income (N.I)</b> (RMB/person. year)	<b>187</b>	<b>15,400</b>	<b>33,600</b>	<b>21,700</b>	<b>35,000</b>	<b>14,300</b>
<b>Living Cost</b> (RMB/person. year)	2400	15,000	15,000	15,000	15,000	15,000
<b>Net Profit</b> (RMB/person. year)	<b>-2213</b>	<b>400</b>	<b>18,600</b>	<b>6,700</b>	<b>20,000</b>	<b>-700</b>
<b>Contribution of N.I to Livelihood</b>	<b>7.79%</b>	<b>102.67%</b>	<b>224%</b>	<b>144.67%</b>	<b>233.33%</b>	<b>95.33%</b>

Note:

a. According to the local standard, 1 m<sup>3</sup> of timber or panel entails 1.67 m<sup>3</sup> of wood in processing. The evaluation is based on 1 m<sup>3</sup> of panel, rather than of 1 m<sup>3</sup> wood.

b. Fees and charges refer to the funds for "forest fostering and infrastructure construction/maintenance fees", as abbreviated as "Yi Jin Yi Fei", which are collected from the forest producers. The costs have increased from 12% of the selling prices to 25% (even larger in practice) since 1995. Other forest fees and charges collected from other actors are much smaller in comparison to "Yi Jin Yi Fei", hence are included in the diverse costs.

c. Diverse costs include the forest fees and charges paid by other actors except forest farmers, the commercial taxation, the depreciation of cars or other equipments, rent for shops or storage. For the forest agency, the diverse costs include the costs of the social activities with "big actors" from higher levels for inspection, visits and surveying.

d. Quantity is one of the key factors determining the net income of each actor. The number listed in the table is only an estimated average, based on the local survey. However, the real quantity for different actors varies greatly based on their respective access mechanisms.

e. According to the distribution pattern of the forest fees and charges, the local level accounts for nearly 80% (the provincial level and the municipal level account for 10% each). Therefore, the retention of the forest fees and charges at the P County level is 167\*0.8=134.

## 6. Mapping the access mechanism of each actors

Access to commercial benefits from Chinese Fir in P County is controlled and maintained through different mechanisms at each level of the market. Different actors at the same

level also draw on different means of access maintenance and control to differentiate the horizontal income and profit distribution. Based on the field research, two categories of access mechanisms are identified: one is positive, in that those mechanisms strengthen the actor's access to the resources or benefits; the other is negative, such that those mechanisms obstruct the actor's access. Below, we will examine both mechanisms at work for different actors along the chain in detail.

(a) *Forest farmers*

Forest farmers' income derived from the wood trade is obtained via their property rights on the collective forests. Direct access rights for forests are often diluted by government limitations (e.g., the implementation of the Harvest Quota Policy, logging ban policy, forest fees and charges, as well as the local informal restrictions on the marketing channels) and complex tenure systems. Indirect income comes from supplying labor to wood merchants, especially by the owners of the processing mills in truck loading and unloading, processing and packing, or transportation. Though the forest market has been opened to individuals since 1994 in Hunan Province, very few farmers can reap the benefits from other nodes in the chain under the current licensing and permit system, especially when the tenure system is characterized by individual household management and collective action is far from being attained.

Legally, the community (collective) is the owner of the collective forest. The Village Committee, the primary mass organization of self-government, has the legitimate right to manage the village's collectively-owned land and other collective resources. However, the current rural Chinese collective forest tenure system is a mixture of public, collective and private ownership. This is the result of a collective economic system that continues to undergo privatization reform and policy change, which was triggered by the contracted land system reform in the sphere of forest sector in the early 1980s. Legally, all the villagers are owners yet they are also the contracted users.

So far, there is no common catchall collective forestry ownership and management model. Great diversity exists between provinces and townships within a county, villages within a township, and even between farmer groups within the same village. Forms of ownership range from county and village governmental ownership, household partnerships to shareholding arrangements. In each instance, the rights, tenure security, decision-



making, responsibilities, and distribution of benefits vary. Three different management systems are studied in this paper: joint management tenure in H Township, collective management tenure in J Township and household management tenure in W Township. It should be noted that these are by no means the only tenure systems existing in these townships. The benefits to the forest farmers, 187RMB/person.year, listed in Table 2 only tell a tiny fraction of the whole story. In W Township, 30% of the households gain zero income from forestry production, while 40%-50% obtain a very low income of around 50RMB or even less. Only 20% of the households are able to achieve a rather reasonable income from the forests, i.e. nearly 1000 RMB per year. Under such an income distribution scenario, very few farmers have the incentive to invest in forest management: only 10% of the total households have invested in afforestation and forest management, while 30% have made some random investment, and 60% have never invested in their own forests.

In J Township and H Township however the income and profit distribution pattern is rather different from that under the individual household management tenure. More collective action is needed in both collective management and joint management, and the profit distribution pattern relies heavily on the capacity and accountability of the Management Board, Village Committee or Group Representatives in the collective management model, and the Township Enterprise in the joint management tenure model. Forest farmers can benefit more if their representatives are capable of negotiating higher profits with wood merchants and more importantly, if the representatives are accountable to the. For example, the village committee in SY Village can establish strong and stable marketing networks, and is also much more accountable to the forest farmers than the one in HX Village. In SY Village, besides public goods, such as road construction and education support, each villager receives around 1200RMB of profits per year from forest production and marketing. In HX Village however, forest farmers have never obtained any individual income from the forests except support for road construction since 1984. They have complained to the township government over their village committee's non-transparent fund management, but the recourse process is to date still cumbersome.

In addition to the different applications of property rights shaping the benefits of the forest farmers, other scenarios in which property rights are limited include the implementation of the Harvest Quota Policy, the logging ban policy, the forest fees and charges, as well as the informal restrictions on marketing channels. The harvest quota, often termed "annual allowable cut," controls the commercial harvesting of logs, and was

instituted nationally for all forestland irrespective of ownership in China.<sup>ix</sup> Forest farmers have to obtain permission from the Village Committee, Township Government, and Township Forestry Station before obtaining the quota license issued by the County Forestry Bureau, which specifies which forests, how much and which types of wood can be cut within a certain location over a specified duration. Forest farmers cannot legally cut their own forests if the annual quota has already been fulfilled. The forest fees and charges are deducted from the price to farmers by the wood merchants, and later submitted to the Township Forestry Station before the transportation license is issued. Furthermore, there are numerous policies and initiatives, like logging bans and the creation of national parks and forestlands for environmental services that unilaterally restrict an owner's management options despite laws that guarantee due process and property rights protection. Lastly, though the forest market has been opened since 1994 in Hunan Province, only those with timber distribution (or processing) licenses are legal entities in the timber market. This indicates that forest farmers can only legally sell their wood to licensed actors even if they can find a higher price on the so-called black market.

Normally, forest farmers rarely sell their timber directly to the cities at the retail price because of difficulties in obtaining timber distribution and transportation licenses, and a lack of sales networks. They also have to assume the high forestry fees and charges if they do not cultivate a long-standing network with the local forestry agents.

Despite the aforementioned negative control access mechanisms, some forest farmers practise their own control access through resorting to violence, illegal logging, illegal marketing and supervising others' illegal cutting. Conflicts often arise between forest farmers and the forest police. In one case, a forest farmer, together with many of his relatives, lay before the wheels of the truck when the police tried to confiscate his illegally-cut wood. Additionally, forest farmers have claimed that the harvest quota presents so many limitations that they could not make a living. In some cases, the forestry police do not penalise the farmers, even if they have broken the law. Just as one of the forestry staff said, "the law cannot punish those practices frequently done by most of the people." As owners of the collective forests, local farmers also supervise illegal cutting by others, especially when the cutting is done by the enterprises or the processing mill owners who have obtained the harvest quota directly from the County Forestry Bureau, instead of indirectly via the farmers. This will be examined in more detail later.

In 2004, there were ten cases of illegal cutting in W Township identified with the help of the local farmers, with the highest over-harvest volume reaching 50 m<sup>3</sup>.

(b) *Wood merchants*

As previously mentioned, local forest farmers have to sell their forestland to wood merchants due to various difficulties in gaining access to the marketing channel. The wood merchants maintain access to the profits through their close tie to the owners of the processing mills, their knowledge in converting the weight or the quantity of wood into timber volume, as well as their control over or distortion of information. Their profit access is also indirectly influenced by the Harvest Quota Policy to an extent, depending on the implementation of the harvest quota in the local sphere.

Most wood merchants gain access to the owners of the processing mills (abbreviated as "owners") through long-standing relations. Wood merchants are also tied to the owners through interlocking credit-labor arrangements and other historical economic and extra-economic ties. In XP Village in W Township, most of the merchants are hired by the owners. Some of them are even relatives of the owners. Owners can offer advance credit to the wood merchants for wood purchases from farmers to protect their share of the market, in case forestry agents fine or confiscate wood from merchants whose quota licenses are expired, or who have no permits at all. Over-harvesting is a common practice, while it is also rather common for mill owners, rather than forest farmers themselves, to apply for the quota. Over all, strong owners will step in and resolve the problems on behalf of their workers.

Merchants also gain profits from deceiving forest farmers through measurement tools that are used to calculate and convert the quality and quantity of wood into timber volume. Normally, local farmers are used to using the weight, like "*Jin*", or the quantity of the wood, like "*Gen*", in the transaction. Merchants, experienced with conversion of "*Jin*" and "*Gen*" into m<sup>3</sup>, can intentionally decrease the conversion rate to reap more profits, especially when they deal with farmers who do not have much knowledge about conversion, or are even illiterate.

Information control and distortion in bargaining with forest farmers is another way merchants maintain access to their share of the forest benefits. From the local farmers'

perspective, the forests in the mountain are like a “green bank”. In other words, they go to the “bank” when they urgently need money to pay for their childrens’ education, or the elderly’s medical charges. In P in 2005, many farmers used it to repay their gambling debts. Merchants usually list distorted costs and benefits to persuade farmers to accept a lower price.

Due to the implementation of the Harvest Quota Policy, there exists an informal restriction on the wood market differentiation negotiated between the forest agencies, owners and major wood distributors, who purchase and sell wood directly outside the township to the county, municipality, or even outside Hunan Province, which will be examined later. It means normally the wood merchants, based on their owner-patronage relationship, can respectively purchase the wood in their negotiated market areas.

*(c) Owners of the processing mills*

Owners of processing mills are the relatively “bigger” actors along the commodity chain. They can influence the wood merchants at the fore-node of the chain and the panel distributors at the post-node of the chain. They control their access with their strong financial capital, strong ties to the forestry agents that allow them to acquire quotas, timber processing and transportation licenses with relative ease, alliance control, over-quota purchases, labor controls, credit access, as well as tricks employed during packing and transportation

The owners, village- or township-based, can be roughly divided into two categories: legal entities with timber processing licenses, and illegal entities without licenses. In P County, there are around 130 legal owners. In W Township, according to the head of the Forestry Station, there are 11 legal owners and five illegal owners although the illegal number may have been underestimated. In order to gain processing licenses, owners are required to submit information including adequate levels of financial capital (although this is not specified), certificates of processing sites, staff information and their capital assets. However in practice obtaining a license entails giving a large additional amount of capital as gifts to the forestry agents. According to one of the legal owners, a minimum of 10,000 RMB, (40,000-50,000 RMB in some instances) is needed to go through various “channels” in the local forestry system. In other cases, gaining a processing license is far beyond a money issue. The forestry station usually sets the maximum number of mill owners in

certain areas according to the local resource endowments. Once the maximum quota has been distributed, additional processing licenses cannot be issued. When pressured by those who already have licenses, the forestry agents would state the following rationale for not issuing a license quota: increasing the number of mill owners would only promote more illegal logging, which is not in favor of the sustainable development of forest resources.

Legal owners will establish alliances through frequent communication, and carry out regular meetings four to six times annually with the forestry agents and wood distributors to protect their wood market share. During these annual meetings, owners will generally pressure forestry agents to punish, on the one hand, the illegal wood distributors without transportation or distribution licenses, and on the other hand, the illegal processing owners through fines, increased taxation, or even shutdowns of the illegal mills.

Illegal processing mill owners, under such difficult circumstances, can still maintain their niche as long as they maintain a close relationship with the local forestry agents. On the one hand, they meet the needs of the forest farmers by offering higher purchasing prices, which is also a concern of the forestry agents. As one of the head of the forestry stations mentioned: We cannot absolutely exclude the illegal owners. Otherwise, the forest farmers will complain to us for impairing their benefits, and protecting those powerful owners who can only offer lower prices." On the other hand, illegal owners have to compromise or cooperate with the forestry agents to stop their business when the latter face higher pressure from the legal owners or come under the inspection of their superiors. Hence, the profits between the legal owners and the illegal owners vary a lot, since the latter face greater risks and their operations are not stable. In some cases, the illegal owners could even go bankrupt for not being able to fulfil their contracts during the inspection period.

Besides getting the processing license, owners should have at least 100,000 RMB, or even as much as 400,000 RMB, of capital to start their mills, based on their different processing capacities. Some of them also pay forest farmers in advance, usually through the wood merchants, to reserve their market share. They also need to ensure that an adequate floating capital is available, in case the panel distributor cannot pay them. Their access to credit enables them to escape the many of the associated risks. Among different legal owners, profit also varies greatly especially thanks to differences in their capital

endowments, or their capabilities in establishing distribution networks. For example, in W Township, one owner can only obtain 400 m<sup>3</sup> of legal quota for processing, while another can obtain 1000 m<sup>3</sup>, though both of them have the same processing capacity in terms of equipment.

It is a common practice, if not universal, for the owners, instead of the forest farmers, to apply for the harvest quota and transportation and inspection licenses. The inspection license grants panel distributors the right to transport processed panels through the inspection station out of the township and county. This adjustment in the application process seems more efficient in terms of the license application and issuing process since formally different stakeholders have to apply for different licenses from the forest agents. All harvest quota licenses are collected from the forest farmers and placed into the hands of the wood merchants in the first transaction, and later, into the hands of the owners in the second transaction. Finally, harvest quotas are transferred to the panel distributors to apply for the transportation license in the third transaction. However, such an adjustment to an extent strengthens the control of the owners along the chain.

Owners also gain access to more profits from the distributors through “tricky decoration,” in which better quality panels are placed outside, while those of worse quality are placed inside a bundle. Owners also control the labor demand at the processing and packing stages, as well as at the truck loading and unloading stage for the panel distributors, since the owners are generally more locally based. Lastly, owners profit more from over-quota purchasing, with the acquiescence of the local forestry agents, which will be explored later.

#### *(d) Panel distributors*

Panel distributors maintain their access in the commodity chain through the application of several types of licenses to pass through inspection stations, overload trucks and to escape paying forestry fees and charges. Close relationships also need to be cultivated with the local forestry agents, especially during the transportation process. Local identity, in addition to adequate financial capital, is another access mechanism at work during the whole process. A strong distributional network is also very important for them to gain stable profits.

Three licenses for transportation, inspection and distribution have to be obtained for the panel distributors to legally transport the panels outside the township to the county. Transportation licenses are solely based on the harvest quota, which specifies the volume of panels for each truck, as well as the transportation duration. The inspection license verifies the safety of the panels and is relatively easy to acquire. The access process of the distribution license is similar to that of the processing license, both of which entail an annual review. All licenses are issued by the County Forestry Bureau, as long as transportation is only carried out within the boundaries of the county. If cross-county transportation is involved, the Municipal Forestry Bureau must issue the transportation license. Similarly, if wood is to be transported out of the province, the Provincial Forestry Bureau issues the license. Forestry fees and charges, most of which are collected level-by-level from the hands of the forest farmers, have to be paid to the forestry agents before gaining those transportation licenses. To consolidate the license system, seven inspection stations have been established across the county to check the volumes of the panels in transportation, the transportation license and the inspection license. The staff members in the inspection station are empowered by the provincial government to confiscate or fine the distributors if any of the aforementioned requirements not met.

Nonetheless, the distributors still maintain their access to the panel market through over-loaded trucks and escaping paying parts of the forestry fees and charges based on their strong ties to the local forestry agents. Just as one distributor commented: "We could not make money if we were over-loaded with such high forestry fees and charges." Over-load is an open "secret" among the distributors and even the forestry agents. Over-loaded panels may not necessarily be accounted for in forestry fees and charges, which surely increases the benefits of the distributors. Normally, a quarter to a third of the total volume of the panels in one truck can be exempted from the forestry fees and charges. In order to minimize their payments of forestry fees and charges, or be exempted from fines, confiscation or prosecution for infractions (for illegal distributors without licenses at all), distributors would transport their panels at night along the roads with which they are familiar, or go through those inspection stations where they have already cultivated strong ties. In their dealings with the forestry agents, local identity, or the local owner's support, are necessary for the distributors to work safely and profitably.

*(e) Panel retailers*

Panel distributors, normally city-based, maintain their access to the benefits through strong financial capital, strong ties to the forestry agents, market alliance with leverage, prices, and decreasing labor cost through misinformation.

Legal panel retailers also obtain a timber retail license in order to benefit from the market. However, due to the difficulties in obtaining licenses, many of the retailers do not have the licenses, especially at the county level. The legal and illegal retailers differentiate their profits in the same way as in the processing node of the commodity chain. Legal retailers have more room to maneuver when facing strict market inspections and competition with illegal retailers.

Besides being endowed with the financial resources to acquire the license, the retailers should have adequate financial capital to start their business, which is at least 40,000-50,000 RMB at county level, and higher at municipal level. They can benefit more than others if they have more capital to offer favorable payment to the distributors to consolidate and enlarge their distributional network.

Panel retailers also gather in the same market, and establish an alliance with leverage over the price to persuade the consumers into accepting the collusive fixed price. On the cost side, retailers will decrease the labor costs as much as possible on the truck loading and unloading, since the loading laborers who are migrants who gather around railway or bus stations to make a living do not have full information about the volume of the truck. Retailers tend to give an estimated price for loading and unloading of an entire truck of panels which is usually lower than the actual price.

*(f) Forestry agents*

The preceding analysis mainly focuses on the actors whose livelihoods depend on timber production and trade. Forestry agents, including staff and officials, also benefit from the commodity chain through imposing taxes (abolished since 2004), forestry fees and charges (doubled since 1995), fines and confiscations. Additionally, bribes often in the form of gifts are another source of income for the forestry agents. From forest harvesting to panel retailing mentioned above, each actor has to establish strong and long-standing ties to the forestry agents to maintain or control access to the benefits from the market.



Forestry agents can supplement their livelihoods through the institution of forestry fees and charges, particularly if confiscations and payoffs from other actors along the chain are included in those fees and charges (Table 2). This is an unsurprising finding against the broader background of China's decentralization policies, including the fiscal responsibility system introduced in the early 1990s. Since then, the majority of revenue gained from tax collection has been accruing to the higher national and provincial levels of government, leaving the local government with even less revenues. In the meantime, the local government has more freedom to create revenue by exploring the local resources such as the forests. With environmental degradation becoming an increasing concern in the entire country, the State Forestry Administration has recently announced the shift of the goal of the entire forestry system from "timber production" to "environmental services." However, local forestry agents can hardly follow this shift when their livelihoods still rely heavily on timber production and exchange. In P County, 700 staff members are supported by this revenue, totaling 10.5 million RMB. However, the county could only allocate 1.3 million RMB to the County Forestry Bureau in 2004, and even less in 2003. This large gap is bridged by the collection of forestry fees and charges.

Against this background, it is not surprising to discover that the Harvest Quota Policy cannot be fully implemented, and illegal logging, processing, and marketing still predominate. In P County, the quota is only 30,000 m<sup>3</sup> for the collective forest area, however in practice there are 130 legal processing mills. If 700 m<sup>3</sup> of wood are processed annually for one mill, a total of 91,000 m<sup>3</sup> wood will be consumed, which is far above the allocated quota and does not even include those processed by the illegal mills. Hence, in reality, another mechanism, instead of the Harvest Quota Policy, is used by the forestry agents to administer forestry production and marketing. There are only two scenarios under which local forestry agents will actually clamp down on illegal forestry activities. One is when their superiors from the state level or the provincial level come to inspect the local forest development. Another one is when "the real maximum quota" based on their own criteria (not yet clarified in this research) has been reached, and the following year's economic targets i.e. the forestry fees and charges collected based on the local resource stock cannot be expected to be fulfilled. The real mechanism at work deeply affects the sustainable development of forest resources and local livelihoods from a long-term perspective.

A brief summary of the access mechanism of each actor along the chain is listed under Table 3.

**Table 3: Mapping access mechanisms of each actor along the chain (excluding the forest agents)**

<b>Actors</b>	<b>Access Mechanism</b>	<b>Positive (+): Strengthening</b>	<b>Negative (-): Hampering</b>
<b>Forest Farmers</b>	Policy based	<ul style="list-style-type: none"> <li>• collective ownership</li> <li>• contracted user</li> <li>• capable and accountable representative</li> <li>• market opened since 1994</li> </ul>	<ul style="list-style-type: none"> <li>• harvest quota</li> <li>• logging ban policy and natural reserve policy</li> <li>• non-accountable representative</li> <li>• forest fees and charges</li> <li>• selling woods to legal merchants</li> </ul>
	Non-policy based	<ul style="list-style-type: none"> <li>• violence</li> <li>• illegal logging</li> <li>• illegal marketing</li> <li>• supervising others' illegal cutting</li> <li>• customary regulations</li> </ul>	<ul style="list-style-type: none"> <li>• informal restrictions on the marketing channels</li> <li>• little incentive to invest in the forests</li> <li>• over-harvest by merchants</li> </ul>
<b>(Legal) Wood Merchants</b>	Policy based		<ul style="list-style-type: none"> <li>• harvest quota (indirect)</li> </ul>
	Non-policy based	<ul style="list-style-type: none"> <li>• close tie with the owners</li> <li>• knowledge on the translation of timber weight to timber volume</li> <li>• information control and distortion</li> <li>• informal restrictions on the marketing channels to ensure their market share</li> <li>• advance farmers payment</li> </ul>	
<b>(Legal) Processing Mill Owners</b>	Policy based		<ul style="list-style-type: none"> <li>• timber processing license</li> <li>• harvest quota (indirect)</li> </ul>
	Non-policy based	<ul style="list-style-type: none"> <li>• strong financial capital</li> <li>• apply the harvest quota instead of farmers</li> <li>• apply transportation license instead of the distributor</li> <li>• strong ties to the forestry agents</li> <li>• alliance control</li> <li>• over-quota purchasing</li> <li>• labor control</li> <li>• credit access</li> <li>• transportation and packing tricks</li> </ul>	
<b>(Legal) Panel Distributors</b>	Policy based		<ul style="list-style-type: none"> <li>• transport license</li> <li>• quarantine license</li> <li>• distribution license</li> <li>• harvest quota (indirect)</li> </ul>

	Non-Policy based	<ul style="list-style-type: none"> <li>adequate financial capital</li> <li>overloading</li> <li>escaping forest fees and charges</li> <li>strong ties to the owners</li> <li>strong ties to the local forestry agents</li> <li>local identity</li> <li>strong distributional network</li> </ul>	
<b>(Legal) Panel Retailers</b>	Policy based		<ul style="list-style-type: none"> <li>retailer permit</li> <li>harvest quota (indirect)</li> </ul>
	Non-Policy based	<ul style="list-style-type: none"> <li>rich financial capital</li> <li>strong ties to the forestry agents</li> <li>market alliance</li> <li>misinformation</li> </ul>	

Several questions are raised from the access mapping. **Firstly, who are the leading actors in commodity chain governance? Who shapes the profit distribution more?** According to the results in Table 3, the owners of processing mills and the forestry agents are the most powerful actors. They can even exclude other actors from accessing the chain by various mechanisms. In particular, the former takes advantage of vertical integration while the latter controls access to every node of the chain.

**Secondly, who are the legal actors and illegal actors?** Illegal actors refer to those who do not have the licenses, certificates or permits based on the Harvest Quota Policy. It is found that access to those licenses is normally prohibitive for poor and powerless actors. **Thirdly,** closely related to the second question, **what are the positive and negative mechanisms?** For different actors, the meaning of “positive” and “negative” is quite different. What is positive for the legal actors are on the other hand negative for illegal actors. The access map presents the types of mechanisms, whether policy-based or non-policy-based, the stronger actors use to exclude the weaker. **Fourthly, what are the impacts of the interaction between policy-based mechanisms and non-policy-based mechanisms?** The Harvest Quota Policy is an imposed policy, implemented with exclusion mechanisms. The better-placed actors can use those policy instruments to hinder the participation of others to benefit from the timber market. It proves that poverty worsens when there are policy-supported obstacles. The Harvest Quota Policy does not mitigate the exclusionary nature of the non policy-based mechanisms but on the contrary reinforces it.

## **7. Conclusion and policy implication: property rights and access**

Why does abject poverty remain amidst the abundance of valuable resources? Following profit and access mapping, it is argued that ownership, property rights, or even an open market cannot automatically and sufficiently enable local people to derive benefits from their natural environment. Formal property ostensibly confers the ability (via rights) to benefit, secure (via control) and internalize costs through creating local control to bring cost and benefit decisions together. These are the aspects of formal property on which assumed ecological and economic outcomes are predicated. This paper shows that these ostensible functions of property rights, benefits and control, are also served, strengthened and weakened by the other multiple mechanisms at work.

In the case analysis, local forest farmers and the collective who control direct access to forests, whether through threats of violence or formal property titles, may reap only a small portion of the forest benefits if they do not also have access to markets and capital. Powerful wood merchants, owners of the processing mills, panel distributors and retailers maintain and control the profits from the market via their access to various licenses, capital and labor, information and price alliances. The forest agents at different levels seek rent from the forestry market through controlling the issue of licenses, permits and quotas. Indeed, most of the benefits flowing from the forests are derived from market control, rather than control over the forests or trees. Direct control, and even enforced ownership or property, does not automatically confer benefits.

Therefore, rather than attributing the outcomes to rights or their absence, implementation or its absence, enforcement or corruption, this paper argues that property rights, ownership and tenure are only among the many other mechanisms of access control that shape who benefits from the natural resources. Access, or the ability to benefit, is based on a broader set of factors, including social relations, structures and mechanisms.

The move from a focus on formal property to a broader access approach supports the empirical challenge to the abstract notions of markets in neoclassical-economics. Real markets are highly structured by a whole range of policy and non-policy, legal and extra-legal mechanisms. The case illustrates that control is endogenous to markets. State intervention or policy-based control, such as the Harvest Quota Policy and property rights, are not the only form of market control. A whole array of non-policy mechanisms shape the dynamics of production and exchange. They not only attenuate policies, but also operate in parallel to and interact with policy mechanisms. Eliminating quotas and

licenses, for example, would certainly change the distribution of benefits within the market, probably in a more equitable direction. But merchants, owners of the processing mills, distributors and retailers would continue to use the range of means (legal and extra-legal) at their disposal to recapture at least some of the rents now within their grasp. People in markets, state agents and others will continue to actively engage in strategies to shape the whole chain of production and exchange.

So how can greater profits be reaped and retained locally? How can the wealth from nature be channeled back into resource-dependent rural communities? More attention should be paid to broader access mechanisms, especially to the interaction of policy-based mechanisms and non-policy-based ones to redress the policy-supported inequality. Increasing the rural share of wealth from natural resources is largely a policy matter. The marginal position of rural people with respect to natural resource wealth is neither a natural condition of poverty, nor even the way in which markets work. Much of the observed concentration of natural resource wealth occurs with the assistance of natural resource policies. This paper finds that the Harvest Quota Policy has been implemented with imposed approaches, inclusive of fees, charges, fines, inspections, licenses and permits, rather than induced approaches, such as capacity building and credit support. These imposed approaches create barriers or selective forms of access to resources and markets that enable exclusionary and predatory behaviors, leading to resource and market capture. They are not in favor of the local poor and weak farmers strengthening their non policy-based positive access mechanisms, but rather, seek to aggravate them.

## Notes

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<sup>1</sup> "The little man with the big stone" comes from a parable by Michael. R. Dove (1993). Among the forest dwellers who search for diamonds in the hills above the Martapura, there is a saying: "Whoever finds a big stone, he will eventually suffer." The problem with such stones is that they cannot be sold: their value is out of proportion to the marketing channels. Additionally, the other "bigger" man outside the mountain will pour in for the stones. In China, however, the timber could be sold in the market, but the forest farmers can hardly benefit from the marketing channels due to their poor access to resources beyond the property.

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<sup>2</sup> Collective or community-owned forest is called *Jiti Lin* in Chinese, which is a specific term within the Chinese context. After the collectivization and socialization in the 1950s, the majority of productive land and natural resources became publicly-owned either by the state or by a collective. According to the law, in rural areas, land within a village is usually legally owned by villagers as a whole, thus they are termed collective land or collectively-owned land. No individual villager can divide or separate the ownership of the village collective. Collective ownership of rural land and natural resources was an important characteristic of China's socialist system, as it implied the liberation of farmers from landlords. However, currently China's collective forest tenure system is a mixture of public, collective and private ownership, resulting from the continuing privatization reform and policy changes to the collective economic system. Hence, there is simply no catchall collective forest ownership and management model. Great diversity exists between provinces, townships within a county, villages within a township, and even between same-village institutions. The whole gamut exists, ranging from instances of county and village governmental ownership to household partnerships to shareholding arrangements. In each circumstance, rights, tenure security, decision-making responsibilities, and distribution of benefits vary.

<sup>3</sup> Those 592 KWCs were officially deemed as poverty-stricken. They are the targets of the China's government poverty alleviation programs.

<sup>4</sup> Collective forests are found all over China; however, their proportions vary by province. In fact, the ten provinces with the greatest area of community forests account for 75 percent of the total. Community forests predominate in southern China, earning those provinces the moniker Southern Collective Forest Region. In decreasing order in terms of the forest area, the ten provinces with the majority share of the collective forest area are Yunnan, Hunan, Guangdong, Jiangxi, Guangxi, Sichuan, Fujian, Zhejiang, Hubei, and Liaoning (Miao et al, 2004).

<sup>5</sup> 1USD=6.8 RMB currently (2010).

<sup>6</sup> Joint management, collective management and household management will be covered in the paper. As note 3 highlighted, the forest management models in China are quite diversified and complex at the grassroots level. Joint management is one of the sharing management models among several households or households with other stakeholders such as township enterprises, state forest farms and village committee; while collective management refers to the practices in which management and profit are shared among the whole community. Different management models direct different profits to the forest farmers, which will be discussed in the "Access mapping" part.

<sup>7</sup> Timber of 10-12 cm diameter means the timber with the diameter 10-12cm at a height of 2.5 m from the bottom. Normally, there are several standards of diameters of the timber in the market, including 10-12 cm, 14-16 cm, and 18-20 cm. The prices of different standards of timber vary. The wider the diameter, the higher the price.

<sup>8</sup> The prices of timber and panels have fluctuated according to the demand and supply since 1994. The price also greatly varies among different sizes. However, the price for a given size is usually stable in a year.

<sup>ix</sup> The State Forestry Administration (SFA) sets the log-harvesting quota based upon the statistics from the national forest survey and the volume harvested from the previous year. The quota is divided and distributed at each level of government beginning with the

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SFA and resulting in the ultimate assignment of the quota across the nation to the local level.

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