

The Implication of Forest Protection abroad for Wuling Mountain Area

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Abstract. This paper provides an overview of the payment for forest environmental service in Europe, the biodiversity conservation project in Costa Rica, the Maine forest protection project in United States. Moreover, the paper analyzes their successful experiences and characteristics. Combined with the problems of forest protection existing in the Wuling Mountain Area, the paper puts forward some useful suggestions, including the operation of ecology capitalization, forest ecological compensation, the legalization of forest management, diversification of compensation funds, and improvement of the native population quality.

1. Introduction

Forests provide mankind with irreplaceable resources and environment, thus offering significant environmental, social and economic benefits. With the forest coverage rate around 53%, it is a crucial ecological barrier and water resource conservation area of Yangtze River Basin. However, with the development of society and economy, the serious environmental problems of forest degradation, forest uneven distribution, decreasing ecological function have been emerging. Therefore, it is highly urgent to explore a suitable and efficient forest protection mechanisms. It is of vital significance to learn from the successful experience of foreign forest protection to improve the forest protection regulations in Wuling Mountain Area.

2. Introduction to Forest Protection abroad in Some Areas

2.1 Payment for Forest Environmental Service in Europe.

Since 1992, Europe began to provide financial support in some regions for implementation of forest protection action, and gradually increased the amount. Meanwhile, Europe adopted a resolution of forest strategy in 1998, and began to support the sustainable management of forests. The main features of European forest protection are the introduction of diverse environmental subsidies tools, the advanced market mechanism of environmental protection. Apart from increasing financial support for the forest every year, it set up various of economic policies and financial instruments, forming a relatively complete payment for forest environmental service system. The payment for forest environmental service project in Europe mainly included the following several measures. Firstly, it established the financial instrument for environment. This is the financial instrument of the European subsidies for environmental issues, which expanded the forestry subsidies and made up for the disadvantages of a single government financial payments. This system possesses flexible implementation measures, the stringent requirements of performance criteria and transparent use of project funding, the complete follow-up security of project implementation. Secondly, it implemented the modern forestry subsidies policy. Forestry subsidies were direct or indirect public financial supportive measures of the government and its related agencies, aimed at the forestry sector.[1]Thirdly, it developed forest certification system, which has promoted forestry management greatly, and improved the ecological environment in Europe, thus encouraging the promotion of economic efficiency of forest enterprises, and the sound development of trade in forest products.[2]Fourthly, it implemented forest carbon-sink program. It is aimed at absorbing carbon dioxide, reducing or preventing storage of carbon dioxide in the forest from discharging into the

atmosphere, through afforestation, reforestation, forest management and forest protection. European forest carbon trading involves two main subjects: one is the provider of forest carbon-sink service, referring to the individuals, companies and other entities owning or operating forest resources. Another one is the beneficiary of forest carbon sequestration services. Both are the equals of producers and consumers in the market.

2.2 Biodiversity Protection in Costa Rica.

Costa Rica is a developing country in Central America, legislation and market-based instruments played effective roles in forest protection of Costa Rica. Forest protection system in Costa Rica affords us two lessons that merit attention. One is to develop eco-tourism. Eco-tourism has four typical characteristics, including a sense of responsibility, intellectual, encouraging interactive participation, democracy and fairness. Unlike the traditional tourism, eco-tourism does not develop at the expense of the human culture and ecology, but attaches great importance to sustainable use of ecological resources. Development of eco-tourism in Costa Rica made good use of local resources, and emphasized advantage integration of ecological resources, the development of ecologic sightseeing agriculture, jungle adventure and other tourism projects.[3] Another one is to practice forest ecological compensation. Forest compensation in Costa Rica involves providers, payers and the National Forest Fund. The providers are private forest owners. The payers include national government funds, domestic and international organizations, private enterprises, personal gifts. National Forest Fund is the executive body responsible to fill the funding gap and regulate implementation of payment system. [4] Forest environmental services mainly involve the reduction of greenhouse gas emissions, hydrological services, biodiversity, natural landscapes and eco-tourism, which are the objects of payment for forest environmental service. The sources of forest payment funds in Costa Rica mainly include four aspects. The first one is the trading funds income of international carbon market, or Certified Tradable Offsets.[5] The second one is the payment for hydrological service. Hydro-electric sector and water users are the main payers. The third one is biodiversity conservation. The last one is international assistance, namely grants and aid from international environmental organizations or other national organizations.

2.3 Forest Protection in Maine in the USA.

Maine is located in the northeast corner of the United States, with the forest coverage rate up to 94%, and wood processing and paper industry used to be a major pillar of the economy in the state. However, Maine tourism and forest industry was confronted with a serious challenge in the process of economic globalization. In response to this situation, Maine forest industry began to grow, and the practice of ecological environment protection started to emerge. Policies of Maine forest protection primarily includes three aspects. The first is to rely on high-technology and innovate forestry development strategy. State Government recognized the forest industry must respond to the challenges on the basis of scientific research, engineering and technology innovation, new product and new production processes development. Therefore, the Maine University established "center of engineered wood composite products", mainly responsible for developing the Maine forest high-tech products business. Meanwhile, the government also encouraged enterprises to engage in new process development of engineered wood materials to achieve commercial production of engineered wood.[6]

The second measure is to perform training system for forest employees, to enhance the comprehensive quality of them. University of Maine in accordance with the actual situation of forestry employees, arranged a lot of effective forestry management courses. Short-term basic courses are comprehensive management and utilization, and sustainable operations management and so on; advanced courses are investigation and protection of forests, afforestation and management, forest products utilization and market research; Special courses are how to be managers for women, forest crime, and forestry tax law in Maine.[7] The last one is to develop forest recreation value assessment tool—CVM(Contingent Valuation Method). In 1963, American scholar Davis first applied CVM to study amusement value of a woodland in Maine, thus offering scientific quantitative tools for the assessment of forest environment resources recreational and aesthetic values, and also provided evidence to establish ecological compensation standard.[8] To perform CVM, the performers firstly

assumes a virtual market and then obtained Willingness to pay (WTP) of respondents for public environmental goods by the means of questionnaire, in order to give a quantitative value for non-market public goods.[9]

3. The characteristics of forest protection system abroad

As can be seen, forest protection practice of the above three Areas, though not identical, still exist many similarities, and primarily have the following three characteristics.

3.1 Capitalized Management of Forest Resources.

Capitalized management of forest resources is aimed at altering the long-term unpaid and charging a fee of services, woodland, trees, animals and plants and other forest resources, to reduce the enormous pressure of forestry. In Europe, forest protection usually takes advantage of a variety of economic policies and financial instruments. Costa Rica, not only practiced the forest ecological compensation system, but also translated the humanities ecological value of forest resources into economic value through eco-tourism development. Besides, The Maine Forest high-tech business, training for forestry owners provided a guarantee for sustainable forest development. Therefore, to realize Capitalized management of forest resources, it's vital essential to improve the forest resource asset appraisal and management system, and to establish forest ecological compensation mechanism, and to use high-tech and informationalized methods.[10]

3.2 The Practice of Forest Environmental Services Market.

Environmental services market is an important incentive mechanism for environmental protection, and connects environmental services beneficiaries and provides parties mainly in the price signal. Under the premise of no market mechanism constraints, forests provide free long-term service, leading to unwillingness of forest managers to take the initiative to maintain forest resources. Establishing forest environmental services market, offering appropriate financial compensation to forest managers, are effective measures for environmental services beneficiaries to fulfill the obligation to protect the forest while enjoying the forest service.[11]In the above three regions, Europe combined government subsidies with the market compensation and used financial instruments to provide funds for ecological compensation, and practiced forest carbon-sink trading, forest certification system. Woodlands recreational value assessment tool in Maine—CVM method, for forest environmental services provide a quantitative scientific tool. These initiatives contributed to practicing and improving forest environmental services market.

3.3 Higher Forest Resources Management Level.

Forest resources are lack of scientific management, mostly in state of no management, and well-qualified forestry administration are scarce. University of Maine in accordance with the actual situation of private owners, arranged a lot of effective forestry management courses, focusing on improving the overall quality of employees, and relying on high technology to increase the technology content of forest products. Costa Rica had special regulation of forest ecological compensation national forest fund and strict forest law. These measures reflect the importance of forest resources management in these countries.

4. The Implication for Wuling Mountain Area

4.1 Optimizing the Economic Structure, and Promoting Eco-capitalization.

Three main industries are important indicators of regional economic development. From the perspectives of overall economic structure in Wuling Mountain Area, the proportion of the primary industry was obviously too high, with slow economic transformation. Restricted by the terrain, the level of agricultural mechanization is still low in Wuling Mountain Area, which makes the agriculture lack of latent development. Natural feature in Costa Rica is similar with that of Wuling Mountain Area. According to its advantages of rich categories of eco-tourism landscape, Costa Rica optimized the combination of ecological resources, and vigorously promoted the development of local eco-tourism and other tertiary industries. Therefore, Wuling Mountain Area can learn from the

experience of Costa Rica, and takes advantage of regional distinctive resources, strengthens the integration of tourism resources within the area, all of which will help protect forest resources as well as optimize the economic structure of the area. Specifically, firstly, traditional agriculture should transition to modern ecological agriculture. The structure of cropping should be more various, and recreational and leisure agriculture should be encouraged. Secondly, tertiary industry should be promoted in Wuling Mountain Area, and traditional service industry should be transitioned to the modern service industry, and tourism services should be vigorously developed.[12]

4.2 Protecting the Forest Ecological Compensation Service and the Market Mechanism.

Wuling Mountain Area faces many ecological problems, which reflects the interests conflicts between development and protection of ecology and resources. In the face of poverty, local people are liable to sacrifice the environment to obtain the current interests, leading to a vicious economic and environmental development. It shows that how to use the abundant natural resources to get rid of poverty is the most urgent and realistic needs of the Wuling Mountain people. To alleviate poverty, and achieve prosperity, and ensure the effective protection of the ecological environment, it's important to perfect the ecological compensation system in Wuling Mountain Area.[13]Forest resources generally locate in poor Areas. In order to protect forest resources, the local people often abandon a lot of development opportunities. After the establishment of forest environmental services market, the poor engaging in forest management can get some financial compensation and income from the provision of environmental services, thus ensuring a win-win of ecology and economy.

4.3 Enhancing Forest Legislation, Strengthening Strict Law Enforcement, and Realizing the Legalization of Forest Management.

Improving the legal system is an important part to protect forest resources. At present, there exists numerous forestry laws and regulations, forming a basic legal framework of forest protection based on "Law of forest protection", and defining the legal means to protect forest resources. But there are many problems existing in current protection mechanisms, including inaccurate positioning, abstract content, biased legislative purpose; failure to observe the law, low illegal cost. Construction of forest protection mechanisms in Wuling Mountain Area, forest legislation should be clear and specific, and have strong operability. Combined with different types of forest, a strict distinction should be made according to the degree of seriousness, and the penalties for forest illegal act should increase, and regulatory responsibilities should be clear enough. More importantly, the legislation should not just be on paper files, but also be implemented.

4.4 Building Flexible Sources of Forest Ecological Compensation Funding.

At present, sources of forest ecological compensation funding are very simple in China, mainly fiscal and administrative charges. As early as enacting its Forest Law, Costa Rica had taken flexible compensatory measures. The sources of funds included ecological tax, carbon trade compensation, the financial burden and other channels, and achieved remarkable results. Therefore, Wuling Mountain Area can broaden funding sources of forest protection from the following aspects. Firstly, it should increase the levels of financial investment in forest protection. Additionally, special funds for forestry construction should be earmarked for forest protection. The second is to play the role of tax regulation and strengthen supervision of the compensation funds. The third is to increase the compensation funds from market. The successful experience of Costa Rica shows that sources of forest ecological compensation funding should be related with the value created by forest ecosystems, and funds should be raised according to the principle of "who benefits, who pays". Thus, financing channels of forest ecology compensation should expand from carbon sequestration, forest landscape, biodiversity, hydrological services.

4.5 Improving the Quality of Forest Workers and Changing the Traditional Outlook on Development.

Maine University conducted carousel training for forest owners based on the actual situation, thus improving the overall quality of forestry employees, changing the traditional concept of development. As a whole, knowledge and technology level within Wuling Mountain Area is still not high, people are still maintaining the concept of developing at the expense of damaging environment. The quality

of people in forest Area is a constraint factor to sustainable development of economy and society and forest resources. And to change this situation, first of all, we should vigorously popularize scientific knowledge among farmers to master modern science and technology, and gradually get rid of the traditional extensive mode of production. Secondly, we should update ideas. A series of educational activities can cultivate ecological awareness, market awareness, science and technology awareness of farmers, and change deep-rooted peasant's mentality and the old mode of production. Only literacy and overall level of education being improved, can economic and environmental issues get continuous improvement and protection.

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