

Research on policy problems affecting the development of joint stock
partnership arrangements in China

KONG Ming¹, LIU Can², ZHANG Xiaojing^{3*}

China National Forestry Economics and Development Research Center^{1,2,3}

2000

Keywords: forestry, environmental services, policies, joint stock partnership, development, China.

Please see the full list of authors under **Notes to readers** at the end of this article.

Contents

- Executive summary
- 1. Introduction
- 2. Background
- 3. Rural FJSP development in China
 - 3.1 Background and status quo
 - 3.2 Main forms and Characteristics of FJSP
 - 3.3 Effect evaluation of FJSP
- 4. Current institutional arrangement and existing problems of FJSP
 - 4.1 Forestry land, forest resource property right policy system
 - 4.2 Institutional arrangements of timber production, circulation and prices
 - 4.3 Institutional arrangement of forestry taxation and fees
 - 4.4 Institutional arrangements for forestry investment and financial supports
 - 4.5 Costs of environmental services of FJSP entities are not properly compensated
- 5. Institutional arrangement designed for promoting FJSP's development in rural areas
 - 5.1 The long-term and stable forestry land institutional arrangements and soundly adjusted forest property right arrangement should be practiced.
 - 5.2 Timber production and circulation management institutional arrangement in the south collective forest areas should be

improved.

5.3 Adjusting forest taxation and fees and reducing farmers' burden.

5.4 Institutional arrangement for compensation of environmental services for individual and collective forests should be established.

5.5 Internal administrative structures of FJSPs should be improved and rural social services should be strengthened.

Tables

Table 1: Benefit distribution of FJSP forestry farms of Shixing County in Guangdong Province from 1990 to 1998 (unit: thousand Yuan RMB)

Table 2: forestry land share structure of afforestation of Siqian FJSP Forestry Farms in Shixing County, Guangdong Province

Table 3: Forest resource share structure of afforestation of Siqian FJSP Forestry Farms in Shixing County, Guangdong Province

Executive summary

The rising of FJSPs is under the situations of the reform of rural economy and in transition from the traditional planned economy to the market-oriented economy. In accordance with the current productivity levels and the realization of the economy of scale and strengthening forestry administrative management, farmers in China have chosen FJSPs to promote rural forestry development. Within the framework of common property right arrangements, FJSP institutional arrangement is a new kind of rural forestry economic organization in which forestry lands, forest resources, labors, techniques, capitals and other forestry production factors are shared into stocks with forest management based on the equity, voluntary and democracy. The rising and development of FJSPs reflect not only rural productivity level in China, but also the transition from the traditional planned economy to market-oriented economy. Remarkable achievements have been made by FJSP institutional arrangements in carrying out an in-depth reform on ownership, benefit distribution and forestry management systems as well as optimizing forestry production factor allocations. To some extent, FJSP institutional arrangements has promoted rural forestry development in China, and has been enhanced by the institutional arrangements designed by the State. Clear requirements for FJSP development are put forward, which are beneficial to rural FJSP development in China. At present, because the reform of forestry lagged behind the reform of economy, some institutions under the traditional planned economy have not been readjusted, the institutions for new issues are not designed, FJSP institutional arrangements are still having many weaknesses,

such as inappropriate forestry land tenure and ownership, irrational benefit distributions, lacking of funds, monopoly purchasing of timber, heavy taxation and fee burdens etc. in forestry sector. All of these factors have restricted FJSP's development. The institutional arrangements should be adjusted in the following aspects. The long-term and stable forestry land institutional arrangements and soundly adjusted forest property right arrangement should be practiced. Timber production and circulation management institutional arrangement in the south collective forestry regions should be improved. Forest taxation and fees should be adjusted to reduce farmers' burden. The institutional arrangement for compensation of environmental services for individual and collective forests should be established. Internal administrative structures of FJSPs should be improved and rural social services should be strengthened.

1 Introduction

Before the reform of economy, there were three types of forest management forms existed in China: (a) forests managed by State-owned forestry enterprises; (b) forests directly managed by the State; and (c) forest farms managed by communes or brigades. Without any decision-making rights, farmers in commune/brigade forest farms had no incentive to invest in sustainable forest resource management, which has led to the decreasing of forest resources. In 1981, The Central Committee of Communist Party of China and the State Council promulgated the "*Decision on Several Issues Related to Forest Protection and Forestry Development*". This Decision positively affected both forest resource management and forestry land tenure. In practical terms, forestry land usufruct has shifted from villages and communes to individual households to realize the separation of usufruct and ownership.

However, due to high population pressure, it was soon revealed that forestry land area of individual household was too small to develop efficient small-scale forest management forms with low capital inputs and risks. It was, therefore, urgent for farmers turning into forest resource co-management system. The model of joint stock partnership (developed with success in other sectors) offered an alternative with many development potentials. The first attempt to develop Forest Joint-Stock Partnership (or FJSP) models was initiated in 1980s in Shangluo prefecture, Shaanxi Province and Sanming Prefecture, Fujian Province. Since then, many different models of FJSP forms have spread all over the country, especially in the southern collective forestry regions. Under the main FJSP model, forest resources, land use rights, labor input, capital and techniques, etc. are shared among the FJSP members. The same applies to the benefits that are re-distributed in accordance to share distribution and value. Generally speaking, FJSP is established within former village or commune. FJSP's main characteristics include:

- It is different from village and commune collective management and household responsibility system management;

- With labor alliance at its base, it draws some features from the joint-stock system and cooperative economy systems. In this respect, it is a new form of common property;
- Farmers are both laborers and land use right owners. As a result, an interested-related community is formed through farmers' labor and capital alliance;
- It stimulates farmers' and other stakeholders' participation and production inputs and, therefore, generates additional income;
- It provides a new institutional arrangement suitable for forestry development and sustainable forest resource management; and
- It is a transitional form in the reform of property rights.

However, during establishment and operations of the FJSP, there are still some relevant issues that undermine the efficiency of existing FJSP models, hamper effective participation and create internal and external conflicts among FJSP members and with local administrations, which should be urgently solved. The main issues are as follows:

- Government agencies and village committees tend to intervene in FJSP management and benefit distribution. Moreover, there are many examples where social affairs and economic affairs are mixed;
- The members of FJSP are mainly located in the village. This fact constraints the raise of capital from the outside.
- Stockholder's rights are not enough protected by laws;
- Land use rights of FJSP members are clearly specified and their duration are too short to provide incentives for long term investment;
- There are no unitary standards and criteria used for sharing labor, capitals, techniques, land use rights and forest resources, thus creating many internal conflicts. As a result, the use of production inputs (labor, capital, technology and land use rights) is not optimized.

These issues are at the origin of numerous conflicts among FJSP members as well as between the FJSP members and related administrative organizations. It is, therefore, obvious that the advantages and potentialities of FJSP management forms have not yet been optimized. It is urgent to study the current situation and issues pertaining to FJSP models in China as to derive lessons that could improve the efficiency of FJSP management models for sustainable forestry development in China.

The objective of the research is to demonstrate to decision-makers under which policy, institutional and managerial conditions and arrangements, FJSP will be an economically viable entity according to the principles of socialist market-oriented economy. The study will also give sufficient background information and justification to make informed decision to improve the efficiency and effectiveness of FJSP models.

The research will be carried out in the Southern China Collective Area, and will focus on:

- The identification of management constraints and issues currently affecting the development of FJSP models in China with particular reference to current economic policy issues; institutional issues; land and tree tenure issues, marketing issues, responsibility system and participatory management issues;
- The development of policy, institutional and operational standards and criteria under which FJSP models could be efficiently promoted and economically managed;
- The identification of a set of strategic principles for the management and development of JSP forest management model in China, including mechanism(s) to improve the participation of the various stockholders in JSP development (with specific attention given to gender and poverty issues);
- The development of policy, legal and institutional guiding principles. This assessment will lead to the identification of an action plan for the development of FJSP in China, including the definition of policy, legal and institutional changes that should be promoted to resolve current issues affecting the efficient management and development of FJSP in China; and
- The economic assessment of and an estimation of benefits to be derived from the proposed policy, legal and institutional change (i.e. financial and economic analysis of some key JSP forest development model).

Based on the above analysis, the research will propose new practical policy and strategic recommendations and assess their compatibility with the governmental strategic priorities for the next decade forestry development in China.

2 Background

The State Council promulgated the "*Decision on Several Issues Related to Forest Protection and Forestry Development*". This Decision positively affected both forest resource management and forestry land tenure. In practical terms, forestry land usufruct has shifted from villages and communes to individual households to realize the separation of use rights and ownership. China is transmitted from the traditional planned economy to market-oriented economy, the economic growth model is changed from the extensive management to intensive one; also the guidance for forest resource management is moved from sustained yield to sustainable development, which includes economic, social and environmental sustainability. FJSP management models, such as jointed-management forestry farms, company +farmers, cooperative forestry farms and other forms, have been adopted by large rural areas to satisfy the demand of rural and forestry development, to some extent, FJSP has enhanced rural forestry development. On the other hand, during the

transition from the traditional planned economy to market-oriented economy, forestry policy adjustment lagged the reform of economy, the existing institutional arrangements have constrained not only the forestry development of the south collective forestry regions in China, but also the FJSP's development in the rural areas.

RRA and PRA were adopted by the research team to collect information and data for the field trip. The research team discussed with forestry officers of the counties, prefectures and provinces, experts and local people, managers of FJSP forestry farms and headmen of the village committees. The existing documents and papers were reviewed through Internet and libraries of Chinese Academy of Forestry and others. The studies of background, progress, current policy and institutional arrangement, potential policy and institutional arrangements have been done. In the meantime, Yong'an County and Youxi County of Sanming Prefecture in Fujian Province, and Shixing County, Nanxiong County, Wuyuan County of Shaoguan Prefecture in Guangdong were selected for field trips, Shixing County and Youxi County were selected as case study areas. More than 71 households of 31 villages of 12 towns of above-mentioned counties in Fujian and Guangdong Provinces were interviewed. As to the research methodology, institutional arrangement economics is adopted to analyze the situation and relevant policy and institutional arrangement of FJSP development, finally, the compounding policy and institutional arrangement to improve FJSP development is then come into being.

3 Rural FJSP development in China

3.1 Background and status quo

FJSP was appeared after the "three decisions" of forestry in the early 1980s,. Since 1981, forest resources and forestry land have been stabilized, and forestry lands have been decided the for farmers' own uses. By 1984, "three-decisions" of forestry sector had been completed in three-fourth counties or four-fifth towns all over the country, more than 56 households got over 30 million hectares of forestry land for private use, household responsibility systems were established nationwide. The areas of forestry lands for household responsibility and private uses accounted for 80% of the total areas of collective forestry land. In 1985, the Government of China freed up timber markets in collective forest regions and abolished unified timber purchasing from collective and individual forest farmers, which allowed timber to be freely traded at negotiated prices. All the policy adjustment made the complete change of forest management models in the collective forest regions, which lasted more than twenty years. Because of lag of forest resource management, farmers' enthusiasm of reducing poverty, and large deficit between wood supply and demand, illegal logging were taken in the collective regions of South China in the middle of 1980s. Under this situation, forestry lands and forest resources were not allocated to farmers, the management model of forest management of shares of forestry lands and forest resources

without allocating forestry lands and forest resources, allocating bonus instead of forest resources was adopted in some collective regions to carry out a concentrated management and protection of forest resources. Sharing and co-management of forest resources was introduced, and independent management organizations, such as Rural Forestry Board etc. were established. The form was initiated in Shangluo Prefecture, Shaanxi Province, and then was widely extended in Sanming Prefecture, Fujian province. By the end of 1994, Forestry Boards were established in 1347 villages or accounting for 83.4% of all administrative villages, the area of forestry land under FJSP was 1.32 million hectares, representing 84.1% of the total forest areas.

FJSP was established in Sanming Prefecture, Fujian Province by directly sharing collective forestry land and forest resources rather than allocating forestry land and forest resources to farmers. In other areas, forestry lands and forest resources were allocated to farmers, FJSP was established after the experience of "three-decisions" and the reform of community forestry. All collective forestry lands and forest resources in Shaoguan Prefecture, Guangdong Province were allocated to farmers in 1984. FJSP forestry farms and co-management forestry farms were introduced in the region in 1990. At present, different achievements of FJSP have been achieved in the rural areas, especially in the provinces and autonomous regions with mainly collectively owned forests, FJSP has become the key forest resource management form, for examples:

- More than 3600 FJSP forestry farms are set up, which accounting for 55% of all forestry farm in the province;
- Over 9660 FJSP forestry farms are established in Zhejiang Province, representing 90% of all forestry farms in the province;
- 2765 FJSP forestry farms or 46% of all forestry farms in the province are introduced in Guangdong Province;
- There are 951 collective forestry farms in Liaoning Province, out of which 612 are JSP forestry farms, and management areas under JSP forestry farms weight 65% of all collective forestry land;
- The number of JSP forestry farms accounts for 38% of all collectively owned forestry lands in Huaihua Prefecture, Hunan Province.

3.2 Main Forms and Characteristics of FJSP

The different FJSP models are selected locally according to different situations and backgrounds. Currently, the key forms of FJSP in China are as follows.

3.2.1 Sharing forestry land and forest resources and co-managing them with implementing responsibility system and allocating dividends according to labor inputs.

The basic way of the FJSP model is the following: forestry lands and forest resources are shared in the range of an administrative village, and shares are distributed to farmers in accordance with the family size or the number of

laborers. Forestry lands and forest resources are still managed by the Forestry Board of the administrative villages, to some extent, the economy of scale is therefore possible to reach. Farmers will get their benefits in accordance with the holds of shares. In the meantime, labor inputs of farmers are paid in term of wages based on the productivity of forestry lands and forest resources. The institutional arrangement of FJSP completely adjusts the collective management and benefit distribution before the reform of economy. The example of the FJSP model has the situation of sharing forestry land and forest resources without distributing forestry land and forest resources in Sanming Prefecture in Fujian Province.

3.2.2 Establishing co-management forestry farms by sharing forestry land and forest resources and unified management, and benefit distribution in accordance with shares.

Forestry land, forest resources, labors and techniques and other production factors of farmers and other entities are shared to establish JSP forestry farms, management institutions are set up, production activities are done by the staffs of JSP forestry farmers in the form of unified management. Shigang Bamboo JSP Forestry Farm of Nanxiong County, Guangdong Province was set up by sharing 9.33-thousand-hectare forestry land and forest resources among over 1200 farmers of 51 village groups of 6 administrative villages in 2 towns. The Government of Nanxiong County invested 15 million-Yuan RMB, the institution of forestry farm was set up, and 1-3 farmers were sent to become its permanent staffs of the forestry farms by each administrative village in accordance with the weight of its shares, investor also sent its representatives to be involved in forestry farm management. The Board of Directors is elected, the board of supervisory was set up, and managers of the JSP forestry farm were selected. The valid period of co-management lasts 70 years.

3.2.3 The State forestry farms are the bones of forestry farms, farmers around the State forestry farms are involved, and unified management model is adopted, the benefit is distributed in accordance with the holds of shares.

The State forestry farms have strong advantages in terms of management and capitals, yet who are lacking of forestry lands and forest resources. Meanwhile, farmers, village groups and village committees have disadvantages in forest management and capitals. Therefore, State forestry farms and farmers (village groups and village committees) are reciprocal in forestry land and forest resource management. Longdouxie State Forestry Farm in Shixing County, Guangdong Province, and villagers around the State forestry farm co-established a FJSP entity, in which forestry lands and forest resources of farmers were shared and unitarily managed by the State forestry farm. Benefit is distributed in accordance with the holds of shares. The way is beneficial to not only protecting forestry lands and forest resources, but also raising the management level and economic benefit of forestry lands and forest resources,

a win-win institutional arrangement between farmers and the State forestry farm is reached.

3.2.4 FJSP is formed with investment of sectors and individuals, forestry lands and forest resources of farmers are shared and contracted to farmers for management with benefits distributed according to the holds of shares.

Based on the technical, managerial and capital advantages, forestry sector establishes JSP forestry farms in cooperation with many farms, village groups and village committees or other entities, in which the forestry land and forest resources of farmers are shared with benefits distributed among forestry sector, farmers, village groups and village committees or other entities in accordance with the holds of stakeholders' shares. Other sectors also establish JSP forestry farms with farmers, village groups and village committees with its management model similar to the one among forestry sector and other stakeholders. These sectors are involved in the FJSP because of their abundant fund resources.

3.2.5 Enterprises establish JSP forestry farms with farmers, farmers supply wood and other raw materials to them.

Enterprises invest in forestry land and forest resources aiming at receiving wood and other raw materials. Farmers and other organizations provide forestry lands, forest resources and labors. JSP forestry farms are established between farmers and enterprises with benefit distributed among enterprises, farmers, village groups and village committees. The institutional arrangement of FJSPs on one hand guarantees the stable supply of wood and raw materials for the enterprises, on the other hand provides farmers with sufficient funds so as to enhance forestry development. Youxi Forestry Chemical Plant in Fujian Province has set up a JSP forestry farm with farmers. Youxi Forestry Chemical Plant invested some funds, which are adjusted annually. Farmers are responsible for forest land and forest resource management, the plant is responsible for rosin purchases above the support price, and the institutional arrangement keeps farmers' benefits and raw supply of the plant. The profit of the plant is distributed among the plant, farmers, village groups, and village committees.

3.2.6 JSP forestry farms are established among farmers

The institutional arrangement of FJSP is a cooperation-oriented one, the characteristics of the model is farmers' free join and leave, different scales, flexible co-management period, and different period of co-management. Farmers keep independence of the usufructs of forestry land and forest resources under household responsibility system, benefit of forestry farms is distributed in accordance with the shares of labor and capital inputs. Farmers' co-management model of Shaoguan Prefecture in Guangdong Province is an example.

Above-mentioned FJSP models show that current FJSP institutional arrangement in China is under the situation of clear property rights, natural resource capital (including forestry land and forest resources), man-made

capital (fund, technique), human capital (labor, management skills) and social capital are combined, these capitals are shared to create common property arrangement, and the common property assets are co-managed by all of the stakeholders. Benefits are distributed in accordance with shares and labors. Boards of directors and supervisory boards are elected by the stakeholders, FJSP entities are run under the guidance of the State. Generally speaking, FJSP is new kind of property right arrangement by combining common property with farmers' private property.

Above analyses also indicate that FJSP institutional arrangement has the following specifications.

- Combining labor cooperation and capital share: farmers are both managers and investors, the institutional arrangement is a new system by combining cooperation system of labors and share system of investment.
- Mixed property right arrangement dominated by common property right arrangement of forestry land and forest resources. Farmers do not get own ownership rights of forestry lands and forest resources, which are the most important factors of FJSP development in China's rural area. Farmers have usufructs and management rights of forestry lands and forest resources for shares.
- Benefit distribution in accordance with shares and labors.
- Loose and close cooperation might be chosen by stakeholders, and FJSP adheres to the principle equality and risk-sharing.
- Regarding to institutional arrangement, shareholders, meeting of stockholders, the boards of directors and supervisory boards are established, co-management model is introduced.
- Production management forms of forestry lands and forest resources follow unified and responsibility models.

Above characteristics of FJSP in China's rural areas reflect the management and productivity levels of these areas, and they has explained why FJSPs spread so quickly in these areas.

3.3 Effect evaluation of FJSP

FJSP's appearing in China's rural areas improves institutional arrangement in these areas, which also promotes development and reform of rural areas with great achievements made.

3.3.1 Clarify property arrangement of rural forestry in China

Before the reform of economy, property arrangement in China's rural areas was the sole collective right arrangement, farmers had little rights to make decisions with regards to their benefits, and Farmers' awareness of property rights was very weak. After household responsibility system was introduced, although farmers get the long-term use rights of forestry lands and ownership

of forest resources, property right attenuation and partitioning of forestry lands and forest resources still exist. What kinds of rights of forestry lands and forest resources farmers can get is still unclear after introducing household responsibility system, to extremity, some farmers even do not know the location of their responsible forestry lands and forest resources. Weak awareness of property rights and frequently changing policy has led to the over-harvesting of forest resources and little attentions paid to forest management. After FJSP was introduced, sharing forestry lands and forest resources makes stockholders' rights more clear, especially benefit distribution in accordance with their shares, and democracy management was introduced. Property rights of farmers are reflected clearly and the situations of property right attenuation and partitioning of forestry lands and forest resources are improved.

3.3.2 FJSP advances allocation and optimization of production factors.

The characteristics of long-term production rotation, wide spread and more difficult management of forest resources and forestry lands, as well as higher inputs in the early period constraint the forestry development. At present, although farmers' average income increases rapidly, however their disposable incomes are still low, which has led to the small amount investment for forestry, which has constrained forestry development. It shows that the costs of intensive and extensive afforestation are 750 Yuan per mu and 450 Yuan per mu respectively in Sanming Prefecture, Fujian Province. Annual average per capita income of farmers in 1980 and 1998 were 150 Yuan and 1200 Yuan respectively, farmers have difficulties in afforestation and forest management. Human capital of farmers in China is low, which makes it difficult for individual household to manage their forest resources. After FJSP was introduced, investment and other production factors owned by different stakeholders for forest resource management can be used more efficiently. It was investigated that over 32 million-Yuan RMB- investment by Farmers and other stakeholders were input into FJSP, 2.68 million-mu forestry lands were managed under the FJSP management in Sanming Prefecture, Fujian Province. Selling and marketing cooperatives, individual and private enterprises were involved into FJSP management in Shaoguan Prefecture, Guangdong Province.

3.3.3 Forestry management institutions are improved.

Strong governmental intervention under the condition of peoples' commune has become weak. The property rights of all stakeholders further constrain activities of forest managers.

3.3.4 Benefit distribution is more rational.

Dividend of FJSP is distributed in accordance with the number of shares, labor inputs paid in terms of wages or shared and returned in the form of dividends, and the benefit is distributed in accordance with share and labors. The benefit distribution of FJSP was realized based on labor inputs and in an equal way. The benefit distribution institutional arrangement is very effective to

encourage farmers' enthusiasm in carrying out forestry activities. The institutional arrangements of more shares, more inputs and more returns have been formed. Because of open account and democratic management, farmers are clear of their productivity. It was shown that 198.54 million-Yuan-bonus was distributed by the boards of directors to farmers from 1984 to 1996 in Sanming Prefecture, Fujian Province.

3.3.5 FJSP promotes the development of the economy of scale

The characteristics of forestry development require the economy of scale. In the period of peoples' commune, enthusiasms of farmers were ignored, economic scale was simply expended by administrative measures, which led to the unclear property right arrangement and responsibility of farmers, and they had little incentives to forestry production. After household responsibility system was introduced, forestry lands of a household were allocated in more than a plot, each forestry land is occupied by more than one household so that forestry lands were equally distributed, and average area of each household is relatively small, it is reported that average forestry land per household is less than 2 hectares. Under this circumstance, it seems that property rights of forestry land and forest resources are clear, but the economy of scale is very difficult to reach. FJSP's appearing makes property right arrangement more clear, the institutional arrangement of FJSP may not only avoid small plots of each household of forestry land, but also realize the intensive management of forestry lands and forest resources. After FJSP was introduced, the issues, such as forest disease and pest control, forest fire control and forest planning, forest fires and forest resource management, forest road and forest extension can be well solved, potentials of household enthusiasm and the economy of scale be in harmony to raise the productivity of forestry land and forest resources. Rational economy of scale might reduce risks of natural and other disasters.

3.3.6 Capability of forest resource administrative management has become stronger, social, environmental and economic benefits have been raised.

Forest resources provide economic, social and environmental benefits to the society. It is necessary for governmental agencies to strengthen forest resource administrative management in forest areas to harmonize economic, social and environmental outputs. After household responsibility system was adopted, multi-stakeholders of property arrangement appeared, which causes more difficult and higher costs for governmental agencies to manage forest resources. The introduction of FJSP is very useful for stockholders to co-manage forestry land and forest resources, and social security in forest areas can be strengthened, which also promotes forest resource development. It is investigated in Sanming Prefecture, Fujian Province that illegal logging was reduced after FJSP being introduced, stronger forest administrative management not only protects current forest resources, but also pushes afforestation. Forest suitable lands were completely planted in Sanming

Prefecture, Fujian Province by the end of 1990, in the meantime, 11.18 million mu commercial forests of higher standard has been planted. The boards of stockholders set up associations of afforestation, logging, processing and market circulation. More than 60 thousand additional labors were employed in forestry activities. Some professionals of "green enterprises" of high standard have been appeared and are benefit to reduce poverty.

4 Current institutional arrangement and existing problems of FJSP

The appearing and development of FJSP in China reflects not only the requirement for rural productivity levels and characteristics of forest resource management, but also the direction of transition from traditional planned economy to market-oriented economy. The State government adheres to the principle of "actively supporting, and correctly guiding and gradually improving" with regard to FJSP and especially encourages the collective economy of labor-cooperation and capital-share of farmers. Meanwhile, the State government put forward to the clear requirement for the direction of all sorts of JSP's economic development. The principal requirement for rural JSP's economic development is that the principles of voluntary participation, equity and democracy management, and benefit distribution in accordance with shares and labors should be followed. These institutional arrangements push and standardize all kinds of rural JSP's economic development. On the other hand, the reform of forestry lagged behind the reform of macro-economy, concrete polices are not adjusted or stipulated in transition from the traditional planned economy to market-oriented economy. Many a policy still under the framework of the traditional economy, all of these institutional arrangements have seriously restricted rural FJSP's economic development.

4.1 Forestry land, forest resource property right policy system

Forestry land and forest resource property right policy system has been evolved for a long time. The Land Reform Act of the Peoples' Republic of China, which was issued in June 1950 by the central government of China, Stated that "the State confiscated all forestry enterprises and placed them under ownership by the entire people; mountain forestry land was confiscated from feudal landlords and allocated to farmers." In accordance with the rules of the Land Reform Act, the property right arrangement of lands and forest resources was decided. By the land reform, landlords' ownership was changed into individual ownership of farmers. The Land Reform had been completed by the end of 1952 in the whole country except for Taiwan Province and minor nationality areas, about 46.67-million-hectare-lands were allocated to these 300 million landless or land lacking farmer. Based on the traditions and situations of places, the property right arrangements were divided into three categories—farmer individual ownership, common property ownership and collective ownership of villages and towns. Many farmers had their own forestry lands and forest resources, as well as independent management and logging and free transaction rights of forestry lands and forest resources.

In 1953, China entered the era of preliminary cooperatives. The Constitution of Agriculture Producers' Cooperative issued in 1955 Stated that forestry lands should gradually be unitary managed by the producers' cooperatives. Trees and forests owned by farmers should follow the principles.

- Farmers should manage scatter trees, labors should be inputted, such as orchards, tea, bamboo and tung plantation should be managed by the producers' cooperative, and producers' cooperative should pay farmers.
- Mature forests of pines and Chinese firs should be managed the cooperatives on the voluntary bases of farmers, the remaining benefits (i.e. benefits minus production cost and benefits of the producers' cooperatives) should be returned to farmers.
- Newly planted forests should be managed by the cooperatives. Owners of newly planted forests should be paid in the form of benefit sharing or wages.

In the period, private ownership of farmers was still recognized under the institutional arrangement of preliminary producers' operatives, benefits were rationally distributed.

China entered the period of high level agricultural producers' cooperatives after 1956. "The constitution of high level agricultural producers' cooperatives" Stated that young forests, nurseries and economic forests and timber forests (except for scatter trees) should be transacted to the high level producers' cooperatives according to standard forest charge, and farmers shall get bonus by the end of each year. Property right arrangement of forestry lands had completely changed from the private ownership of farmers to the collective ownership. About 96.2 % farmers joined high level producers' cooperatives by the end of 1957, which indicated that the property right arrangement adjustments was completed.

The Decision on Establishing Peoples' Communes in Rural Areas was promulgated by the State Council. About 99% farmers all over the country (except for Taiwan Province) joined peoples' communes in a short period. Forestry lands and forest resources of former producers' cooperatives were changed to the assets of peoples' communes. In some places, private forestry lands and forest resources, which were not transacted in the period of producers' productive, were confiscated or bought from farmers with low prices, benefits were distributed equally.

"Policy decisions on protecting property rights of forestry lands and forest resources and forestry development" issued by the State Council in 1961 Stated that the property rights of forestry lands and forest resources should be adjusted. Forestry lands and forest resources of high level producers' cooperatives, production team, collective and commune members should belong to production brigades, production teams and commune members,

newly planted forests should adhere to the principle of "who plants, who owns" after peoples' commune. "The directives for adjusting the accounting unit of rural peoples' communes" and "work rulers of rural people' s communes" were promulgated by the State Council in 1962. Production factors of labors, forestry lands, cattle, farm tools should be controlled by production teams, and forestry lands were also readjusted.

- Large-scale and evenly distributed forestry lands should be managed by production teams.
- Forestry lands, which were unevenly distributed and difficultly managed by production teams, should be managed by the production brigades, all forestry lands in mountain and plain areas should be managed by production teams, 5—20% of forestry lands should be allocated to commune members for their private uses and managed by them accordingly.

Forestry lands for private use were regained, all forestry lands should be managed by collectives after culture revolution in 1966.

On February 23, 1979, the Fifth National People's Congress Standing Committee passed the Forest Law of the People's Republic of China, which stated that all forestry lands and forest resources of the State, the collective units and individuals should be inviolable. In March 1981, The Central Committee of Communist Party of China and the State Council promulgated the "*Decision on Several Issues Related to Forest Protection and Forestry Development*". This Decision positively affected both forest resource management and forestry land tenure. In practical terms, forestry land use rights shifted from villages and communes to individual households to realize the separation of use rights and ownership and household responsibility system was introduced. The Central Committee of the Communist Party of China and the State Council promulgated "the National Volunteer Afforestation Movement Act", in which it Stated that forestry lands for private uses should be expended, forestry lands of idle lands under household responsibility should not have any limitation, the contract period might last 30—50 years and the responsibility rights can be inherited. The Ninth National People's Congress Standing Committee revived and passed the Forest Law of the People's Republic of China, the new forest law stipulates the followings.

- Forestry lands and forest resources with the exception of those owned by collective as provided for by law shall be owned by the whole people. The forestry lands and forest resources owned by the State and by collectives, as well as the trees owned and forestry lands used by individuals, shall be registered by the local people's governments at the county level and above, which shall, upon verification, and issue certificates to confirm such ownership or use rights.

- Trees planted by rural inhabitants around their house and on privately farmed plots of cropland and hilly land shall be individually owned by them.
- In cases where a collective or an individual contracts to barren mountains and idle lands owned by the State or by collectives that are suitable for afforestation, the forest trees planted pursuant to the contract shall be owned by the contracting collective or individual, if there are other provisions in the contract, such provision of the contract should be followed.
- Timber forests, economic forests, fuel wood forests and the use rights of forestry lands are regarded for the pre-conditions for transaction, evaluation for shares or cooperative afforestation. But forestry lands are forbidden to turn into non-forestry lands.

Above analyses indicate that the institutional arrangement of property rights forestry lands and forest resources has experienced the process of clear - unclear - clear again and gradually followed the legal trace since 1949. The current institutional arrangement of property rights of forestry lands and forest resources is composed of the following aspects.

- Forestry lands belong to the State and collective units, farmers do not have the ownership of these forestry lands.
- Forest resources belong to the State and collective units, farmers do not have the ownership of these forest resources.
- Farmers get use rights of collective forestry lands and forest resources by household responsibility system or other forms within the contract period, these forestry lands and forest resources can be shared, transacted or inherited.
- Farmers get the ownership of forest resources by afforestation.

The property right arrangement of forestry lands and forest resources of the FJSP economy in China is within above-mentioned framework. At present, the existing problems of the framework are as follows.

- The use rights and ownership of forestry lands and forest resources are separated by the household responsibility systems, the use rights of forestry lands and forest resources is under the control of farmers and ownership of these resources are under the control of the collective units. Farmers get use rights under the contract, which lasts 30—50 years. The institutional arrangement of property rights of forestry lands and forest resources of FJSP is congenitally deficient and harmony with the characteristics of long-term rotation.
- When household responsibility was introduced, forestry lands and forest resources were allocated to households according to the family size or the number of laborers, farmers did pay nothing for getting forestry lands and forest resources. Frequently changing policy causes negative

- effects on farmers' forestry land and forest resource management, they worry about the getting of use rights of forestry lands and forest resources. The awareness of property rights of farmers is still very weak. These backgrounds may cause weak property rights and short-term activities of FJSP economy.
- Strong governmental interventions during FJSP's economic development conflict with the voluntary principle. Promulgating one governmental document in the region of one town, one county or even one prefecture is required to manage all forest in the form of JSP. Although the governments of some towns have consulted with farmers in line with the principle of the minority subordinating to the majority to realize FJSP, some farmers are still involuntary to join FJSP. Forestry lands and forest resources for private use and responsibility were robbed, the forest resource management model returned to the collective management one under the traditional planned economy. The direct result of the adjusting institutional arrangement causes the sense of changing policies, and expectation of farmers to FJSP economy is in vague, farmers do pay less attention to FJSP economy, which constraints FJSP economic development.
 - In practice, some governmental agencies or sectors disregard the property right arrangement of rural forestry lands and forest resources, which leads to the free allocation of forestry lands and forest resources of collective units of FJSP. For instance, in some areas, local governments did not discuss with farmers, forestry lands and forest resources of collective units or FJSP entities were designed to forest parks or forest tourism areas freely. Unclear senses of property rights will not only constraint FJSP development, but also cause the conflicts of property rights of forestry lands and forest resources.

The key reason for above problems of property right arrangement of forestry lands and forest resources is that unclear property right arrangement has not still been solved during the reform of rural forestry economy. The problem should be solved under the legal framework and designing measurement for implementing property right arrangement. Property right arrangement is the precondition and base of FJSP's healthy development.

4.2 Institutional arrangements of timber production, circulation and prices

Institutional arrangements of timber production, circulation and prices had been adjusted with the national economy since 1949, which could be divided into three stages. First, the institutional arrangement of free market for timber production, circulation and prices had been valid from 1949 to the middle of the 1950s; secondly, the institutional arrangement of the State's monopoly in timber purchasing and selling, and central planning of timber production and its governments' controlling price held in the rural forestry areas had been adopted from the middle of 1950 to 1985; thirdly, the institutional arrangement of allowance cutting amount and forestry sector monopoly in

timber purchasing and free market in timber selling in the collective areas of the south of China has been adopted since 1985.

Forestry lands and forest resources in the rural areas of China belonged to farmers themselves, farmers managed their forestry lands and forest resources independently, and they cut and sold timber themselves. With establishment of agricultural producers' cooperatives development in the rural areas and the traditional economy, the institutional arrangement of free market of timber production, circulation and prices was replaced by the State monopoly in timber purchasing and selling, and central planning of timber production and government' controlling prices. The institutional arrangement of the monopoly in timber purchasing and selling was initiated in 1956 and lasted until 1985. The basic management process of the monopoly in timber purchasing and selling was the followings. First, the plans of afforestation and timber production of rural communities were made and transmitted to the communities, subsidies for afforestation (45—75 Yuan RMB per hectare) were allocated to the communities. Secondly, timber production was organized by the collective units, forestry sector purchased timbers with a fixed price along the road sides (the purchasing price was composed of forest charge and labor costs of labors). Thirdly, forestry sector was responsible for timber transportation, State wood storage along the railways allotted to material sector with an ex-factory price (the price was composed of purchasing price, management and transportation costs, tax, and enterprise profit and forest culture fee). Fourthly, the State material sector allotted timber with a fixed supply price to consume areas and consumers. Although the institutional arrangement of monopoly in timber purchasing and selling had been generally adopted in the period, the State had gradually relaxed restrictions on timber circulation in collective forest areas of the south of China since 1981. About 10—30% of timber productions were permitted to sell with a free price, price discrimination (planned and market economies) was formed.

After household responsibility system was introduced, in January 1985, the State Council issued Circular outlining measures for further stimulating the rural economy. More specifically, the Circular mandated the continued deregulation of forest management policies in mountainous and collective forest regions and the removal of domestic timber trade controls to allow farmers and collective forestry entities to freely sell their products on timber markets at negotiated prices. Since administrative management of rural forestry lands and forest resources lagged behind the reform of economy, the enthusiasm of reducing poverty of farmers was strong and the deficit of supply and demand was large so that timber price increased rapidly, and timber purchasing and selling companies were established by many sectors and units. Above factors caused serious illegal logging from 1986 to July 1987. In response, the State Council re-introduced the State forestry sector's exclusive right for purchasing timber in mountain areas. In accordance with the Statements of the Forest Law of the People's Republic of China, the

institutional arrangement of cutting quota and cutting licenses was introduced all over the country.

The implementation of the institutional arrangement of cutting quota and cutting licenses and the State forestry sector monopoly in timber purchasing in the south collective forest areas of China stabilized timber circulation, and strengthened administrative management in the collective areas and protected forest resources. Meanwhile, the implementation of the institutional arrangement also led to some negative effects on forest resource management, such as vogue return expectation of forest resource management of farmers, striating the independent management rights of farmers. To some extent, the expectation of the reform of forestry and market to push forestry development had been higher, and some governmental agencies used their own rights of monopoly management and allocating cutting licenses to seek rents in the name of implementing FJSP economy. The concrete problems existed are as follows.

- The institutional arrangement of forestry sector monopoly in timber purchasing in the south collective forestry areas is a kind of administrative monopoly market, which lacks of market competition. Timber produced by farmers must be sold to timber purchasing enterprises run by the county forestry sectors, a transport license issued by the competent forestry department shall be required for transporting timber out of a forest area, except for timber under unified distribution by the State. Although, the State Government stipulated that the timber purchasing price shall be adjusted according to timber selling price, when timber price rises, more benefit should be transferred to farmers, some local governmental agencies purchased timber with low-price or reduced timber grades, as a result, the benefit of farmers was very difficult to be raised by opening timber market.
- The operation process of the institutional arrangement of cutting quota and cutting license is translucent. The amount of cutting quota to distribute from towns and counties to villages and farmers is unclear, in some places, cutting quota has even become a seeking-rent tool, which led to unevenly and unequally distribution of cutting quota. Some farmers and villages get cutting quota without available forest resources for cutting, while some farmers and villages do not get cutting quota with available forest resources for cutting, cutting quota transaction has appeared in the south collective forest areas of China. The deficit of this institutional arrangement causes the amount of logging in accordance with the market situation, farmers and villages do not have powers to decide how much and when to harvest forests. Achievement of forestry land and forest resource of the stakeholders of FJSP entities is difficult to turn into the expected return that will constraint forestry development in the south collective forestry areas of China. This institutional arrangement also leads some farmers and villages to establish FJSP with the State forestry sector and the governments of

towns in the sake of getting cutting quota and selling timber with free market price rather than that of forest resource management. Under this circumstance, farmers and villages easily get cutting quota, and their incomes increase about 50 Yuan RMB per cubic meter. It seemed that the governments of towns had implemented forestry policy of cutting license and cutting quota, and farmers' incomes had increased. Cutting quota and cutting licenses have become rent-seeking tools for local governments and sectors using administrative powers. The direct effects of the situation is the increase of operation costs of FJSP entities, and obstruction to other stakeholders from investing in FJSP entities, which leads FJSP economy operate within a relatively small range.

4.3 Institutional arrangement of forestry taxation and fees

Timber price has been rising largely because of excess demand since the opening of timber market in the south collective forestry areas in 1985, farmers' incomes of these forestry areas have been increased to various degrees and enthusiasm of farmers for forestry production has been raised. Heavy taxation and fee burden, large price difference between selling and purchasing, distortion of benefit distribution cause farmers' incomes do not go up with rising timber price, and also affect forestry development in the south collective forestry areas of China.

The investigation results of some parts of the south collective areas of China taken by the Ministry of Forestry, the Ministry of Materials and the State General Taxation Bureau showed that timber selling price raised about fourfold from 1984 to 1988, while timber purchasing price increased only twice, the percentage of timber purchasing price to timber selling price was reduced from about 50% to 30%, the percentage of taxation and fees to timber selling price was about 52% in 1988, out of which State taxation accounted for 11%, fees levied by other sectors and local governments accounted for 21%. In recent years, the State government has taken some measures to fix the percentage of timber purchasing price to timber selling price and timber support price, above situation has been improved. At present, the percentage of timber purchasing price to timber selling price is about 50%, however, the problem in some places was not solved.

Heavy taxation and fee burden has brought about seriously effect on FJSP's economic development. The main purpose of investment of the stakeholders of FJSP is to get economic benefit by managing forest resources. Price and its components were planned by the State, and seriously distorted under the traditional planned economy, which did not reflect market situation, low or high price had no relations with benefits of farmers. Under the traditional planned economy, the taxation structure and percentage among timber price were the duty of the State and had no effect on farmers, the key responsibility of farmers were to complete the State planning and get economic returns in

accordance with the State policies. With the reform of rural economy and the establishing market-orientated economy, farmers are both producers and investors of the FJSP economy, the key issue for them is how to get economic return of their investment instead of how to complete the State planning. Farmers consider economic benefits as the most important preconditions for their inputting of production factors except for forestry lands and forest resources. Under a perfect market, farmers are sure to invest in forest resource management, they know that economic return of their production activities do not depend on production costs and market demand and supply; they also know that not all taxes and fees are levied in the processes of timber production and circulation, all taxes and fees will be deduced from timber selling price, heavy tax and fee burden will reduce their incomes of selling timber. From the views of farmers, they think that it is reasonable that the State should levy taxes on timber production, collecting some fees from their incomes used for providing some services to them, but extremely heavy tax and fee burden is unacceptable, they hate illegal taxes and fees. Illegal tax and fee collection conflicts with the state policy of reducing farmers' burden. Current heavy taxation and fee burden will directly cause to reducing farmers' income, and their enthusiasm for managing forest resources will also be constrained. In regard to FJSP, heavy taxation and fee burden has led to reducing profits of FJSP entities, bonus for stockholders has been reduced or even zero (see table 1).

At present, farmers prefer forestry lands and forest resources as stocks rather than other production factors in most circumstances. For instance, all stocks of Huangsha JSP forestry farm in Siqian Town, Shixing County, Guangdong Province is forestry lands and forest resources of relevant villages. The assets of the forestry farm were 8.019 million Yuan RMB, out of which the asset of forestry lands and forest resources account for 1.275 million Yuan RMB and 6.744 million Yuan respectively. (See table 2). From the views of farmers, they do not really own forestry lands and forest resources, if they received bonus, they will think that the state policies bring about the benefits to them; without bonus distribution, they will lose nothing. Greatly differences were existed between forestry lands or forest resources and other production resources. In some areas, it is very difficult to manage forestry lands and forest resources intensively because of insufficient capitals, forestry lands and forest resources are unitarily protected, the current situation seriously constraints FJSP economic development.

The components of current taxation and fee burdens of farmers are divided into the following types:

- Taxes levied in accordance with the state regulations.
- Fees levied in accordance with the state sector regulations.
- Taxes and fees levied in accordance with local government or sector regulations.

- Charges levied by villages and towns.

Not all above items are regarded as farmers' taxation and fee burden, some of taxes and fees will directly invest in providing production and management services for farmers. The paper only analyzes forest culture fee, which has been levied by the state forestry sector in the south collective forestry areas for more than 30 years.

Forest culture fee institutional arrangement was designed for the south collective forestry areas in 1960s by using the experience of the state forestry enterprises. The State levied forest culture fees from timber selling revenues for forest regeneration in the early 1950s. The forest culture fees levied by the State in the south collective forestry areas in 1964 were divided into type A and type B. Forest culture fee A (five Yuan RMB per cubic meter) was levied by the State forestry sector from timber ex-factory price, which was used for afforestation subsidies for villages and towns. Forest culture fee B (two Yuan RMB per cubic meter) was levied from forest charges, which was used for afforestation of villages and towns of their own, type B was canceled in the early 1980. Forest culture fee institutional arrangement was legally stipulated in the Forest Law of the People's Republic of China in 1984. Forest culture fee is levied by 12% of the first selling price of the State timber enterprises, which is the highest single term of all State taxation and fees in the south collective forestry areas.

The institutional arrangement for forest culture fees was designed under the traditional planned economy, which guaranteed forestry investment and pushed afforestation and forestry development. With the establishment of the market-orientated economy, the defects of the institutional arrangement were exposed. Firstly, levying forest culture fee was to make up the deficits of the state forestry investment, which was levied and used by the state forestry sector in accordance with the principle of "forestry development by forestry revenues". Under the traditional planned economy, forest culture fee was not regarded as taxation and fee burden, and it was regarded as financial supports for the State because of seriously timber price distortion. But after the transition from the planned economy to the market-oriented economy, producers of timber production are farmers, forest culture fee is regarded as one of taxes and fees. The institutional arrangement was beneficial to forestry development under the traditional planned economy, but under the market-oriented economy, the institutional arrangement has constrained forestry development. Secondly, the State stipulated that forest culture fees should be used for afforestation and other forestry activities. In practice, forest culture fees were used for other farmers or forestry areas, from the views of farmers, forest culture fee levitation and use have nothing to do with their forestry activities, which is conflicted with the principles of market economy and the reform of rural economy and State policies. Thirdly, not all of forest culture fees were used for afforestation and other forestry activities as the regulations

Stated. Some of forest culture fees are used for making up the deficit of governmental budgets for the state forestry sector for a long time, without forest culture fees, the state forestry sector could not run smoothly, and forestry development would affect seriously in the south collective forestry areas. Deficit of governmental budget for the state forestry sector should be solved by the State, at present, the deficit has transferred to farmers, which will directly lead to a serious negative effect on forestry development in the south collective forestry areas.

Farmers cannot afford the heavy taxation and fee burden, in the meanwhile, most the revenues of taxes and fees have been used for the specific purposes and the revenues of taxes and fees have been allocated by many stakeholders. Compared with the State governmental agencies and sectors, farmers are very weak, and their benefits are not guaranteed. When the timber market price is high, farmers will receive higher revenues from timber purchasing price, while timber price is low, after timber purchasing price deducts production cost, farmers will receive little revenues. Under the institutional arrangements, the only choice for farmers is to manage forestry lands and forest resources extensively and abandon forestry lands and forest resources.

4.4 Institutional arrangements for forestry investment and financial supports

Forest resources provide social, environmental and economic benefits to the society, it is urgent to establish the institutional arrangement for forestry investment and financial support under the market-oriented economy. It is also very important for the State to design the institutional arrangement for forestry investment and financial support by the means of taxation and finance etc. The rationales for establishment of the institutional arrangement for forestry investment and financial support are the followings.

- Ecological forests should be invested by the State and got compensation for environmental benefits. Compensation systems of local and the central governments should be established in accordance with the State and local environmental plans. Those who reduce their incomes or increase their costs for environmental purposes should be compensated.
- Supportive and preferential institutional arrangements should be established to encourage commercial forest resource development by means of state policies for loans to increase market competition of commercial forest products, and enhance the roles in economic development.
- The institutional arrangement for poverty alleviation in the mountain areas requires that State should encourage farmers to take advantages of abundant forest resources to promote regional economic and integrated mountain development, create employment opportunities and get rid of poverty in the least developed areas by the means of the

State loans of long term low interests or with interests, and financial supports and other preferential policies.

Above-discussed institutional arrangements are not only the requirements of social, economic and environmental functions of forests, but also the prerequisite for promoting rural sustainable development.

The institutional arrangements for supporting forestry development have not been worked out completely, many areas get more benefits from forestry sectors with less investment in forestry sectors. During FJSP's economic development, the defects of the institutional arrangements for investment and financial supports are the followings.

4.4.1 FJSP entities are very difficult to directly get the state preferential loan supports.

The State started to allocate discount loans for forestry projects, such as combating desertification and integrated mountain development in the year 1986, 1992 and 1996 respectively. By the end of 1997, the total of above three discount loans had reached 11.3 billion-Yuan RMB, the central and local finance departments subsidized in loan interests. The State stipulated that farmers and the collectives could get discount loans, but farmers and collectives are very difficult to get these loans with the loan scales, the state forestry departments get the loans and reallocate them to farmers and collectives for rent-seeking. FJSP entities must apply loans from commercial banks because of difficulty in getting loans from the state policy banks. On one hand, FJSP entities are involuntary to apply commercial banks because of high interest rates and short repayment terms; on the other hand, commercial banks are involuntary to lend loans to FJSP entities, and do not wish to lend loans on mortgage of forestry lands and forest resources to FJSP entities. Therefore, it is very difficult for FJSP entities to get loans from commercial banks. Because of unstable fund supply, FJSP entities are very difficult to turn their resource into economic advantages, and self-developments of FJSP entities are very difficult.

4.4.2 Taxation and fee and other social burdens of FJSP entities are heavy.

Taxation and fee burden of forestry sectors should be lightened to promote forestry development. Forestry industry is the sources of local government budgets in some south collective forestry areas. In some areas with abundant forest resources, about 30—40% of local government budgets are generated from forestry industry. If finance transfer (the budgets for forestry sector administration are generated from forest culture fees) is added, the number is higher than that of 30-40%, therefore, local governments are very difficult to raise funds for supporting forestry development, taxation and fee and other social burdens become more and more heavy. The State Government has taken some measures to reduce the heavy burden of forestry and FJSP, but the results have been unclear. More levies and fewer inputs have been the most important negative factors to FJSP development in the south collective forestry

areas (see the above discussion). Since household responsibility system was introduced in the rural areas, charges levied by villages and towns are very difficult to collect from farmers, some villages and towns deduce from FJSP entities directly, even land contract fees and agricultural taxes are collected from FJSP entities. The indirect bonus distributions of FJSP entities seem sound, in fact, the burdens of FJSP entities become heavier, which cause imbalance burdens among rural industries, and constrain FJSP further development.

4.5 Costs of environmental services of FJSP entities are not properly compensated

FJSP entities in China are established based on forestry lands and forest resources of administrative villages and towns. Not all forest resources of FJSP entities are commercial forests, some of forest resources are for environmental services. The state and local governments had made environmental plans, ecological forest areas have then been extended, some of timber forests managed by farmers and FJSP entities are turned into ecological forests, ecological forests are forbidden to cut. On the other hand, the State requires that clear cut be forbidden in harmony with environmental and economic goals, yet additional costs are not properly compensated. Some local governments designed some compensational systems for environmental services, the implementations of those institutional arrangements are very difficult because of tight budgets, as a result, enthusiasm of farmers and other stakeholders are constrained. FJSP has been established in accordance with market principles, without compensation for ecological forests, the costs of ecological forest management are compensated by the revenues of FJSP entities, which increase the economic burdens of FJSP entities. The market competitions of FJSP entities were reduced, which has constrained FJSP's development.

The appearing and development of FJSP economy reflect not only current forestry productivity and the characteristics of forestry land and forest resource management, but also the requirements for the reform of economy. The reform of forestry is lagged in transition from the traditional planned economy to the market-oriented economy. Some institutional arrangements are still not adjusted and traditional forest management models still dominated in many aspects. Adjusting current institutional arrangements for FJSP economic is urgent. The objective of new institutional arrangements is to guarantee farmers' benefits and independent production rights and establish flexible environments for FJSP development.

5 Institutional arrangements designed for promoting FJSP development in rural areas

5.1 The long-term and stable forestry land institutional arrangements and soundly adjusted forest property right arrangement should be practiced.

Forestry lands are basic production factors. The establishment of long-term and stable institutional arrangements for forestry land use rights is the precondition for farmers to build property awareness, to erase their worries about policy changes and increase the productivity of forestry lands. After the reform of rural economy, household responsibility system was introduced, use rights and own rights of forestry lands are partitioned, which have effectively promoted rural economic development. Forestry effects of the institutional arrangement are no larger than that of agricultural sectors. We think that the institutional arrangement is right, the issue is how to implement it, and some concrete policy statements do not reflect the characteristics of forestry production. Common property right arrangements should be adhered in accordance with the issues of FJSP development, in order to carry out an institutional arrangement of forestry lands, the following countermeasures should be adopted.

- 5.1.1 Under the household responsibility system and common property rights of forestry lands, farmers should get long-term and stable forestry land use rights. The contract period of forestry lands should extend from 30–50 years to 50–100 years or even longer, and should be legally promulgated, so that they can reflect the characteristics of forestry production, and ease the farmers' worries about policy change. The long term and stable use right institutional arrangement may also lay a sound foundation for FJSP's stable development.
- 5.1.2 The institutional arrangement for auctioning barren hills suitable for plantations should be improved. Contracted forest resources and the use rights of forestry lands should be permitted to be transferred in the market so that the farmers' awareness of property rights of forestry lands and forest resources can be enhanced. Since farmers' own properties are shared into stocks, therefore, they care about the effects and results of FJSP entities. The suitable institutional arrangement for property right arrangement and the management system of FJSP will be established to enhance their development.
- 5.1.3 Any reasons and ways of governmental intervention for interrupting independent forest management rights of farmers should be forbidden during implementing the economy of scale and intensive management. Contracted forestry lands and forest resources of farmers are turned into collective management in the name of FJSP development and unitarily management. Farmers' joining of FJSP entities should be voluntary, only on this basis does FJSP have the supports of farmers and strengths.

5.2 Timber production and circulation management institutional arrangement in the south collective forest areas should be improved

The goal of the reform of timber production and circulation is to establish an open, unitarily and competitive market, which is also the requirement for the transition from the traditional planned economy to market-oriented economy

and realization of independent rights of farmers. Situations such as uncertainties of the rights of benefit distribution, management and disposition of farmers and collectives imperfect of timber market and unclear expected benefits of forest management of farmers should be improved, the following suggestions are put forwards to improve the institutional arrangements for timber production and market of FJSP economy.

- 5.2.1 The institutional arrangement for forest cutting licenses should be improved. With regard to FJSP entities and other entities of the economy of scales, the system of annual allocations of forest cutting licenses should be adjusted into five-year allocations of forest cutting licenses for timber forests in accordance with forest management plans, forest management entities have rights to adjust annual cutting licenses. As to fast-growing and high-yielding forests, the system of cutting licenses should be canceled, cutting licenses should be made in accordance with forest management plans. The application process of cutting licenses should be transparent, which guarantees legal cutting licenses. The policy of cutting licenses will not only influence the expected benefits of forest management but also promote sound forestry land and forest resource management.
- 5.2.2 The state forest sector monopoly in timber purchasing in the south collective forest areas should be canceled, timber free selling rights should be granted to FJSP entities. Multi-channels of timber circulation should be formed under unitarily managed by the state forestry sectors, benefits of farmers and FJSP entities should be raised by adjusting the current timber purchasing policy, which will erase obstacles of other stakeholders' investments in FJSP economy, and FJSP economy will extend its development ranges. Timber circulation cooperative of farmers should be set up to increase their market competition and push rural forestry development.
- 5.2.3 The State forestry sector should strengthen their services to farmers and collectives. Preliminary timber markets should be developed in multi-forms. Timber wholesale markets should be established in regional and national timber allocation areas. Information collecting and disclosing systems should be established and improved to supply market information to FJSP entities, farmers and other stakeholders. In the meanwhile, production factors, such as labor, capital, technology, should soundly fluid to push market development.

5.3 Adjusting forest taxation and fees and reducing farmers' burden

Heavy taxation and fee Burden has become one of direct constraint factors of FJSP's development. Taxation and fee institutional arrangement should be adjusted to make benefit distribution soundly. The institutional arrangement for "getting less and investing more" should be adopted, the economic returns of farmers of other stakeholders FJSPs should be increased to encourage them

to manage forestry lands and forest resources and push rural economic development.

- 5.3.1 Low taxation and fee institution should be adopted for forestry sector. Special agricultural tax should be canceled, timber tax is levied in the form of agricultural tax, and preferential tax rate should be applied. Timber forests is the industry of long term investments and does not belong to the special product production sector. In the meanwhile, forests also supply environmental services to the society, therefore, preferential tax policy should be adopted for forestry sector.
- 5.3.2 Forestry administration budget should be raised, forest culture fee collections and uses should be adjusted. Firstly, budgets of the state and local governments for environment construction in the areas lacking of forest resources should be increased, forest culture fees collected in abundant forest areas used for those areas should be adjusted. On the basis of guarantee of the stakeholders' benefits, abundant forest areas have chances for self-development. Secondly, the budgets for the State Forestry Administration should be supported by the governmental financial departments to ensure to have the stable channels for funds, the situation that part of costs of the state forestry sectors are generated from forest culture fees should be completely changed. Basing on the above reforms, forest culture fee system in the south collective forestry areas in China should be canceled.
- 5.3.3 Other fees should also be adjusted, and illegal fees should be canceled to push FJSP development in China.

5.4 Institutional arrangement for compensation of environmental services for individual and collective forests should be established.

Forest resources provide environmental, economic and social benefits to the society. The same operation and policy systems were adopted for commercial and ecological forests under the traditional planned economy. The economic property, development goals, operation systems, management characteristics and value compensation were confused. On one hand, forests for environmental services did get the State supports; on the other hand, markets were very difficult to play roles in commercial forests, which led commercial forests to lose their vigor. Forest classification system should be adopted, the reform of forestry should take into appropriate consideration of the relationships among farmers, collectives and the state. Compensation system for environmental services of the state and local governments should be set up. The following institutions should be implemented.

- 5.4.1 The rights of collectives and farmers should be respected during environmental construction. Forestry lands and forest resources managed by collectives, farmers and FJSPs for a long time are not allowed to allocate to the state sectors without any compensation. These forestry lands are turned into ecological forests in accordance

- with the state and local governmental plans, compensations should pay to owners.
- 5.4.2 When FJSPs are responsible for planting and managing ecological forests, the state and local governments should pay for these activities.
 - 5.4.3 When farmers or rural economic entities increase costs or reduce benefits of timber forests for environmental purposes, these stakeholders should get compensation for their activities.

Rights and obligations of stakeholders of rural forestry are balanced during ecological forest development by implementing above institutions, which will encourage all stakeholders to participate into forestry development.

5.5 Internal administrative structures of FJSPs should be improved and rural social services should be strengthened.

FJSPs----a new rural forestry economic organization, will have a bright future during the rural reform and under the market economy. Current internal administrative structures of FJSPs still have some defects because of less competent of farmers and existent traditional system. FJSP's development should observe the market principles. Firstly, besides boards of directors and boards of stocks, rulers and regulations for internal administration should be made. Scientific management decision making and implementing systems for reflecting willingness of stockholders should be established, and internal supervision should be strengthened. In the meanwhile, governmental interventions for FJSPs should be reduced gradually. Secondly, internal benefit distribution institutions should be improved, the methods of sharing forestry lands and forest resources should be perfected. Increased percentage of profits is allocated as bonus, the weight for indirect benefit distribution should be reduced, and all stockholders should receive bonus.

In the meanwhile, social services for FJSPs should be strengthened, which are the requirements of both market economic development and rural FJSP improvement. The following social services should be supplied by the State forestry sector in accordance with the current FJSP development.

- 5.5.1 The state forestry sector should assist FJSPs in preparing forest management plans, conducting forestry technology training and extension to enhance capabilities of technicians, managers and strengthening forest management by FJSPs efficiently.
- 5.5.2 The state forestry sector should assist FJSPs in expanding financing channels. New financing channels should be opened on the basis of using current policy loan channels.
- 5.5.3 The state forestry sector should assist FJSPs in evaluating forestry lands and forest resources, supporting FJSPs to run in formal asset management and soundly promoting transactions and reallocations of forests.

- 5.5.4 The State forestry sector should supply market information to the stakeholders of FJSPs in remote mountains to promote rural timber and NTFP circulation.
- 5.5.5 The State forestry sector should provide forestry law consultancy services to the stakeholders of FJSPs, guide them to safeguard their interests according to the laws so as to guarantee the FJSPs' development following the legal track and enhance an all-round development of rural forestry economy.

Table 1: Benefit distribution of FJSP forestry farms of Shixing County in Guangdong Province from 1990 to 1998 (unit: thousand Yuan RMB)

Year	1990	1995	1996	1997	1998
Total revenue	1850	3290	3450	3760	5480
Costs	354	700	750	800	1200
Tax	112	199	210	222	312
Forest fees	329	511	533	576	960
Fees levied by the county	112	199	200	208	312
Sub-total of tax and fees	553	909	943	1006	1584
Profit for forestry farms	765	946	1081	1106	1103
Profit for bonus	191	735	676	848	1593
(tax + fees)/ total revenue)	29.89%	27.63%	27.63%	26.76%	28.91%
Profit for	0.16%	0.08%	0.08%	0.07%	0.05%

bonus /total revenue					
----------------------------	--	--	--	--	--

Table 2: Forestry land share structure of afforestation of Siqian FJSP Forestry Farms in Shixing County, Guangdong Province

Unit	Land price (Yuan/ha)	Area (ha)	Amount (thousand Yuan RMB)	Share percentage (%)
Huangsha	1963.12			15.0
Huangshajie	1963.12	92.3	181.15	12.0
Xiwen	1963.12	144.9	284.41	18.9
Pengshi	1963.12	87.5	171.68	11.4
Hebei	1963.12	141.2	277.10	18.5
Hechun	1963.12	30.1	59.06	4.0
Lingxia	1963.12	29.5	57.88	3.9
Wushigang	1963.12	81.9	160.68	10.7
Maoshe	1963.12	42.5	83.40	5.0
Total	1963.12	649.9	1275.36	100.0

Table 3: Forest resource share structure of afforestation of Siqian FJSP Forestry Farms in Shixing County, Guangdong Province

Unit	Species	Volume (cubic meters)	Market price of trees (Yuan/cubic meter)	Forest resource assets (thousand Yuan)	Total (thousand Yuan)	Share percentage (%)
Huangsha						15.0
Huangshajie	Chinese fir	3495	166.27	58.11	1013.73	12.8
	pinus	2829	152.96	43.27		
	others		138.66	0		

Xiwen	Chinese fir	2402	166.27	39.93	1896.49	23.9
	pinus	3227	152.96	49.36		
	others	7238	138.66	100.36		
Pengshi	Chinese fir	929	166.27	15.44	661.60	8.3
	pinus	2347	152.96	35.89		
	others	1070	138.66	14.83		
Hebei	Chinese fir	7062	166.27	117.41	14083.30	17.8
	pinus	1286	152.96	19.67		
	others	271	138.66	3.75		
Hechun	Chinese fir	502	166.27	8.34	253.78	3.1
	pinus	1114	152.96	17.04		
	others	0	138.66	0		
Lingxia	Chinese fir	210	166.27	3.49	310.90	3.9
	pinus	1805	152.96	27.61		
	others	0	138.66	0		
Wushigang	Chinese fir	2218	166.27	36.88	581.62	7.3
	pinus	413	152.96	6.31		
	others	1081	138.66	14.98		
Maoshe	Chinese fir	3022	166.27	50.24	617.30	7.9
	pinus	610	152.96	9.46		

	others	147	138.66	2.03		
Total	Chinese fir	19840	166.27	329.88	6743.72	100.0
	pinus	13640	152.96	208.64		
	others	9807	138.66	135.98		

6 References

- Aylward, B, 1999, Direct payment, Transfers and markets for environmental services, a paper for FAO, Cape Town
- Coase, R.H, 1960, the Problem of social cost, Journal of Law and Economics, Vol.3 (Chinese translation)
- Fankhauser, S, and Pearce, D, 1994, the Social costs of Greenhouse gas emissions, OECD, Paris.
- FAO regional Office for Asia and the Pacific, and regional Wood Energy Development program in Asia, 1998, Carbon Dioxide Offset Investment in the Asia-Pacific Forestry Sector: Opportunities and Constraints, Bangkok
- FAO, 1997, State of the World's Forests. 1997, Rome
- FAO, 1998, Asia-Pacific Forestry Towards 2010—Report of the Asia-Pacific Forestry Sector Outlook Study, Paris.
- Hagner, S, 1998, Sustainable forest management in the boreal and temperate forests, Report to the Fopd and Agriculture Organization of the United States, FAO, Paris.
- Hou, Yuanzhao and et. 1994, Forest resource accounting of China, China Forestry Publishing Press, Beijing.
- Kamowitz, D, and Angelsen, A, 1998, Economic Models of Deforestation: A review, CIFOR Monograph, CIFOR, Bogor.
- Kengen, S, 1996, Forestry Valuation—Purpose, context and process, Andre Mayer research Fellowship Draft report, FAO, Rome
- Liu can, 1999, Community Forestry Development Theory, China Forestry Publishing Press, Beijing.
- Liu can, 2000, the institutional Arrangement and Case Study of Community Forestry Development and poverty Alleviation, China Agriculture Science and Technology Publishing Press, 2000, Beijing.
- Liu, Can, 1998, forest resource accounting and policy analysis of Miyun Reservoir watershed, Forest resource management, Vol.5
- MarcD, Stuart and Pedro Moura Costa, 1998, Climate Change mitigation by forestry: a review of international initiatives, IIED, London.
- Pigou, A.C. 1938, The Economics of Welfare (Chinese Translation)
- Reptto, R, 1993, Government Policies, economics and the forest sector in Ramakrishna, K, and Woodwell G, World forests for the future, Yale University Press, New Haven.

- Reptto, R, and Gillis, M, 1998, public Policies and the misuse of forest resources, Cambridge university Press, Cambridge.
- Xu Deying, 1995, The Potential for Reducing Atmospheric Carbon by Large-scale Afforestation in China and related Cost/Benefit Analysis, Biomass and Bioenergy, Vol. 8, No.5, the Great British.
- Zhou, Binbin, Li Zhongkui and et, 2000, value of forest resources in Beijing, China Forestry Publishing House, Beijing.

Notes to readers

Please find the full list of authors below:

Kong Ming, China National Forestry Economics and Development Research Center

Liu Can, China National Forestry Economics and Development Research Center

Zhang Xiaojing, China National Forestry Economics and Development Research Center

Li Yuming, China National Forestry Economics and Development Research Center.