

<http://ansinet.com/itj>

ITJ

ISSN 1812-5638

# INFORMATION TECHNOLOGY JOURNAL

**ANSI***net*

Asian Network for Scientific Information  
308 Lasani Town, Sargodha Road, Faisalabad - Pakistan

## Application of Participatory Approach in Community Forest Resource Management Based on a Case Study Performed in Fujian Province, China

<sup>1</sup>Yilei Hou, <sup>1</sup>Jing Wu, <sup>2</sup>Longbo Ma and <sup>1</sup>Yali Wen  
<sup>1</sup>Beijing Forestry University, Beijing 100083, China  
<sup>2</sup>Qingdao Agricultural University, Qingdao, 266109, China

---

**Abstract:** After China's collective forest right system reform, cooperation organizations have played an important role in the development of community forestry. In order to analyze the demands and attitudes of stakeholders of community forests, a participatory approach which included brainstorming, material collection, PRA tools, semi-structured interviews and questionnaire surveys, was used in a forest management survey involving four village cases. According to the application of the participatory approach it can be seen that the different types of stakeholders had different demands and attitudes toward community forest management. Farmers were more focused on economic benefit while forestry bureaus were more concerned about attaining the maximum level of forestry farmers' ecological, economic and social efficiency. Cooperative members had more positive attitudes than non-cooperative members. According to all stakeholders, the harvest quota control system is the most unreasonable policy. In addition, based on the results of the SWOT strategy analysis matrix for forest management policies and systems at the level of forestry farmers, four strategy selections are proposed.

**Key words:** Participatory approach, community forest, China, application

---

### INTRODUCTION

Since 2003, collective forest areas in southern China have begun to implement a new round of forest rights system reform. The main alteration of the reform is that forest rights have become more clear. Communities with small logging and forest management businesses maintain forest cover, restore density and commercial productivity in previously mismanaged forests. (Klooster, 1999; O'Fallon and Dearry, 2002). After the collective forest rights system reform, how to strengthen forest resource management and how to increase the revenue of forestry farmers as well as their cooperation organizations have become key issues which may influence the reform effects and sustainability. The existing community forest resources management system, along with the collective forest management methods, have to some degree ignored the principal status of forestry farmers which may make it difficult for diversified or cooperative management to promote the effective distribution of forest resources.

The participatory approach was first introduced to China in the 1980s by international organizations. It has produced a marked effect in China's countryside, as well as forestry and social development programs and compensated for the weak points in the development of Chinese traditional society. It has also played an

important role in forest reservation and community-based forest management, as well as the Chinese forestry programs organized by World Bank, FAO, EU and other international organizations (Agus *et al.*, 2003; Roque, 2004; Kuffer and Senn-Irlet, 2005). Practices have proven that participatory approach is a concept, an ideal and a method which is in accordance with the reality of China's forestry development while the community-based participatory management plan of forest resources has also been identified as an effective way to fully stimulate the initiative of the community masses in forestry management and better coordinate the relations between various stakeholders, as well as improve forest resource administration. Additionally, training local personnel via the form of program training is of immediate significance to the application of participatory approach on forest resource management. It is also an important guarantee to shape the managerial skills of local participatory forest resources.

This study mainly aims to analyze the different stakeholders of collective forest management, especially forestry farmers and their cooperative organizations, to recognize major problems existing in community forests management after the collective forest rights reform, improve the level of sustainable management of the collective forests and, make and implement reasonable

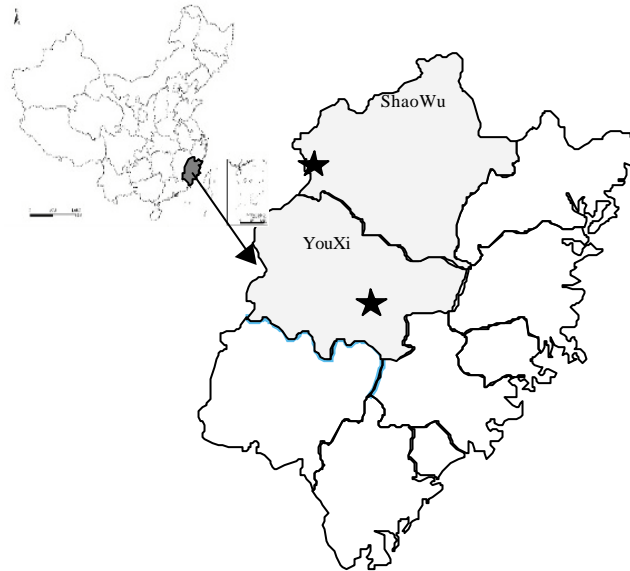


Fig. 1: Location of study area

Table 1: Basic conditions of case villages

| Village                                  | SL    | MY    | JS     | SD    |
|--|-------|-------|--------|-------|
| Natural village (number)                 | 3     | 8     | 6      | 13    |
| Villager group (number)                  | 10    | 24    | 9      | 14    |
| Household (number)                       | 210   | 599   | 430    | 767   |
| Population (number)                      | 930   | 2538  | 1643   | 3226  |
| Land coverage (acres)                    | 11020 | 19602 | 55550  | /     |
| Forest land (acres)                      | 9379  | 14974 | 50480  | 36996 |
| Ecological public welfare forest (acres) | 2422  | 808   | 177775 | 3319  |
| Distance from town (km)                  | 15    | 19    | 13     | 3     |
| Net income per capita (yuan)             | /     | 3656  | 6190   | /     |

Table 2: Process of the participative survey

|                     |                         | Training plans                                  | Participants  | Methods  |
|---------------------|-------------------------|---|---|--|
| 1 <sup>st</sup> day | 1 <sup>st</sup> lesson  | Introduction of background and aim              | Cooperative members; non-cooperative members; forestry bureaus (county) forestry bureaus (township) | Training discussion; semi-structured interview; materials collection; PRA tools; questionnaire |
|                     | 2 <sup>nd</sup> lesson  | Introduction of participatory forest management |   |  |
|                     | 3 <sup>rd</sup> lesson  | Preparation for drafting plan                   |   |  |
| 2 <sup>nd</sup> day | 4 <sup>th</sup> lesson  | Evaluation of forest management systems         |   |  |
|                     | 5 <sup>th</sup> lesson  | SWOT and strategic choice                       |   |  |
| 3 <sup>rd</sup> day | 6 <sup>th</sup> lesson  | Operable plan selection                         |   |  |
|                     | 7 <sup>th</sup> lesson  | Analysis of stakeholders                        |   |  |
|                     | 8 <sup>th</sup> lesson  | Policy evaluation problem tree                  |   |  |
|                     | 9 <sup>th</sup> lesson  | Questionnaire and interview                     |   |  |
|                     | 10 <sup>th</sup> lesson | Course assessment and conclusion                |   |  |

**Study area:** The study area is located in Fujian Province which is a typical southern collective forest region, as well as the pioneer of China's collective forest right system reform. The case surveyed by the teams include four pilot villages: Shanlian (SL) and Mayang (MY), both of which are in Youxi County; and Jiashang (JS) and Shangdu (SD) which are in the city of Shaowu (Fig. 1).

Considering the new trend that forest cooperatives in Fujian Province have developed very rapidly in recent years, each of the four pilot villages

had their own cooperatives. The basic conditions of the villages are shown in Table 1

## METHODS

The entire study was based on a three-day participatory survey which included training, meetings, questionnaires, interviews and so on. The process of the survey contained 10 lessons. Table 2 shows the detailed information pertaining to the survey plans and schedules.

## RESULTS AND DISCUSSIONS

### **Demands for participatory forest management of Stakeholders:**

During the training of participatory forest management, stakeholders mainly included the members of the forestry farmers' cooperatives, non-cooperative members, township forestry stations and county-level forestry administrations.

**Cooperative members:** By speaking with specialized cooperative members, the researchers found that their main demands were as follows: (1) Forestry farmers require some timber-producing regions to provide qualified timber for marketing in order to increase their income; (2) Some timber reservation resource regions are required to provide a certain amount of timber to local residents to build houses and create furniture and meanwhile the regional special species diversity should also be maintained to provide species sources for natural management; (3) The forest area for local residents' drinking water sources should be guaranteed; (4) The villagers' living fuel requires some forest land to gather fertilization in order to improve the soil of the plowlands; (5) Non-wood products should be constructed from bamboo forests; and (6) the long-term development and profit of cooperatives should be pursued.

**Non-cooperative members:** By speaking with non-cooperative members, we found that their main demands are basically in accordance with the cooperative members. Both pay more attention to the economic benefit of forests.

**Forestry bureaus at township and county level:** By communicating with the staff of forestry stations in Nakou County and Xicheng County, researchers found that their main demands are that bamboo forests and other forest resources can better provide ecological service and staff of forestry stations can provide technical guidance to forestry farmers.

Via communications with staff of forestry administrations in Shaowu City and Youxi County, the investigators found that their demands are mainly to realize the maximum of forestry farmers' ecological, economic and social efficiency, based on the insurance of proper degrees of forest coverage rate.

**Attitude and perception of stakeholders toward forest management policy and institution:** Through brainstorming and participatory discussions, researchers found that the attitudes and perception of members and non-members of forestry professional cooperatives, staff

from forestry stations and the county and city-level forestry administrations and various stakeholders, have both common and differing points. In the study, the polices and systems pertaining to forest management contained tax and charges systems, funds for forest cultivation, forest ecology funds, harvesting quota control systems, the central and regional compensational systems of public forests, forest insurance policies and various forestry allowances.

**Cooperative members:** Generally, after forestry farmers joined in the cooperative organization, their independent consciousness as the principal body of forestry production will become stronger and stronger. As all preferential agricultural polices have been successfully implemented, farmer' use right, profit and disposal right to forest resources have all been put into effect which has effectively lifted forestry farmers' enthusiasm of protecting and developing forests. Meanwhile, forestry farmers also shoulder more responsibility of management. They will participate into the daily management of the cooperative organization with a sense of ownership and effectively ensure the control of fire, pest and deforestation without permission.

According to these interviews it was found that the cooperative members held a neutral attitude toward the tax and charge systems, forest cultivation fund system, forestry ecological funds system, central public welfare forest compensation system, medical compensation system for local workers (compensation system for local public welfare forests) and various forestry grants and subsidies. They believed that institutions such as taxation and charge systems and forest cultivation fund systems should abolish taxes on levying forestry land. In terms of the harvest quota control system, they held an objective view, as they believe that forest farmers attach so much importance to bamboo forests that they will consciously protect bamboo resources and not destroy them. In the light of this, they hoped to abolish the quota control system. For the forest insurance system, the cooperative members stated that at the present stage only the local ecological forests were covered by forest insurance and there is no insurance policy for the economic forests. Therefore, they hoped that the central government can establish a forest insurance policy that covers both economic and ecological forests, so as to reduce losses.

**Non-cooperative members:** According to these interviews it is found that cooperative non-members held an objective view toward taxation, charge institutions and the harvesting quota control system. They believe that the government should take forest farmers into

Table 3: SWOT strategy analysis matrix of forest management at farmers' level

| Strengths   | Weaknesses   |
|---|--|
| Standardizes forestry farmers' behaviors of forest management                                     | Policies and systems lack flexibility  |
| Guarantees forestry farmers; management profit  | Application, examination and approval procedures are rather complicated  |
| Ensures the reasonable utilization of forest resources  | Relevant forestry taxes and charges are not reasonable enough  |
| Assists villagers in performing forest management reasonably                                      | Forestry supplementary policies and systems are not complete enough  |
| Guarantees forestry farmers' rights against harm  | Publicity toward forestry farmers is not strong enough   |
| Provides information and technology support   | Development degree of forestry cooperative organizations is relatively low   |
| Shares information and technology   | Forestry financing channel must be broadened   |
| Reduces manufacturing costs   | Government's preferential policies are not available   |
|   | Monitoring mechanism of administrators is not complete   |
| <b>Opportunities</b>  | <b>Threats</b>   |
| Satisfaction degree of forestry reform policies is high   | There are conflicts between normal management mode and ecological damage   |
|   | Polices and systems are nothing but empty shells   |
| Actively explores non-wood resources  | Forestry farmers' benefits cannot be shown in policies, thus farmers enthusiasm in managing forest resources is not high |
| Proactively prevents forest pests and fire  | Polices are inconstant and unstable  |
|   | Contribution of forestry to increasing revenue is small  |
| Government has issued a series of preferential polices benefiting farmers and forestry            |  |
| Government has issued a series of policies benefiting forestry development and further processing |  |
| Forestry farmers' opinions act as reference for making policies                                   |  |
| Government takes macro-control over forestry products market                                      |  |
| Space for making policies is loose  | Management system must be improved   |

consideration and abolish the taxation and that since the bamboo's growing process is relatively fast, there is no need to impose quota control institution. For the forest cultivation fund system, forestry ecological fund system, central public welfare forest compensation system and compensation system for local public welfare forests, they held a neutral attitude. They believe that the compensation for public welfare forests is relatively low and that compensation standards should be raised. And for forest insurance and other subsidies, they stated that there are no related policies and institutions in local areas.

**Forestry bureaus at township and county levels:** The government is the planner of public policies and the civil servants in the policy implementation department belong to a powerful interest group. According to the study, in the process of implementing forestry ownership reform in Youxi County, the director's mailbox has been designed to accept various opinions and visits from forestry farmers are also welcome. At the same time, after work has been completed, the leaders of the forestry administration usually visit for inspection in forest regions which has enhanced the communication and mutual support between forestry farmers and forestry administrations. The technicians at the forestry station also usually communicate and exchange ideas with village cadres and cooperative organization members which has fully displayed their support for the cooperative organization. Staff from the Nakou Township forestry station and the Shaowu Forestry Department hold a supportive attitude toward the tax and charge systems, forest cultivation fund system, forestry ecological fund system, central public welfare forest compensation system, compensation

system for local public welfare forests and various forestry grants and subsidies. They believe that these institutions are disinterested and fair and to some extent these institutions can reduce the forest farmers' operating costs. For the harvesting quota control system, they held a complex attitude: on one hand it is right to impose this system to protect the forests' ecological benefits; but on the other hand, this is unfair for forest farmers, since the bamboo will grow quickly every year, there is no need to impose a quota control system and quota elimination should be imposed instead. For forest insurance policy, they claimed that there are no related policies or institutions in local areas and hoped that forest insurance and related policies can be issued soon.

**SWOT analysis on forest management policies and institutions:** SWOT analysis is an internal analyzing method of enterprises which means conducting analysis based on the fixed internal conditions of enterprises to determine their advantages, disadvantages and core competence. In this analysis, S stands for strength, W for weakness, O for opportunity and T for threat. The following section is an analysis on the management environment of the Lvyuan Cooperation with the help of the SWOT method. (Table 3).

**CONCLUSIONS AND SUGGESTIONS**

First, based on the results of forest management demands it can be seen that the farmers were more focused on economic benefit, regardless of whether or not they joined the cooperation organization. However, the forestry bureaus at the township and county levels paid

more attention to the maximum of forestry farmers' ecological, economic and social efficiency.

Second, the results of attitude and perception toward forest management policy and institution from stakeholders show that the cooperative members have more positive attitudes than non-cooperative members. The harvest quota control system is the most unreasonable policy according to all of the stakeholders.

From the results of the SWOT strategy analysis matrix for forest management policies and systems at the level of forestry farmers, the following four strategy selections are proposed: (1) Growth-oriented strategy. This refers to focusing on the advantages and opportunity elements and maximizing them to make the scale development of forest resource management and ensure the sustainable development of forest land and timber. (2) Twisted mode strategy. This refers to considering the disadvantages and opportunity elements to minimize disadvantages and maximize opportunities, so as to improve the cooperative's managerial level and increase investment and effective market incentives. (3) Diverse management strategy (ST) which means to center on the advantages and threat elements to maximize advantages and minimize the threats, thereby strengthening the protection of forest land, avoiding human damage, improving abilities to resist natural disasters, reducing forest land disputes and continuously enhancing the cooperative's managerial skills and improving forest resources qualities. (4) Defensive strategy (WT) which considers the disadvantages and threat elements to minimize both, thereby strengthening the protection and management of forest resources, enabling the cooperative to develop and operate steadily, thereby effectively making use of the preferential policies issued by the government and combining current advantages and avoiding management risks to pursue profit from stability.

## **ACKNOWLEDGMENTS**

This article is financially supported by the national forestry public welfare industry scientific research subject "Form a complete set of supporting technology and security system integration and demonstration in the Sanming Forest Experimental Zone of Fujian Province" (201004008).

## **REFERENCES**

- Agus, C., O. Karyanto, S. Hardiwinoto, S. Kita, K. Haibara, H. Toda and H. Minematsu, 2003. Legume cover crop as soil amelioration at a short-rotation plantation in a tropical region. *Japanese J. Forest Environ.*, 45: 13-19.
- Klooster, D., 1999. Community-based conservation in Mexico: Can it reverse processes of degradation? *Land Degradation Dev.*, 10: 365-381.
- Kuffer, N. and B. Senn-Irlet, 2005. Influence of forest management on the species richness and composition of wood-inhabiting basidiomycetes in Swiss forests. *Biodiversity Conservation*, 14: 2419-2435.
- O'Fallon, L.R. and A. Dearry, 2002. Community-based participatory research as a tool to advance environmental health sciences. *Environ. Health Perspect.*, 110: 155-159.
- Roque, R.M., 2004. Effect of management treatment and growing regions on wood properties of *Gmelina arborea* in Costa Rica. *New Forests*, 28: 325-330.