

THE ROLE OF COMMUNITY FORESTRY IN POVERTY ALLEVIATION EFFORTS—INCREASING FARMER'S INCOME THROUGH THE DEVELOPMENT OF HOME-GARDEN FORESTRY AND FAMILY FOREST FARMS

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ABSTRACT

Community forestry in China is characterized by the involvement of farmers, who, working as individual households, have become the main forces to manage their forestry related activities in light of specific conditions and their knowledge and skills in agriculture and forestry. Mountainous landscapes and widespread poverty determine the way farmers utilize their land. In general, local farmers use sloping farmlands and wastelands around their houses for forestry. Although the plots for planting are sporadic and small in size, they are helpful for farmers to solve the problem related to the contradictions between crop growing and economic development, and between population pressure and limited croplands. Scattered and small plots are convenient for farmers, especially suit women. Home-garden forestry and family forest farms provide opportunities and flexibility for farmers to participate in activities by using their slack time. Especially they enable women to become the masters of their households, and help them realize the importance of decision-making and involvement in rural development by themselves. With the assistance of technicians, farmers select tree species for planting by themselves. Specifically, they grow economic trees and cash crop trees, which bring quick benefits around their houses; timber trees are planted in private mountain lands. This approach would allow households to have incomes in both the short term and long term. In general, the land surrounding the houses are planted with cash trees and cash crops. The pattern of cultivation is varied, with three main inter-cropping patterns, namely, cash trees intercropping with cash crops, cash trees intercropping with cereal crops, and cereal crops intercropping with cash crops.

China is a large agricultural country with high population pressure and limited arable land. There are 130.04 million ha of arable land, which means an average of 0.1 ha per person, or one third of the world's average level. Accordingly, China is one of the countries with the least arable land. China has made a remarkable achievement since she feeds 22% of the world population with only 7% of the total arable land in the world. It is undoubtedly a wise choice to utilize the limited land in a sustainable way and to increase the income of poor farmers.¹

Community forestry was first implemented in Yunnan, Sichuan, Hubei, Anhui, Guizhou and other provinces at the end of the 1980s. It is a household-based forestry management system, where rural households are the main actors in their communities. It is small scale and relatively dispersed, which suits not only the real situations in the rural areas of China and characteristics of agroforestry and vegetation production, but also the countryside where systematic, organizational and human resources are lacking.

In regions where community forestry is implemented, local farmers are willing to participate, and apply advanced agroforestry techniques combined with local knowledge to plant tree species with fast growth rate, early maturation and multiple uses, so that they can get benefits from timber, non-timber forest products, agricultural products, employment opportunity and cash income in the shortest term. In community forestry, the state can also get long-term and macro-level benefits from increased forest resources, sound watershed governance and the improved natural environment. In the past, government at various levels put great amount of labor, materials and funds into forest resources protection, control of soil erosion and environmental deterioration, but these measures did not produce desired results. The situation has been changed greatly in those regions where community forestry was launched, which is a miracle to certain extent. Community forestry is called "doorstep forestry" in China, and it has two main management modes: home-garden forestry and family forest farms.

HOME-GARDEN FORESTRY

Meaning and Features of Home-garden Forestry

Farmers in mountainous regions of China live dispersedly. Most of them build their houses facing the sun on slopes or at the mountain foot far away from each other. Their courtyards have no obvious boundaries, but are favorable to the development of home-garden forestry. Home-garden forestry is based on farmers' courtyards and family small plots and hilly lands, where farmers utilize their lands, environmental and labor resources appropriately and effectively. With technological and material aids, farmers are willing to establish this small-scale forestry management system with greater economic benefits. Home-garden forestry needs less financial input but has quick return of economic benefits. And it also has 3 main features as follows:

Dispersed Management

Rural households are the main management units in home-garden forestry. The dispersion of farmers, the principal part of home-garden forestry, determines that home-garden forestry is implemented dispersedly and distributed unevenly. Farmers can manage the land and make full use of it around their houses. Its scale is small, but its economic return is remarkable, and its management directions can also be adjusted at any time.

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¹ Rural land in China is owned by the state or by village collectives. A land-contracting management system is being implemented, and farmers contract collective's land to undertake agriculture, forestry and animal husbandry. The contracting term for arable land and forest land is 30 and 70 years respectively. Farmers own the trees they plant around their houses, on their family land and/or on their family hills.

Appropriate Technology

Home-garden forestry covers timber forest, economic forest, non-timber forest products and stockbreeding. Benefits can be obtained only if advanced technology is applied and intensive management is carried out.

Small-scale Activities

Home-garden forestry means that farmers plant trees and feed cattle, pigs and poultry within their courtyards and lands/hilly lands surrounding their houses in small scale ranging from 0.6 to 10 ha. But it helps solve the problem related to the contradiction between planting of crops and economic development, and between large population and limited land. It is also convenient for farmers to use their spare time, especially for female farmers to plant and manage it.

MANAGEMENT MODELS FOR HOME-GARDEN FORESTRY

Developing Timber Forest Products

Farmers plant pine, fir, cypress, camphor and bamboo in small scales on their hilly lands, which supply them with timber and bamboo products needed, and increase their income after trees and bamboos are felled. The farmers in the hilly region of Jing County, Huaihua Prefecture, Hunan Province planted poplar trees in small scales on their family hilly lands and sold poplar timber to plywood factories nearby. Home-garden forestry of this type is common in remote mountainous regions with inconvenient transportation systems.

Developing Economic Forest to Boost Farmer's Income

Farmers plant fruit trees (such as apple, pear, peach and orange) in vacant lands around their houses, build gardens of Chinese chestnut, grape, Yangtao Actinidia and bamboo for both edible shoot and material, and plant *Eucommia* and Amur Corktree (*Phellodendron amurense Rupr.*) for traditional Chinese medicinal materials in their family hilly lands. The planting area is not large, but can bring considerable income to the involved farmers in a short term. And farmers often intercrop annual crops such as soybean, peanut, sweet potato, cotton, rape and sesame, and medicinal herbs under newly planted trees. Intercropping stops when trees' canopy is closed 3 to 5 years after trees are planted. For example, Chen Jiaxin, a farmer in Liujia Village, Xiaping Township, Hefeng County, Hubei Province, planted 30,000 seedlings of economic trees, which are mainly *Eucommia*, on his family hilly lands, and 1 mu (1mu=666.7m²) of tea trees around his house. He, once very poor, now gets annual income of over RMB5,000 from this, and thus found the way to riches. Home-garden forestry of this type is commonly found in lowly mountainous and hilly regions with convenient transport networks.

Developing Fruit Trees-Poultry-Beekeeping Multiple Model of Home-garden Forestry

Farmers plant fruit trees on vacant lands around their houses along with feeding chicks, ducks and geese, and keeping bees. Poultry under fruit trees can peck grass and eat pests, and fertilize soil with their excrements. Yields of fruit trees can be increased as a result of pollination made by the bees. In return, fruit trees serves as origins of honey for the bees. Home-garden forestry of this type is commonly found in hilly regions.

Farmer's Benefits From Home-garden Forestry

Economic Benefit

The benefit from home-garden forestry has become an important part of farmer's incomes. Farmers who plant economic

trees can get benefit in a short term, and those who have special skills in forestry can gain more benefits. For instance, Li Aimin, once a poor farmer in Foziling Township, Huoshan County, Anhui Province, planted 0.53 ha of Yangtao Actinidia and 0.3 ha of grape around his house in 1991. The trees and grapes began to produce fruits 3 years after they were planted; and in the fourth year, the yield of Yangtao Actinidia and grape reached 1,000kg and 500kg respectively. As a result, the net income per person in his family reached RMB1,772. The output of Yangtao Actinidia is over 2,000kg annually, and the value is over RMB20,000, which achieves the goal that great input leads to great output. In Jitian Village, Lingtuo Township, Qianshan County, Anhui Province, over 40 households planted Chestnut and orange trees. And the average income per household is over RMB15,000. Over 280 households in Yufan Village, Zhubu Township, Yuexi County, Anhui Province planted 76 ha of Yangtao Actinidia on vacant lands around their houses and on their family hilly lands, which produced over 400,000 kg of fruits with output value of RMB1.2 million, being RMB1,131 per person, constituting 57% of annual average net income in 1998. Ye Fanzhen, a farmer in Fangzhuang Village, Zhaigun Township, Xixia County, Henan Province, planted dozens of Japanese-cornel Dogwood trees and Magnolia Liliflora on his family hilly land, cultivated edible mushroom behind his house, and fed pigs and poultry. He gets an annual income of over RMB7,000.

Ecological Benefit

Trees and other plants perform multiple functions of conserving water and soil, mitigating the adverse impact of climate change, improving air quality, reducing noise level and beautifying the environment. Thus, developing home-garden forestry has become an important measure to improve rural environment. In recent years, farmers in some regions take home-garden planning seriously when they build their houses. Better ecological environment in separate home-gardens enhances the ecological benefit of the whole region. In Anqing Municipality, Anhui Province, forests cover 30.67% and 29.72% of the village area in the regions along Yangtze River and in hilly regions respectively. Environmental improvement is closely related to the development of home-garden forestry. All the rural households in Yuwan Village, Yangqiao Township, Fenyi County, Jiangxi Province developed orange tree gardens in different sizes on their family hilly lands. These orange trees not only increase farmers' income, but also become a scenic spot in this region. There are more birds and bees in the regions where home-garden forestry is implemented, and trees supply them with abundant food and shelter for their habitat and propagation. Vegetables and fruits grown in home gardens are less vulnerable to pests than those grown in common courtyards, which reduces the use of pesticide. Most farmers in mountainous regions build their houses at the mountain foot or on slopes. Landslide is likely to occur when soil is eroded by rainstorm, causing houses to collapse; and farmers' lives and properties are endangered. Thus, trees planted in home-gardens can perform functions as conserving soil and water and protecting farmer's houses.

FAMILY FOREST FARMS

Management Mode of Family Forest Farms

Family forest farm is a farm where individual households contract out a piece of barren mountain or forested land from village collectives, and manage trees and the land based on the signed contract for a long term. Generally, the contract regulates that the contractor of family forest farm should plant trees on all the suitable lands, and improve secondary forest by 60% or over if there is secondary forest within the scope of the farm. Farmers' pay contracting fees to the village committee individually based on

their size of the contracted area, and the rest of the income belongs to farmers till the contract expires. Generally speaking, farm areas range from 1.5 ha to 50 ha, and contracts are valid for 15 years.

Family forest farms are generally managed in the following way:

- a) Seedling-growing farm, where afforestation seedlings of timber and economic forest, horticultural seedlings and flowers are grown.
- b) Forest-managing farm, where economic forest and timber forest are grown and managed. The households that manage farms of this kind take forest as their main object, and manage diversified economy by developing agriculture, forestry and animal husbandry. They plant cash crops and medicinal herbs on vacant lands around their houses or under forest crown, so as to obtain income in a short term. Local forestry agencies send technicians to help farmers make afforestation plan, and to teach them forestry-related techniques.

Farmer's Benefits from Family Forest Farms

Family forest farms not only increase farmer's income, but also bring significant ecological benefit, and enhance forest resource bases without the state's input. See the following cases:

Case 1: A family led by Dun Xilong in Pandi Village, Guxian Township, Pu County, Shanxi Province contracted out pieces of lands in a barren valley. They planted Poplars at the bed of the valley, Black Locust on the slope facing the sun, Chinese pine on the slope opposite the sun, and walnut and apple trees on the top of the valley. Up to now, Poplars and Black Locust have been thinned several times; pine trees' crown is closed; and walnut and apple trees are producing fruits vigorously. Their annual income surpasses RMB20,000. According to the contract, this household pays RMB5,000 annually to the villager's committee, and there is no limitation to the term of the contract.

Case 2: Qiu Jiamei, a farmer in Daxi Village, Datan Township, Minqin County, Gansu Province, contracted out 13 ha of sandy wasteland, and planted 62,000 seedlings of various species and 0.67 ha of apple trees. He also raises 29 goats and 17 cattle. All these give him an annual net income of RMB45,000. He also undertakes diversified economic activities through planting alfalfa, which can be used as forage for goats and cattle and as green manure to improve the sandy soil.

Case 3: Wu Huizhou, a farmer in Daoyuan Village, Zhongcun Township, Kaihua County, Zhejiang Province, established a family forest farm on his contracted land. He has managed the farm for 17 years, and the farming area reached 100 ha, including 2 ha of mulberry, 7 ha of tea trees and 20 ha of closed forest. He also raises pigs and chicks, and applies 6.5 metric tons of the excrements as fertilizers into forested land to improve trees' growth. Moreover, he intercroops oil-bearing crops, such as soybean and sesame in the forest. All these activities bring him annual net income of over RMB200,000.

CASE STUDY

The Pilot Project of Poverty Alleviation through Community Forestry in Hefeng County, Hubei Province serves as a community forestry model in China. With poverty alleviation as its aim, it is mainly focused on improving farmers' ability to alleviate poverty and to develop by themselves, and improving local government's ability to alleviate poverty in a sustainable way by means of providing technical training. Combining with the supply of seeds and materials to the farmers, home-garden forestry is developed with a forestry and agroforestry focus. It improves ecological

environment and increases farmers' income. Furthermore, participatory approach is introduced in the project, and is stressed to cultivate farmers' voluntary participation, women's participation and benefit obtainment. The final purpose of the project is to acquire and to popularize poverty alleviation models for poor mountainous regions.

Participation is the marrow of community forestry projects. Traditional forestry in China is run solely by governmental sectors, and farmers cannot manage it independently, needless to say the benefits they should get if they were the main part of projects. The failure for the "top-down" decision-making process lies in lack of active participation of farmers; as a result, they are unlikely to support the project.

The key feature of community forestry, or its principal characteristics and basic principles is voluntary participation of the community. The pilot project in Hubei Province practices participatory approach in the whole process. Before the project was launched, a baseline survey on socio-economic situations in the project area was carried out with participatory rural appraisal (PRA) and rural rapid appraisal (RRA). During the survey, local farmers were involved in activities such as villager's meetings, semi-structure interviews, group interviews, questionnaire investigation, land use planning; and they expressed their favored projects and needs. Participatory rural baseline survey was the first step for successful implementation of the project. With the participation principle in place, farmers enjoy every opportunity to participate in the project. More importantly, they are allowed to make decision and to manage the project by themselves. So most of them treat the project as their own. Most women also participate in decision making and manage the project directly, which helps them decide for themselves and reflect their value and position in the whole project process.

CONCLUSION

Community forestry serves as a breakthrough in reformation of government policies for forestry governance. The forestry sector of this county has undergone unprecedented changes and systematic transformation since community forestry was launched, and its previous functions were mainly policy-making and forestry production supervision. These functions have expanded, which include coordinating with other sectors, cooperating with non-governmental organizations and farmer communities, and helping individual farmers draw up plans for agricultural and forestry development, which suits their needs in the local setting and reduces market risks. The forestry departments were once purely technical, but they have turned into one covering administration, propaganda and publicization, which involves both technical issues and human ideas. Through the development of home-garden forestry and family farms, governmental officials in this county have gradually raised their awarenesses and increased their capacities to listen to farmers, understand them and ensure their active participation in decision making process in the forestry sector.

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