



## **China's Forest Tenure Reforms**

Impacts and implications for choice,  
conservation, and climate change

Jintao Xu, Andy White and Uma Lee

## ABOUT THE AUTHORS

Jintao Xu is a professor at Peking University, Beijing, People's Republic of China.

Andy White is the Coordinator of the Rights and Resources Initiative, Washington, DC, USA.

Uma Lele is a former Senior Advisor, at the World Bank, Washington, DC, USA.

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JINTAO XU, ANDY WHITE, AND UMA LELE

Rights and Resources Initiative

*Washington DC*

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## 1

**INTRODUCTION: GLOBAL CONTEXT OF CHINA'S TENURE REFORMS**

Climate change has brought issues of deforestation and forest land governance to the forefront. It is now widely accepted that deforestation and associated forest degradation are responsible for about 17% of total global carbon emissions—with over 70% of these emissions coming from forest burning and clearing in the five forest-rich countries of Indonesia, Brazil, Malaysia, Myanmar, and the Democratic Republic of the Congo.<sup>1</sup> These countries share not only high rates of deforestation, but also the fact that there is government ownership over essentially all forest lands, except for Brazil which has over recent years recognized indigenous peoples' land rights and allocated land to settler households.

Government claims of ownership are often challenged by indigenous peoples and other forest communities and households with historic customary rights to the land—a contentious situation which sometimes leads to outburst of violence.<sup>2</sup> At least 30 forested developing countries have had violent conflicts in the last 20 years, affecting some 30% of forest areas in Africa and 20% of all forest areas in Asia and Latin America respectively.<sup>3</sup> Research suggests that two thirds of all violent conflicts taking place in the world today are due to disagreements over land and territory,<sup>4</sup> and there is growing concern that, if left untreated, climate change will exacerbate existing social tensions over land and increase the rate and violence of conflicts.<sup>5</sup>

Recent research suggests that the widespread problem of unclear forest property rights and as-

sociated weak local land-use governance is a key driver behind deforestation and degradation and must be addressed in order to effectively reduce deforestation and carbon emissions.<sup>6</sup> Unclear land rights are undermining the ability of forest peoples to adapt to climate change. Approximately 1.2 billion of the world's poor rely on forests for food, fuel, medicinal plants, and income; these people are exposed and vulnerable to the increasing changes in weather, rainfall, vegetation, and the distribution of wild animals that come with climate change.<sup>7</sup> According to the Stern Review, likely average mean temperature increases of 1-2°C could cause the extinction of 15-40% of all species and add pressures that would force millions more people into extreme poverty. A growing body of research also highlights the role that clear, locally controlled property rights and governance play in enabling the flexibility and adaptability necessary in achieving resilience against climate change as well as economic and political shocks.<sup>8</sup>

In this context, China's recent forest land reforms provide an important case study with useful implications for global attempts to reduce forest emissions and decrease forest-based poverty and conflicts. These reforms are arguably the largest ones undertaken in modern times both in terms of area and people affected, as China's collectively owned forest totals approximately 100 million hectares and is home to more than 400 million people.<sup>9</sup> The reforms offer important lessons for other developing countries that have recently begun to address the problem of unclear forest tenure; they have done

so with a dominant trend toward legally recognizing the land rights of indigenous peoples and strengthening access and ownership rights of other forest communities and households.<sup>10</sup> Brazil, which has recognized indigenous peoples' rights to over 100 million hectares of land in the last several decades and more recently granted property rights to millions of households that have settled in the Amazon, is a

case in point. In the few countries where large-scale rigorous research has been conducted, the moves towards the recognition and clarification of community land rights have yielded positive results in terms of forest cover.<sup>11</sup> The indigenous reserves of Brazil, for example, are publicly recognized as a leading bulwark against deforestation as they have lower rates of forest clearing than even national parks.<sup>12</sup>

## 2

**HISTORY OF FOREST TENURE REFORM IN CHINA**

China's forest land reform differs from this dominant trend in two important ways: first, it has a different starting point in that the majority of its forested lands (58%) are already legally owned by collectives rather than the state; a small portion of these collectives are composed of indigenous ethnic communities. Second, the reform is widely promoted as a step towards private household property, part of the broader social and political trend aiming for the de-collectivization of China's rural landscape and the establishment of free markets.

The term "collective forest reform" refers to a general policy that has been emerging since the early 2000s from national sponsored pilots and provincial-level initiatives. As is often the case in China, the central government formulated and announced its official policy after the policy had already been initiated and tested at the provincial level. The new national policy was officially publicized by the Central Committee of the Communist Party of China and the State Council on July 14, 2008 and is entitled "Guidelines on Fully Promoting Collective Forest Tenure System Reform." This reform encourages collective forest owners to reassess and reallocate their forest use rights (not the land itself) based on a majority vote—a two-thirds vote either by the entire village assembly or the committee of village representatives.<sup>33</sup>

In the reform, collectives have the option of reallocating forest rights to individual households, collections of households (so-called "partnerships"), private contractors; alternatively, they may

maintain collective management either at the level of hamlets (so-called village clusters, very often natural villages) or at the full community level. Although the reform maintained collective ownership of the land, it does offer a stronger possibility of transferring the long-term rights households have to the forest, including the right to transfer and mortgage. In sum, the reform is widely seen as another important step toward increasing the private ownership of the land allocated to individual households. The government has also financed the delimitation, surveying, titling, and registration of the new plots, investing approximately US\$370 million in 2008 alone for these tasks.<sup>34</sup>

By taking on the allocation of rights within a collectively held property, China's reform can be viewed as anticipating future policy challenges and options of those countries that are shifting land ownership out of the public domain and into the hands of communities. What choices will collectives make, if given the option to reallocate their collective forest rights? It is important to recall that China's land ownership patterns are by and large a product of the country's communist history, and in a majority of areas this reform is akin to restitution of land to peasant households. In the ethnic minority areas of the country, which have a long history of community forest management, this reform restores some choice to the local community, although it also encourages them to formally divide collectively-held forest to households—a step they may or may not have undertaken before.<sup>35</sup> Although the reform provides choices to local communities,

it is well recognized that—despite important steps towards the democratization of village and collective governance—community decisions undoubtedly remain strongly influenced by local governments and forest authorities.

In announcing the reform, local, provincial, and central governments clearly promoted and expected a shift from the collective management of forest to private household management. Forest land reforms have historically followed those in the agricultural sector, and the agricultural sector has been moving towards individual household-based management since the first reforms of the early 1980s. After several decades of limited action, agrarian land reform has picked up steam in recent years, beginning with the Rural Land Contracting Law passed in 2002. This law allowed transfer, inheritance, and mortgaging of land contracted by farmers. Further steps were taken in October 2008, when the Central Committee reiterated the much-anticipated policy allowing for the trade in agricultural land rights.<sup>36</sup>

The first wave of forest reforms occurred in the mid-1980s. Termed the “three fixes”, this reform was a significant step in that it allowed the allocation of collective forest to households on a contractual basis. In practice, there was great policy instability during this period, with forest land rights being allocated in turn to households and various levels of village jurisdiction.<sup>37</sup> This uncertainty over property rights occurred simultaneously with a deregulation of forest harvesting (allowing farmers to harvest almost at will) and a growing market demand for timber. According to government records and policy rhetoric, the combination of an unstable policy environment as well as the deregulated harvesting and market situation led to widespread deforestation.<sup>38</sup> By the mid-1980s, the government reversed course and established strict regulatory controls on forest harvesting, requiring the acquisition of permits before timber could be logged for village or commercial use. Fujian was the only province not to participate in the “three fixes” policy, choosing to maintain collective management and using a share-holding system to allocate the benefits from

forest management to households. Nonetheless, national statistics indicate that in the six provinces where collective forest ownership has been the highest, collectives allocated use rights to more than 70% of their forests to households.<sup>39</sup>

By the early 2000s, mounting frustrations and protests over the widespread controls on village forest use and logging, the well-documented growing disparity between rural and urban incomes, and the growing incidences of forest fires—widely recognized as being allowed by local people who saw reduced incentives to manage their forests—led to a growing political crisis over the forest sector.<sup>20</sup> There was also growing global criticism of China for its booming importation of logs from around the world and public demand for increasing domestic production to help offset these imports.<sup>21</sup> Constrained forest tenure rights were increasingly criticized as a key impediment to sustainable forest management and increased timber production as well as to poverty alleviation of people living in and around forests.<sup>22</sup>

The decision of the provincial government of Fujian in early 2003 to abruptly change course and initiate reforms that encourage rather than discourage household tenure added to the growing momentum for change in the central government policy on forests. Tenure reforms progressed rapidly, and by mid-2006 the provincial government in Fujian claimed that 99% of the villages completed their reforms towards household forest management.<sup>23</sup> The central government reacted to these diverse demands and developments and formulated a new forest policy in mid-2003, the “Resolution on Development of Forestry” (the “No. 9 Policy”). This policy is sweeping in its aim to correct the growing rural urban economic disparities and boost domestic forest production by giving stronger rights to households to use and manage their forest lands. In many ways, this policy was an attempt to bring the forest sector up to date with the agricultural sector, since similar reforms had already taken place in agriculture with widely recognized success.

Encouraged by the No. 9 Policy, more than 10 other provinces, with Jiangxi and Liaoning leading

the way, have been implementing a new round of forest tenure reforms in village collectives since 2004. The magnitude of land tenure reallocation, compared to that of Fujian, has been much smaller, but just because individualization in these provinces was much more aggressive in the first reform period of the 1980s.

By 2006, the central government became convinced of the merits of collective forest tenure reforms and recognized the need for coherent national-level guidance. In January of that year, the Minister of the State Forest Administration announced that collective forest tenure reform was

his priority for the year. The formal announcement of the Minister coincided with the central government's announcement of the New Countryside Development Initiative (NCDI) which called for more assistance to rural areas, stronger property rights, and a more favorable policy environment for the rural poor. These policy shifts were clearly a reflection of growing concerns over rural unrest and conflict. In 2006, the last year when data was publicly available, the government reported that there were 80,000 mass protests, the majority of which were over the illicit selling, or taking, of collective land.<sup>24</sup>

# 3

## OTHER RELATED FOREST POLICIES LINKED TO THE TENURE REFORMS

It is worth noting that the recent reforms come at a time when there is a global resurgence of government intervention to maintain natural ecosystems and encourage forest restoration—with governments escalating regulatory controls over private land use and increasing public investments. China has been a global leader on both fronts.

Starting in 1998, in what is popularly called the “logging ban”, the Chinese government sharply curtailed commercial harvesting in western and northern areas of the country. Although initially focused on public forests where overharvesting was well recognized the policy was soon extended to collective forests, covering almost 27 million hectares of collectively owned land by 2003.<sup>25</sup> In parallel, the government initiated a forest land-use zoning system in the mid-1990s. The zoning policy was reinforced in early 2000 with the establishment of the category “public benefit forest” where no commercial harvesting was allowed and the simultaneous establishment of the “Forest Ecosystem Compensation Program” (FECP)—a public program designed to compensate forest owners for income lost due to the logging ban. As of 2003, collectively owned forest comprised 2 of the almost 3 million hectares assigned to the FECP program. It is estimated that to date more than 30% of all collective forests have been zoned in as ecological forests; one shortcoming of the program is that to date only 40% of the owners of these forests have received the limited financial compensation payment.<sup>26</sup>

In addition to these policy measures, the government has dedicated massive investments since 2000 to planting trees and restoring China’s natural ecosystems, with government commitments set to reach US\$59 billion by 2015. China’s forest cover has increased by approximately 40 million hectares since the late 1970s—a feat largely due to the government’s approach of administrative fiat and compulsory land-use zoning. While programs include payments and incentives to landowners for planting trees and maintaining forest cover, the programs are widely criticized for lacking due process or adequate compensation—approaches that are inconsistent with respecting private property rights.<sup>27</sup>

Although heavy-handed and massive, these extraordinary environmental accomplishments could not have been achieved without the administrative structure provided by the collective structure of forest ownership. However, looking to the future, the question is whether the conventional top-down, coercive government approach to organizing land use will become increasingly at odds with the fuller respect of communal and household land rights. If property rights are respected, compensation for alternative land use should be commensurate with the opportunity cost of land, and due process of consultation and legal recourse and remedies should be followed. Administrative fiat would be increasingly unviable—challenging the government’s ability to reach its own environmental goals.

## 4

## NEW RESEARCH ON TENURE REFORMS AND THEIR IMPACTS

The research presented here is the first comprehensive analysis of the choices that collective forest owners have made regarding the allocation of forest land rights. The research was conducted by the Environmental Economics Program in China (EEPC), College of Environmental Sciences and Engineering, Peking University. From March 2006 to September 2007, with funding from the World Bank, the Ford Foundation, and the Rights and Resources Initiative, and with administrative support from China's State Forestry Administration, the research team completed village and household surveys in eight provinces, collecting information for 288 villages and more than 3000 rural households.

The village-level surveys gathered information on 1) the villages' economic activities, land management, the tenure reform process, as well as social, economic, and demographic characteristics, etc., using information obtained in personal interviews

with village leaders, covering the period from 2000 to 2006; 2) changes in forest resource and the history of forest production from 1985 to 2006, using information provided by local forestry agencies; 3) the financial situation of the villages (collective revenue and expenditures) during the period from 1985 to 2006, using information provided by the township government.

Household interviews covered information on social, economic, and demographic characteristics, land-use practices and land rights, the decision-making process of tenure reform, the redistribution of land rights, and the impacts of their choices on, among other things, household income, forest harvesting, and forest planting. The research also included an econometric analysis aimed at better understanding the factors related to collective choices over the allocation of land rights. Key findings of the research are described below.

#### 4.1 ALLOCATION OF FOREST RIGHTS

The changes in tenure allocation that took place in the eight provinces between 2000 and 2006 are displayed in Table 1. Across these eight provinces, about 70% of collective forests were allocated to households by 2006, and the remainder was allocated to groups of households (3%), villager clusters (6%), or outside contractors (4%),

with direct management by collectives reduced to 18%. Individual household and partnership household management, the two tenure types strongly encouraged by the government, increased in Fujian (7 and 5% respectively) and Yunnan (11 and 4% respectively), while individual management increased in Liaoning and Shandong (12 and

TABLE 1: DISTRIBUTION OF TENURE TYPES IN 2006 AND CHANGE BETWEEN 2000 AND 2006

Province	Individual (Household) (%)	Partnership (%)	Villager Cluster (%)	Contract to Outsider (%)	Collective (%)
Fujian	50.63 (7.02)	7.81 (4.86)	5.61 (1.65)	4.72 (0.43)	31.21 (-13.98)
Jiangxi	62.97 (0.74)	2.77 (0.46)	4.15 (-4.77)	9.95 (4.46)	20.14 (-0.91)
Zhejiang	82.65 (0.20)	1.37 (0.00)	7.48 (0.04)	0.25 (-0.02)	8.23 (-0.25)
Anhui	85.06 (-6.75)	0.39 (-0.01)	3.05 (-0.02)	1.28 (-0.30)	10.19 (7.06)
Hunan	92.43 (1.53)	0.27 (-3.15)	4.46 (2.80)	0.74 (0.36)	2.09 (-1.57)
Liaoning	55.21 (12.28)	7.04 (-0.48)	3.07 (-16.20)	11.89 (9.95)	22.77 (-5.57)
Shandong	54.29 (7.71)	0.00 (0.00)	0.00 (0.00)	7.05 (-1.72)	38.64 (-6.00)
Yunnan	69.87 (10.65)	3.67 (3.67)	16.62 (-15.81)	0.44 (0.44)	9.37 (1.03)
Average	69.14 (4.17)	2.92 (0.67)	5.56 (-4.04)	4.54 (1.70)	17.83 (-2.52)

Note: Share change (2000-2006) in parentheses.

Data Source: Forest tenure reform survey conducted by EEPC in 2006 & 2007.

8% respectively). Forest land allocated to outside contractors increased the most in Jiangxi, where land was shifted from the village clusters. No major change occurred in Zhejiang and Hunan due to the fact that individual management had already been implemented in more than 80% of the collective forests prior to the onset of the reforms. In Anhui, individual management decreased. South Anhui has been a major tourist destination, and setting aside a bigger share of forest land as eco-reserve demonstrated the effort to preserve the tourism value of the forests.

Shandong was a particularly interesting case in that it is a province in northern China with historically little forest coverage. Reforestation efforts have been focused on establishing shelterbelts surrounding cultivated land. Evidently, a large share of the shelterbelts and some of the collectively managed forests have been transferred to individuals for management. In Yunnan, the share of collective management increased, accompanied by increases in individual and partnership management. The village cluster tenure type generally lost the largest amount of land, averaging a loss of 4% across all provinces. In our assessment, the transfers to

collective management tended to occur in places where large areas of forests were affected by the “logging ban” and/or where forest land was zoned as public benefit forest.

China is a large, culturally, biophysically, and economically diverse country. Therefore, on the one hand, it is not very surprising that there were substantial differences in the developments in the eight provinces. On the other hand, it is more surprising, given the government rhetoric, that there was not a stronger shift towards individual ownership. Overall, an average of only about 7% of the area of forest managed collectively, either at the collective- or the smaller village cluster-level, was reallocated to the other tenure types. Individual tenure did increase in 7 of 8 provinces, and more than 5% in 4 of 8 provinces, but the average increase was only about 4%. Contracts to outsiders increased an average of less than 2%. This finding suggests that the policy reform was in effect more of a verification and consolidation of existing distributions of land rights than a new and wholesale redistribution. By and large, collectives chose to make marginal shifts in their allocations.

## 4.2 PERCEPTIONS OF STRENGTH AND LENGTH OF PROPERTY RIGHTS

The study also identified the scope of household rights of use and access under the different tenure regimes (Table 2), as well as the average length of term for the different tenure regimes (Table 3). The survey examined household perceptions of the use rights that came with each tenure type and asked whether those rights existed at all and, if so, whether households could engage that right autonomously, whether they needed approval at the collective level, or whether some other rule governing that right was in place.

The general tendency was that the rights of households to access and use forests were strongest when the tenure was allocated to the individual household and weaker as the tenure type moved toward collective ownership. This includes

rights of deforesting, converting to another forest type, selecting tree species to plant, managing for non-timber forest products, mortgaging the plot, and transferring the plot to other households within the community. The rights to transfer property outside the village and harvest trees were approximately the same in the individualized tenure as with the partnership and village cluster tenure types. This pattern demonstrates the desirability, at least from the perspective of a greater level of rights, of household tenure. The partner tenure type was generally the next strongest.

It is also valuable to understand the distribution of use rights across all tenure types. The right to deforest, for example, and convert to agriculture was generally not granted—under any tenure

TABLE 2: LAND USE RIGHTS OF HOUSEHOLDS BY TENURE TYPE AS PERCEIVED BY VILLAGERS  
(EXPRESSED AS % OF TOTAL HOUSEHOLDS INTERVIEWED)

Right	Response	Individual	Partner	Villager Cluster	Outsider	Public Benefit Forest	Collective	Average
Deforest (convert to agricultural land)	Yes (Household right)	35.01	24.32	11.11	18.60	4.17	3.23	16.07
	Yes with Village Approval	1.71	2.70	3.70	0.00	2.08	0.00	1.70
	No	57.77	70.27	79.63	70.93	87.50	51.61	69.62
	Other Rules	5.51	2.70	5.56	10.47	6.25	45.16	12.60
Convert to other forest type (e.g. orchard)	Yes (Household right)	67.44	56.76	59.26	50.00	43.75	19.35	49.43
	Yes with Village Approval	4.77	8.11	14.81	4.65	8.33	0.00	6.78
	No	20.32	32.43	20.37	32.56	39.58	38.71	30.66
	Other Rules	7.47	2.70	5.56	12.79	8.33	41.94	13.13
Freely select tree species for reforestation	Yes (Household right)	74.30	70.27	68.52	63.95	47.92	25.81	58.46
	Yes with Village Approval	3.43	5.41	11.11	4.65	2.08	0.00	4.45
	No	16.03	21.62	14.81	22.09	39.58	32.26	24.40
	Other Rules	6.24	2.70	5.56	9.30	10.42	41.94	12.69

TABLE 2: LAND USE RIGHTS OF HOUSEHOLDS BY TENURE TYPE AS PERCEIVED BY VILLAGERS  
(EXPRESSED AS % OF TOTAL HOUSEHOLDS INTERVIEWED) (CONTINUED)

Right	Response	Individual	Partner	Villager Cluster	Outsider	Public Benefit Forest	Collective	Average
Manage for non-timber forest products	Yes (Household right)	89.84	83.78	88.89	77.91	81.25	54.84	79.42
	Yes with Village Approval	1.96	0.00	1.85	1.16	2.08	0.00	1.17
	No	3.67	13.51	5.56	9.30	10.42	3.23	7.62
	Other Rules	4.53	2.70	3.70	11.63	6.25	41.94	11.79
Mortgage forest plot	Yes (Household right)	52.14	43.24	40.74	27.91	41.67	25.81	38.58
	Yes with Village Approval	5.39	8.11	7.41	4.65	8.33	0.00	5.65
	No	35.25	35.14	31.48	47.67	41.67	54.84	41.01
	Other Rules	7.22	13.51	20.37	19.77	8.33	19.35	14.76
Transfer plot within village	Yes (Household right)	66.10	64.86	46.30	45.35	47.92	61.29	55.30
	Yes with Village Approval	15.30	10.81	14.81	3.49	16.67	9.68	11.79
	No	15.54	21.62	27.78	38.37	27.08	29.03	26.57
	Other Rules	3.06	2.70	11.11	12.79	8.33	0.00	6.33
Transfer plot outside of village	Yes (Household right)	50.18	54.05	38.89	33.72	47.92	48.39	45.52
	Yes with Village Approval	15.06	13.51	5.56	4.65	12.50	22.58	12.31
	No	31.46	29.73	42.59	48.84	31.25	29.03	35.48
	Other Rules	3.30	2.70	12.96	12.79	8.33	0.00	6.68
Harvest trees	Yes (Household right)	78.21	78.38	79.63	60.47	70.83	45.16	68.78
	No	16.03	13.51	16.67	30.23	20.83	19.35	19.44
	Other Rules	5.75	8.11	3.70	9.30	8.33	35.48	11.78

Source: Survey conducted in 2006 and 2007.

TABLE 3: LENGTH OF LAND CONTRACT FOR DIFFERENT TENURE TYPES (IN YEARS)

Province	Description	Individual	Partner	Villager Cluster	Outsider Contract
Averages	Mean	35.41	33.32	43.35	43.70
	Standard Deviation	24.82	20.56	18.59	19.96
	Min	1.00	1.00	3.00	1.00
	Max	72.00	70.00	70.00	70.00

Source: Survey conducted in 2006 and 2007.

type—with an average of 70% of households reporting that this right did not exist. This was the most constrained use right of all studied. The second-most constrained right was the ability to mortgage the property (41%); and the transfer of plots, either within or outside the village, was the third-most constrained right (27 and 35% respectively). On the other hand, across all tenure types, a majority of households could autonomously exercise rights to change forest types (70%), select tree species (58%), manage for non-timber forest products (80%), transfer their plots within the village (55%), transfer plots outside the village (45%), and harvest trees (69%). These findings demonstrate not only the great diversity of land use rights, but the general strength of household

use rights across all tenure types and for all uses except for the right to clear the forest or mortgage the land.

Table 3 displays the findings regarding the duration of land contract type. Although the land law allows for contract lengths for up to 70 years, the average duration across all tenure types—from individual, to partner, village cluster and outsider contracts—ranged between 35 and 44 years respectively. There was also a remarkable variation in duration across the tenure types, with much greater variation to be found in the length of the individual tenure type than in the contract or collective types. Both of these findings demonstrate that individualized tenure remains a weaker form and under greater control of the collective.

### 4.3 FARMER INCOME

During the period of study, farmers' net income increased as a whole.<sup>28</sup> Farmer income from forestry increased in those provinces where rights were allocated to households (Table 4). This increase was almost certainly due to an increased harvesting of timber. In Fujian, Jiangxi, Liaoning, and Shandong, income generated from forestry occupied a substantially larger share of total net

income than before the reform. Concurrent with the reduction in the amount of forests under household tenure, the share of forestry-derived income declined in Anhui Province. These findings demonstrate that where rights shifted towards households, the reform had a positive impact on income, and where rights were shifted back towards the collective, income from forestry diminished.

TABLE 4: DISTRIBUTION OF INCOME IN 2006 AND CHANGE BETWEEN 2000 AND 2006

Province	Forestry (%)	Agriculture (%)	Livestock (%)	Off-farm (%)	Other (%)
Fujian	8.98 (3.71)	10.28 (0.06)	9.21 (-4.08)	65.14 (-0.88)	6.36 (1.17)
Jiangxi	12.62 (9.95)	19.85 (3.01)	12.78 (-7.71)	46.48 (-8.27)	8.24 (2.99)
Zhejiang	9.45 (3.04)	4.68 (0.3)	2.79 (-0.64)	69.59 (-7.08)	13.46 (4.36)
Anhui	17.82 (-19.55)	5.28 (-1.83)	25.57 (19.91)	42.27 (-2.77)	9.05 (4.21)
Hunan	3.95 (0.01)	22.81 (7.01)	11.96 (-6.09)	44.75 (-6.05)	16.51 (5.1)
Liaoning	15.45 (10.3)	14.93 (-6.68)	10.71 (-6.77)	46.44 (-0.01)	12.45 (3.14)
Shandong	4.99 (0.48)	21.2 (-9.65)	21.37 (8.57)	43.89 (-2.44)	8.52 (3.02)
Yunnan	4.49 (1.44)	40.2 (27.16)	10.8 (-1.16)	37.39 (-28.91)	7.09 (1.44)
Average	9.72 (1.17)	17.4 (2.42)	13.15 (0.25)	49.5 (-7.05)	10.21 (3.18)

Note: Share Change (2000-2006) in parentheses.

Data Source: Forest tenure reform survey conducted by EEPC in 2006 & 2007.

## 4.4 REFORESTATION

According to the results from our survey, reforestation increased by an average of almost 10% across the provinces and tenure types between 2000 and 2006 (Table 5). Reforestation by individual households accounted for the vast majority of this

increase, representing 8.5 of the 9.5% increase. Household reforestation increased most in Fujian, Hunan, Liaoning, Yunnan, and Zhejiang. Reforestation in forests under other tenure types also increased in Fujian, Liaoning, and Shandong.

## 4.5 FIRE INCIDENTS

Fire is a regular threat in forest areas and has high economic costs to land owners as well as high political costs to local government officials. The number of incidents and the scale of fires had been generally increasing since especially the mid-1990s, a trend local people often attribute to the increases in harvesting regulations and zoning as well as to

the reduced incentives to manage forests or invest in fire prevention. By contrast, after the reform, fire incidents were dramatically reduced in Fujian and Jiangxi, the two provinces which implemented tenure reforms earlier than others and had the largest shift either in allocation of rights or in the share of forest income (Figure 1).

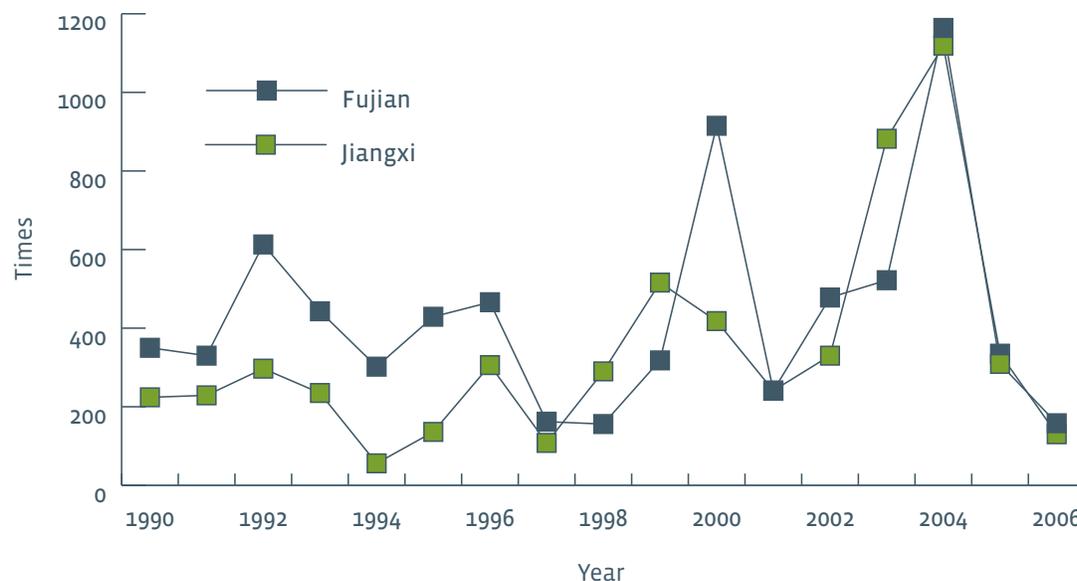
TABLE 5: REFORESTATION RATES IN 2006 AND CHANGE 2000-2006 BY TENURE TYPE (HA PER VILLAGE)

Province	Individual	Partnership	Villager Cluster	Contract to Outsider	Collective	Total
Fujian	7.15 (5.30)	2.71 (1.22)	1.35 (0.72)	2.55 (2.22)	9.53 (4.82)	23.28 (14.28)
Jiangxi	7.51 (1.80)	0.00 (0.00)	0.00 (0.00)	0.27 (0.27)	0.33 (-0.22)	8.11 (1.84)
Zhejiang	9.29 (6.13)	0.00 (0.00)	0.74 (0.37)	0.00 (0.00)	0.09 (0.09)	10.12 (6.60)
Anhui	1.85 (1.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	1.64 (1.27)	3.50 (2.6)
Hunan	5.33 (4.03)	0.00 (0.00)	0.00 (0.00)	1.11 (1.11)	0.22 (0.11)	6.66 (5.25)
Liaoning	25.38 (7.30)	0.69 (0.44)	0.36 (-1.58)	1.18 (0.96)	2.71 (1.31)	20.32 (8.44)
Shandong	2.27 (0.87)	0.00 (0.00)	0.00 (0.00)	0.53 (0.53)	2.05 (1.61)	4.86 (3.01)
Yunnan	57.52 (41.30)	0.00 (0.00)	0.11 (0.00)	0.00 (0.00)	0.00 (-6.91)	57.63 (34.39)
Average	14.54 (8.47)	0.42 (0.21)	0.32 (-0.06)	0.70 (0.64)	2.07 (0.26)	18.06 (9.51)

Note: Average area change (2000-2006) in parentheses.

Data Source: Forest tenure reform survey conducted by EEPC in 2006 & 2007.

FIGURE 1: FOREST FIRE INCIDENCES IN FUJIAN &amp; JIANGXI PROVINCES (FREQUENCY)



## 4.6

### PARTICIPATION AND CONSULTATION IN THE ALLOCATION OF LAND RIGHTS

Given the importance of the reform for the rights and livelihoods of Chinese households, it was important to analyze how this collective decision to reallocate came about, including the degree to which households participated in the decision and how consultations took place. A fundamental difference between this forest tenure reform and those conducted in the 1980s was the rule that reallocation of rights had to be approved by either a village representative committee or a village assembly with a two-thirds vote. Prior to the reform, the village leadership could reallocate land rights without consultation or vote. Now, at least in theory, if the voting procedure is strictly followed, the outcome of the process will be closer to the social optimum than any other decision-making mechanism. The opportunity for collective choice led to a wide range of outcomes (including the option of no reform at all).

Table 6 presents the findings on household participation in the reform process and indicates

how the process was implemented by province. Results show a wide variation in the process across provinces, with 100% of villages conducting reforms in some provinces and only 20% in others. Similarly, a large majority of households expressed knowledge of the reform in some provinces and less than 1% in another. The percentage of households that had their land rights affected also varied tremendously, ranging from 85% in Jiangxi to less than 1% in Shandong. The percentage of households that had the opportunity to acquire a new plot for themselves also varied significantly, with the highest percentage occurring in those provinces that had not implemented the “three fixes” in the 1980s (Fujian and Liaoning), but even there it was lower than 40%.

The level of consultation, too, varied widely and appeared low overall. Between less than 1% and 60% of households was consulted, averaging less than 30% across the eight provinces. The number of public meetings was more consistent;

TABLE 6: PARTICIPATION AND CONSULTATION IN FOREST TENURE REFORM

Province	Villages Conducted Reform (%)	Households knew of the reform (%)	Households' use right has changed (%)	Household has right to choose a forest plot (%)	Household was consulted in the reform (%)	Number of villagers' representative assemblies convened to discuss the reform (Times)	Number of household member attended the villagers' representative assembly (Times)	Number of villagers' assemblies convened regarding the reform (Times)	Number of times a household member attended the villager assemblies (Times)
Fujian	95.00	76.20	64.03	37.09	38.75	3.28	1.75	1.36	1.24
Jiangxi	100.00	95.33	85.00	21.33	59.00	2.76	1.58	1.48	1.32
Zhejiang	80.56	61.39	41.94	12.78	16.94	1.42	0.88	0.48	0.45
Anhui	20.00	18.67	7.67	3.00	7.33	3.05	1.54	2.31	2.10
Hunan	53.33	49.88	5.30	2.65	4.97	2.12	1.35	1.60	1.55
Liaoning	100.00	85.00	59.67	36.67	56.67	4.45	2.68	3.54	3.33
Shandong	23.33	0.67	0.67	0.00	0.33	7.00	7.00	3.50	3.50
Yunnan	86.67	72.83	32.17	18.17	30.00	2.62	0.74	1.73	1.66
Total	72.83	62.87	38.14	18.51	28.36	2.93	1.45	1.67	1.55

Data Source: Forest tenure reform survey conducted by EEPC in 2006 & 2007.

between 2 and 7 meetings were held by village representatives, and an average of 2 full village assemblies were held. Households attended about

half of the representative meetings and the majority of full assemblies.

## 4.7

### ANALYSIS OF CONDITIONS RELATED TO COLLECTIVE CHOICES IN ALLOCATING TENURE

In order to better understand the choices made by collectives in the allocation of land rights, we also conducted a regression analysis using data from two provinces, Fujian and Jiangxi, where the political will for reform was strongest in the early 2000s. A reduced form equation was fitted to data from a sample of 90 villages (60 in Fujian and 30 in Jiangxi). We used changes in the distribution of tenure types between 2000 and 2005 as the dependent variable. The explanatory variables were grouped into six categories: 1) village characteristics; 2) market development and opportunity for off-farm income; 3) social capital; 4) tenure security and policy; 5) village politics; and 6) share of total village government revenues derived from forestry activities.<sup>29</sup> In addition, the allocation of tenure during the base year and county-level dummy variables were used in the regression as control variables. The results of the analysis (Table 7) show that, although there were significant correlations, these were few and were not strong. This general finding reaffirms the results of the preceding descriptive analysis that there was much variation in village choices over the allocation of tenure. That said, there were significant correlations, and these enable predictions regarding the conditions which favored the different tenure types and the importance of different variables in relation to the choice of forest tenure type.

The significant correlations and findings regarding each tenure type included:

- Individual/household tenure is significantly more likely in villages with higher levels of adult education, lower levels of access to off-farm labor, higher numbers of conflicts, and when forestry

represents a lower level of village government revenue.

- Partner tenure is significantly more likely in villages where forest lands are low-sloping, where there are fewer conflicts, and where there is less perceived fairness of the village leadership.

- Village cluster tenure is significantly more likely when forest land was steeper, when there were higher levels of social capital, when tenure re-allocation was more frequent, and when the village revenue from forestry was higher.

- Contracts to outsiders were predicted in cases of higher levels of adult education, steepness of forest land, less importance of agricultural production, and lower perceived fairness of the village leadership.

- Collective management was significantly more likely when there were fewer active laborers in the village—suggesting this as a default option for villages when the population was dominated by the elderly or children.

The significant correlations regarding the importance of different variables included:

- Higher adult education tended to predict individual and outsider contract tenures.

- In collectives where social capital is strong, management by hamlets (villager cluster) is the preferred choice.

- In collectives where alternative off-farm sources of income exist, demand for allocation to households tends to be low.

- In collectives where land rights are insecure (due to frequent changes in tenure arrangements caused by local governments or government intervention in the form of land-use zoning for conservation), forest

tends to be managed by village clusters, as the cluster can adapt to land adjustment more easily.

- Poor village leadership had a very limited effect on tenure allocation, but did tend to decrease the chances for partner and contract tenure.

- High rates of village revenue from forests tended to decrease chances for individualized tenure and increase likelihood of the village cluster type.

TABLE 7: DETERMINANTS OF TENURE STRUCTURE CHANGE IN FUJIAN AND JIANGXI (2000-2005)

Variable	Individual	Partner	Villager Cluster	Outsider Contract	Collective
Village characteristics					
Share of active laborers in adult population	0.218	0.092	-0.080	0.051	-0.329**
Level of adult education	0.543*	-0.063	-0.089	0.269**	-0.075
Slope of forestland	0.001	-0.039**	0.051*	0.034*	-0.011
Market development					
Share of agricultural crops that are grown for commercial market	0.102	-0.031	0.097	-0.081*	0.043
Off-farm labor rate	-0.589**	0.002	0.140	0.044	0.200
Social capital					
Ease of access to informal credit	-0.202	0.014	0.324**	-0.016	-0.030
Tenure security					
Frequency of reallocation of agricultural tenure	-0.004	-0.000	0.008***	-0.000	0.001
Area of collective forest zoned to public benefit forest	-0.004	0.006*	-0.001	0.001	0.003
Forest boundary conflicts (number of reported disagreements among farmers in the village over forest boundaries in 2000)	0.073**	-0.035**	-0.024	0.022	-0.039
Village politics					
Perceived fairness of village leadership	0.014	-0.017*	-0.004	-0.015*	0.018
Village revenue from forestry					
Forestry revenue share	-0.120*	-0.026	0.150***	0.030	0.013

Note: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

## 5

## DISCUSSION AND CONCLUSIONS

1. A key finding of the research presented here is that forest tenure reform is clearly evolving differently among different provinces in China—with most provinces demonstrating a small shift towards individualized (household) tenure, but others demonstrating a shift towards more collective management. Moreover, rather than a major one-off shift from collective to household, the reform resulted in a situation where collectives had the opportunity to reassess and reallocate, and many took advantage of this authority to flexibly allocate tenure rights. Indeed, there were provinces where forest tenure was shifted from households back to collective management. That this shift back to collective management took place in Anhui Province, which was widely recognized as the home of the land reform movement in the 1980s, is particularly interesting. That said, the variation in allocation decisions across the provinces is due in large part to history, with provinces that changed the least in the 1980s changing the most now. In addition to these differences in patterns at the provincial level, the regression analysis demonstrates that within provinces, collectives were choosing between tenure types in response to local social and economic conditions.

This officially condoned flexibility will allow collectives and households to adjust not only to changes in markets and in policies in the future, but also to the shifts in land capability and land value that will come with climate change. Many newly created and emerging tenure types, such as the partnership type and outsider contracts, are likely to be temporary arrangements. When

socio-economic and market conditions change, the interests of households will change and thus likely lead to different tenure arrangements. Some of the partners will likely evolve, either separating or increasing in size or number of parties. When a contract period ends, the outsider contracts will have to be renegotiated and the forest land may be returned to households. All these changing factors will lead to calls for regularly adjusting land management rights.

2. There is clearly a need to improve the participation of households in the collective decision-making process. Our analysis suggests that the reform process fell short of the emerging global standard of obtaining free, prior, and informed consent (FPIC) of households and communities before their land rights are altered. The consolidation of household rights and formalization of processes to shift land to households is a major step towards a private market for forest land and will result in hundreds of millions of new forest owners. The limited amount of participation and consultation in the allocation of land rights raises concerns that the forest land market is being liberalized before a regulatory environment is in place which clearly guides land allocations and contracts and ensures adequate judicial processes for grievance and redress. Establishing this framework and informing landowners of their rights and duties as well as establishing legal options have become a priority in the rural sector. Establishing this legal and judicial framework and informing landowners of their rights and duties as well as legal options

has become a priority in the rural sector. It has also become urgent to establish the legal and regulatory framework governing land acquisitions, contracts between households, and larger associations of farmers. A next generation of reforms will not only be necessary to protect households against more powerful actors, but also to enable them to access credit markets, allowing them to increase their production and incomes.

**3.** The clarification and strengthening of rights at the collective and household level will also challenge the established practice of policy edicts and regulatory takings to control land use. This policy approach was conceived and implemented in an era when forest owners' property rights were not so highly respected. It can be expected that local owners will increasingly challenge this type of regulatory takings as the tenure reform process advances. In this emerging context of recognized property rights, public programs designed to reimburse forest owners for income lost due to regulations and zoning as well as schemes to compensate owners for the publicly valuable ecosystem services that their forests generate—such as the Forest Ecosystem Compensation Program (FEPC)—will increase in importance.

**4.** While a large part of the developing world is still struggling with rapid deforestation and degra-

ation, China, along with a few other countries, is seemingly moving in a bold new direction by clarifying local land rights, encouraging local collective choice over allocation of those rights, and enabling communities to allocate land to households.

These reforms are showing promise for increasing incomes, reforesting forests, and reducing conflict. However, its full effects on land ownership, livelihoods, and local governance are not yet known. It is likely that with greater market integration there will be a consolidation of small farm holdings, more contract farming, and an exit of marginal producers to other pursuits. There is a high risk that the more powerful actors at the local level are controlling land allocations and will benefit disproportionately. There is also still inadequate information regarding the effect of these reforms on the ethnic peoples who traditionally own and manage their forests collectively. China's rapid growth combined with a strong infrastructure, access to large domestic and international markets, as well as active labor markets imply that the secure property rights to forest lands will likely have more positive effects in the long term than in countries where these conditions do not prevail. China's reform efforts can potentially be a positive and useful example for other developing countries.

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1238 Wisconsin Ave NW, Suite 204  
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