



Research Article

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Analysis on farmers' perception of ecological forest compensation in Beijing

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ABSTRACT

Ecological compensation is very important to protect and improve the ecological environment and to suit the demand of forestry sustainable development. In order to study the problems and requirements of ecological forest compensation, this paper selected Beijing, with primary forestry characteristic of ecological forest, as the study area. The article analyzed the ecological forest compensation under the farmers' perspective, who benefit from the ecological forest most and take the most responsibility of managing and protecting the forest. According to the research, ecological forest compensation has a lot of problems at present a lot of problems, such as the low compensation standard, single target and so on. Farmers think the main requirements for the compensation are compensation funds, more clarified rules, foresters' wage levels and so on.

Key words: *Farmers' perception; Ecological forest compensation; Beijing*

INTRODUCTION

The forest system provides a wide variety of goods and services to humans [1], which not only helps to maintain an orderly environment system, but also helps to regulate climate, conserve water, conserve water and soil, check the wind and fix the shifting sand, and improve soil [2-5]. It plays a vital role in maintaining the dynamic balance of the environment system. In recent years, payment for ecological services has emerged as a dominant economic instrument to adjust market failures and conserve forest ecosystem services [6-7]. Research on ecosystem services started from the 1970s. Costanza and others (1997) has studied on the services provided by ecological systems and the natural capital stocks[8]. The objective of the ecosystem services approach is to explain the effects of the human policies on both the ecosystem functions and human welfare by integrating ecology and economics [9].

The system of forest classification management in China was established in the 90s in China, meanwhile the ecological forest, as the raw material of the public welfare products, was valued to protect and improve the ecological environment and to suit the demand of forestry sustainable development. China's ecological forest management and compensation system started to work officially as the approaches of the central forest ecological benefit compensation fund management came out by the Ministry of Finance and China's State Forestry Administration in October, 2004 (No. 169 [2004] Ministry of Finance and Agriculture), in the time which followed 25 provinces in China have established local forest ecological benefit compensation system by 2011 to have 49 million hectares national ecological forest grown and 5,881 million Yuan compensation fund funded[10].

It is the forest farmers who benefit from the ecological forest most and take the most responsibility of managing and protecting the forest, hence, it is of great importance to study the forest farmers' perception and attitudes to the ecological forest compensation and the forest managing.

EXPERIMENTAL SECTION**2.1 Study area**

Beijing, the capital of China, takes ecological construction as the main objective on forestry resources management. In recent years, especially after the success of hosting Beijing Olympic Game, Beijing gradually speeds up the pace of constructing gardening and greening and builds a group of green projects resulting in the great rise of total amount of forestry resources in Beijing and the obvious improvement of its ecological environment, with primary forestry characteristic of ecological forest. It has been covered by 1.06 million hectares forest in Beijing, of which consisting 842.7 thousand ecological forests, accounting for 80% of the whole forest area based on the seventh forest inventory data. In 2004, Notice on Establishment Compensation Mechanism of Mountainous Ecological Public-welfare Forests from People's Government of Beijing Municipality was published (No25, issued by Beijing Municipality in 2004), which comprehensively launched out the work of compensational mechanism of collective-owned ecological forest in mountainous areas, and makes the basic protection on 674,000 hectare ecological public-welfare forests come true. The implement of the compensational mechanism of collective owned ecological forest in mountainous areas certainly increases the quality of forest and at the same time promotes foresters' employment status and income.

To some extent, the issue of ecological forest compensation in Beijing reduces the income gap between mountainous area and plain and rural area in Beijing. Because the issue of the ecological forest compensation is in accordance with the area of ecological forest, the mountainous area can get more for its bigger area while the plain area gets less for its smaller area. According to the research of Yanqing County and Miyun County, both of them possess large area of ecological forest. With the compensation standard of 40 yuan per acre each year to estimate, in some villages, farmers do not need to pay any labor and can get income, about 10,000 yuan per household. At the same time, the ecological benefit compensation funds of some villages are only 800 yuan each year. In this case, although the compensation could reduce the income gap between mountainous area and plain area, the farmers will depend more on national subsidies in the long run for they take it as for granted given by the nation, which also increases their expectation on further improvement on the subsidy standard

Selecting 21 representative villages and towns, 61 sample villages from Changping, Fangshan, Huairou, Yanqing, Miyun, Pinggu, Tongzhou in Beijing carrying out practical research, with forestry ecological compensation as research objective, this research is significant for the capital, Beijing, to construct an ecological city, which is harmonious between nature and human beings, between economy and all social aspects, and is also sustainable in development.

The research mainly adopts questionnaires, semi-structured interview, secondary data collection, memorabilia, and other methods. In the process of research, the project team goes deep in the research area, obtains the most basic and first-hand data through doing questionnaires one by one with the local foresters, village cadres and other people, gets to know their cognition and willingness on Chinese forestry ecological compensation and collects secondary data by doing questionnaires and interviews with the staff working in forestry station, protection station and forest as well as managers working in the forestry bureau and relevant reserve authorities. Specific technical route is as follows.

Collection and investigation of secondary data: Hold the basic information of forest resources, society and economy of these case provinces, counties (cities), villages (towns); the relevant policies and measures on forestry ecological engineering taken by these case provinces, municipal (county) government and department mainly responsible for forest; the basic situation of the development of forestry ecological compensation in each administrative region; the decision on research location and the design of questionnaire.

Forum at the village-level: Participants include village cadres, representatives of villagers and so on. Through discussion with these key figures, the research group could know the specific local conditions and the specific methods of forestry ecological compensation so as to carry out a better research and investigation by collecting secondary data.

Home interview and questionnaire: Based on the forum at the village level and some specific questions found in interviews, home interviews with these villagers are carried out, combined with the investigation of questionnaire one by one, to understand their cognition and willingness on forestry ecological compensation. The main contents of the research include the basic condition of family members and their work; family income and structure, especially the ratio of forestry income; forestry ecological projects; whether farmers could get compensation from these

projects; foresters' cognition and willingness on forestry ecological compensation; the evaluations and suggestions on further improving forestry ecological compensation; the awareness and requirements of relevant policies and laws.

RESULTS AND DISCUSSION

3.1 Foresters' Cognition on Existing Problems in Ecological Forest Reform of Beijing

First is the restriction problem of management and usage on ecological forest. After the reform of forest tenure system, foresters pay more attention on the mountainous area and have great enthusiasm for afforestation for the increase of profit margin on managing commercial forest. When the forest, foresters' means of production, is designated as ecological forest, it undoubtedly produces great impact on foresters' economic interest, and probably results in great pressure on protecting ecological forest. Under the background of insufficiency of national and local financial compensation, setting a too high restriction on management and usage not only goes against the ecological protection, but also is easy to intensify the contradictions between government and foresters. Both the economic interest of foresters and managers who take possession of public welfare forest should be taken into account. The ecological forest is not equivalent to a nature reserve, in which strict bans and protective measures are adopted regardless of the classification. The standardized and reasonable usage mechanism should be established and orderly production activities in the protected forest should be allowed so as to increase income and alleviate the protection pressure on protecting ecological forest. In other words, as long as managers do not damage the forest resources, at the same time, without affecting the ecological and environmental services provided by ecological forest, they can exploit and make use of it. The relevant mechanisms should be constructed and improved by government and forestry management authorities, such as the classification of ecological forest in which these business activities can be carried out, the definition of type of operating activities and the reinforce of technical guidance and supervision.

Second is the lack of Information regulatory system of ecological forests. The primary purpose of managing ecological forest is to increase forestry stand volume and improve the quality of forest. But in the process of managing ecological forest, there are phenomena that people are tend to pay more attention to compensation, less on effects. After the compensation is brought by government and forestry authorities, the protection, management and update regulatory on forestry resources are ignored, so the judgment on control and protection effects cannot be conducted and the innovation of management system of ecological public-welfare forest is restricted. Only by establishing the information regulatory system of ecological forests and conducting comprehensive monitoring on forest property with the same monitoring index system, can the control and protection and compensation of ecological public welfare be separated in the future, can the management effect be monitored and the ecological effects of public welfare forest be truly played.

Third is the single Source channel of Ecological welfare forest compensation Resource. The source channel of the ecological benefit compensation funds of different provinces and regions is relatively simple. Basically, it is the allocation of fiscal budget at different levels. The beneficiary is unable to bear the responsibility of compensation and there is no real sense of interests connecting mechanism, which, on the one hand, causes the government overburdened, on the other hand, it also causes great management pressure on some managers who already suffer huge loss. The true sense of compensation mechanism should base on the principle of "who benefits from it, who compensates it, and who gets the money" and raise compensation funds among regions, between the upstream and downstream, between multi-level and multi-channel in industries so as to mobilize the enthusiasm of social factors.

Fourth is the low ecological forest compensation standard. Since the beginning of 2010, the basic ecological forest compensation standard of provinces and autonomous regions, compared with the original degree, has basically increased. But compared with the managing income of commercial forest, the compensation standard is still very low. At present, the key ecological forest compensation standard above the provincial level in Fujian Province is more than 12 yuan per acre each year. In Jiangxi province, the ecological forest compensation standard is 10.5 yuan acre each year, which is equivalent to the price of a bamboo. It is irreparable to the loss of foresters' production and management, and according to the estimate of some experts, is also far from meeting the need that the average cultivation costs of ecological forest is 30 yuan per acre each year. Based on the regulations of state, the strict management should be taken on logging ecological forest while the restriction or prohibition of logging will produce negative influences on the management and protection of ecological forest. Investigation on the current situation and problem of ecological Forest reform is carried out by some scholars. The option of "the restriction on the management and usage of ecological forest" ranks first in the sort of foresters' biggest problem. At the same time, the too low

compensation standard also reduces foresters' willingness to managing forest, which is likely to result in degradation of forestry quality and cause emergence of deforestation.

Fifth is the uncertainty of subject of right of ecological forest. The relevant legal rights should be given to the subject of right of ecological forest and the continuous improvement of promoting regional ecological environment and ecological quality should be focused on. However, even the right is clarified, the uncertainty of responsibility and poor sense of duty are also hard to mobilize the enthusiasm of the subject of right to participate in the management and protection of ecological forest. In this regard, through the improvement of laws, regulations and administrative provisions, the responsibility of subject of right of ecological forest should be regulated, such as the prohibition of random abandoning forest land and the change of usage, and have the obligation to improve ecological quality. Under the premise of clear responsibility and the guidance of relevant forestry authorizes, the users of forest land have the responsibility to reasonably transform the ecological forest with poor forest stand quality so as to improve the structure of forest stand and to promote the succession of forestry evolution producing greater ecological benefits. Some necessary coercive measures should be taken if they fail to meet the corresponding requirements in certain period of time.

3.2 Understandings and Thoughts of Foresters on Ecological Forests Compensation:

1)The standard of compensation is too low

By researching 7 suburban areas and counties in Beijing, it is found that the standard of compensation is too low for farmer. In the newly-issued Notification on establishing development mechanism of ecological benefit of ecological forest in Mountainous area”(No20,issued by Beijing Municipality in 2010), the standard of compensation for non-commercial ecological forest is further raised to 40 yuan per acre each year, among which 40 percent is used for the management of forest health, while 60 percent is allocated to ecological compensation. Given the current standard of compensation, Beijing's is the highest in the nation, which is a big growth compared with national regulation of 10 yuan per mu per year. According to the research data, however, the WTA standard of 588 respondent farmers is 50.46 yuan by measuring WTA in this reform research. It is a large gap between 24 yuan farmers actually received and 50.46 yuan they are willing to accept. In the research group's view, the main cause for relatively high WTA lies in the relatively high living standard in Beijing. In terms of the real income of Beijing rural residents, the disposable income is 11,986 yuan in 2009, much higher than other provinces, directly causing a higher compensation will of rural residents.

2)The target of non-commercial forest management is too single

After the forest reform, the subsidies for non-commercial forest management are further increased. The main target of forest ranger is preventing fire, which can hardly meets the reform target of “revitalizing forest while making people prosperous”. In the process of research, it is found that the management duties of forest rangers in the surveyed villages focus on the forest fire prevention, instead of forest quality improvement, and thus the forest rangers are also known as firemen in some areas. According to relevant management measures, the duties of forest rangers should be comprehensive, including tending of woods, disease and pest prevention, forest fire prevention, etc. At the practical level, current forest rangers' main duty is still forest fire prevention. Besides, lacking of capital and technology, it is unusual that the village committee will afforest land spontaneously. Usually, they rely on forestry authorities to plant trees. From the questionnaire, it can be seen that the data for the quantity of afforestation forest ranger participate in or organize is almost blank, which manifests the serious problems existing in their duties.

3)The non-commercial ecological forest is absent of information regulation

Like the non-commercial forest reform in other places, the standard of compensation for non-commercial forest is increased on the one hand, the non-commercial forest is absent of information regulation on the other hand. As previously mentioned, the establishment of information regulation system for non-commercial forest aims to guarantee the efficient management of non-commercial forest, achieving increase in quantity, quality improvement and function enhancement. If there is no support of baseline monitoring data, management effect monitor will be just an empty phrase.

4)Lack of interests linkage mechanism

In the forest reform, except for clarification of property rights, the most important task is to establish interests linkage mechanism among forest land, forest and farmer. In terms of non-commercial forest, management effect should be linked to the subsidies, therefore management effect is the main criteria for specific subsidy. However, in the process of research, it is found that current management system is absent of interests linkage mechanism. Owing to the single

target of non-commercial forest, management efficiency is low although forestry stations and village committees will supervise forest rangers. Forestry rangers' salaries are fixed in most areas, which is not closely linked to their management effect, causing the absence of incentive and weakening the initiatives of forest rangers. The selection of forest rangers is mainly out of fairness doctrine through lot, rotation and allocation, sacrificing the management efficiency of non-commercial ecological forest to some extent while going against the sustainable development of non-commercial forest. In addition, estimating the subsidies only on the basis of non-commercial forest area can lead to poor forest management after farmers receive subsidies, thus producing the coexistent phenomenon of large expenditure and declining forest quality. Therefore, interests linkage mechanism related to forest rangers should be built, linking their salaries to their management result, monitoring their management effect by dividing into management and compensation. Only under the interests linkage mechanism can forest rangers' enthusiasm be aroused, thus improving the overall efficiency of forest protection.

5)The welfare character of subsidies

At present, subsidies standard for Beijing's ecological benefit promotion mechanism just got municipal Party committee and government's approval. The subsidies are not yet allocated to farmers. But in terms of the usage of rangers' capital, most farmers believe that rangers' salaries are of welfare character. When village committee makes policies on rangers' selection, it tends to adopt fair methods such as lot, rotation, etc. A few villages that used to adopt "appointed rangers" system are now considering changes of their original system.

CONCLUSION

According this study, fosters' policy demands on ecological compensation and the management and protection of ecological forest are increasing. With highly intensive population and highly developed economy, Beijing forest resources play an important role in protecting ecological environment, water conservation, and in meeting the public demand for recreation. The constitution of Beijing forest resources shows strong geographical features with a higher proportion of ecological forest resources. Therefore, it is important to establish a reasonable ecological compensation system and management and protection system of ecological forest to improve the quality of Beijing forest resources.

Beijing has begun the ecological forest compensation system since 2004. With 192 million yuan of ecological compensation fund each year and about 40,000 foresters' protection work, the management and protection of ecological welfare forest have fulfilled certain achievements. Currently, about 61% of farmer households satisfy the effect on management and protection of ecological forests, but the higher policy demand on ecological forest compensation and management and protection of ecological forest in Beijing still exist.

1)Ecological compensation funds need to improve further

With the growing ownership awareness brought by the publicity and education and the reform of collective forest right system during the past several years, most people are able to realize the external benefits of ecological forest and have strong requirements on ecological compensation. As it shown in the research data, the number of interviewees who believe that nation should take the responsibility to conduct compensation on ecological forest account for 97.8% of the sample foresters. According to the data why there is ecological compensation, about 35% of rural households hold the view that they should get the ecological forest compensation for the cost of management and protection, while 34.5% of them consider the ecological forest limits the economic usage of forest resources. Based on the current ecological forest compensation, more than 70% of the total farmer households think the amount of compensation is too low, about 60% of them believe that financial support should be strengthened so as to improve the standard of ecological forest compensation.

2)The more clarified rules of ecological compensation funds are needed

It is found in the research that 3% of the people still do not know whether there are foresters or not, although the ecological compensation has been implemented for 5 years. Many people express that ecological forest compensation funds are never given into their account, and there is no extensive publicity at all. In addition, 30% of the foresters who accept interview think the effective regulation mechanisms of ecological forest compensation fund should be established to safeguard the usage of funds. The forestry management cadres at town or village level also express that although the development mechanism of ecological benefit established this year sets a 24 yuan per acre of managing funds of forest health, it is still not clear how to allocate it specifically. For the primary forestry management department, they want to know how to use this funds to clear and definite the appropriate working methods and goals.

3)Foresters' wage levels should be improved further

In these research samples, the number of married forester accounts for 36.9% of the total households, and their average wage is 400.8 yuan per month. About 56% of the interviewees express their opinion on the unreasonable wage, and some of them expect the average wage should be 735.2 yuan per month, implying a great gap between the current wage level and their expectation. Foresters who accept the interview usually express that due to the low wage level, they are in a paradoxical state. The people who have strong capability are unwilling to engage in the work of ecological forest management and protection while people who have engaged in this work are work inefficiently. It is safe to conclude that most foresters do the work perfunctorily. Therefore, raising the foresters' wage level has become a common existing demand. The further enhancement of financial support or the decrease of foresters and the focus on the usage of funds should be conducted to achieve this demand specifically.

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