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Implementation Approaches of Ecological Compensation Mechanism for Water Conservancy in Zhejiang Province

Xinliang WANG*

Zhejiang University of Water Resources and Electric Power Hangzhou 310018, China

Abstract According to the practices in the field of ecological compensation for water conservancy in Zhejiang Province, this article points out the problems and shortcomings in the ecological compensation mechanism for water conservancy, analyzes the obstacles to the effective running of the mechanism, explains the internal reasons for the implementation process of the mechanism, and discusses the countermeasures for developing this mechanism.

Key words Water conservancy, Ecological compensation, Implementation approaches

Establishing the ecological compensation mechanism is a new topic worldwide, and a necessary condition for fully implementing the scientific outlook on development, balancing urban and rural development, economic and social development, and the harmonious development between man and nature. It is of great significance to exploring the implementation approaches of ecological compensation mechanism for water conservancy at present. Establishing and improving ecological compensation mechanism for water conservancy is an important method to promote the construction of ecological Zhejiang, protect the water conservancy environment under the conditions of market economy, and coordinate regional development. In recent years, various regions in Zhejiang Province have practiced actively and achieved some results.

1.1 Spontaneous exploration of ecological compensation for water conservancy by local government

Zhejiang Province has made great efforts to explore ecological compensation for water conservancy, and many counties (cities) have developed a system that upstream township should invest in or set up factories in the downstream development zones. Some places are carrying out the pilot work of trans-regional water trading actively and steadily. In February 2001, Yiwu and Dongyang (cities in Zhejiang Province) created a great sensation by signing "water trading"; in 2005, Taizhou set up foundation to protect the drinking water in Changtan Reservoir; some counties (cities, districts) such as Longyou, Jiangshan and Jindong, offered subsidy to the region of water source and the towns near reservoir as ecological compensation. All regions develop measures and support policies for the pollution remediation when they deal with the problems in the key environmental regulatory regions and key pollution source in the upstream area and undeveloped area. In this way, we can

improve the local economic profit and promote the local economic development not only by remediating the pollution to achieve discharge standards, but also by various ways such as relocation, technological innovation and structural adjustment. At the same time, each region has explored various kinds of ecological compensation for water conservancy, such as the trading of water conservancy use right, land development across regions, and the trading of pollution discharge right.

1.2 The government of Zhejiang Province promulgates the system to regulate the ecological compensation for water conservancy

The government of Zhejiang Province has organized some forums involving the experts, the heads of some county and city government, and some province-related departments. Then it gave ear to various opinions, to establish the ecological compensation system, and make a closer step to understand the ecological compensation system. In August, the government of Zhejiang Province put forward *The Opinions about How to Improve the Ecological Compensation System*, which laid the foundation for improving and standardizing the ecological compensation system in Zhejiang Province. Every year, the provincial government takes out some money to subsidize the ecological environment, mainly used to protect the ecological construction, adjustment of industrial structure, the construction of environmental protection infrastructure, and agricultural and rural pollution control in the source of Qiantang River.

1.3 Each region refines the relevant policies and opinions and explores new ways

These regions drew successful lessons about ecological compensation from overseas, insisted on reforming, made the policies and regulations perfect, broadened the financial channels, and improved the ecological compensation system in the practice. For example, Deqing County established the system to protect the finance in the western towns through the transfer payment compensation in the light of the reduction of the financial revenue arising from the central tax reform. As for the sacrifice made by the western towns when they protected the ecological environment, the county finance added the compensation

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* Corresponding author. E-mail: holdto@sina.com

funds for ecological protection, and included it in the financial budget every year, to make the salary of the workers in the western towns reach the average level of the county. On the basis of practice, these counties promote the local legislation related to the ecological compensation system, and improve ecological environment protection actively, according to the requirement of establishing an ecological province.

2 Obstacles to the implementation of ecological compensation for water conservancy in Zhejiang Province

2.1 The property right of water resource is not clear Now we regard water resources as economic goods, and we introduce it into market to improve the use efficiency and configuration of the water resource. But it's a worldwide problem to establish a water market in the watershed area, and now the biggest problem faced by water basin compensation is that the property right of water resource is not clear, so the water resource can't be configured optimally or can't achieve water resource Pareto efficiency. The openness and liquidity of water resource determine the hardship to define the property right of water resource. China not only lags behind the developed countries in the research of water resource property right, but also lags behind in the area of water resource reforming, which leads to the ambiguous property right of water resources, limiting the establishment of the ecological compensation mechanism. Therefore, only by determining the clear property right of water resource can we correctly define the stakeholder and distinguish the market subject and content.

2.2 The compensation assessment method is not standard

There is still no generally accepted standard and assessment method to evaluate the ecological value of water resources in China. The quantitative analysis of the ecological compensation for water conservancy is still hard to complete, so it's hard to get the scientific data indispensable for the water conservancy compensation. The ecological compensation for the river basin since the end of the 1990s is mainly based on the government means to explore how to protect the water source area and ecological compensation for the upper and lower reaches of the small watershed in the same administrative area. The capital is given to the compensated areas through financial transfer payment or integrating the related financing channel. As for how to define the standard of water ecological compensation, there're no uniform rules at home nor abroad. Many popular standards of water conservancy compensation lack scientific basis, legal support, not in line with local conditions; they are usually issued by the superior government and talked over by different regions, thus, many problems and contradictions happen during the implementation. Generally speaking, the river basin ecological compensation system is promoted and influenced by the government's administrative ability, and the departments cannot achieve real balance.

2.3 It lacks the participation of non-governmental organizations and citizens The ecological compensation for water conservancy mechanism, which aims at protecting water conservancy en-

vironment and promoting the harmonious development of man and nature, not only needs the government and market means, but also needs the active participation of the ecological environment protection stakeholders. The non-governmental organizations and the citizens are the beneficiary of the water resource protection, and human beings cannot remain alive if we leave out the good quality water and suitable amount of water resources. Everybody who participates in protecting the water resource will benefit from it. If the non-governmental organizations and citizens participate in it, we can broaden the ways to raise funds, and give the local farmers technical supports coupled with financial support, which can help them develop the agricultural production, cast off poverty and set out on a road to prosperity. The participation of them can help the stakeholders to express the interest appeal, and build a bridge between stakeholders and the government, so the non-governmental organizations and citizens should be the participants of the ecological compensation for water resources. Therefore, we should cultivate non-governmental organizations actively, broaden the fields they can participate in and improve their ability, make full use of the function of democracy and legislation, and make them become the impetus of the legislation.

2.4 The constrictions arise from the lack of laws and regulations

The reasonable legal system is the basis of ecological compensation for water conservancy, and the implementation of the ecological compensation policy, the smooth construction of ecological project, and the effective development of the compensation management, are inseparable from the protection of laws. Though China has established the legal system which contains the national legislation and the local legislation, there are still no unified laws and regulations about water ecological environment protection and construction, some important laws on water ecological protection and compensation are not in place, and the relevant regulations about water resource compensation are not clear about the right and responsibility of the stakeholders, the compensation mode, content and the standard. In addition, the river basin lacks property right system, and legislation is lagging behind the development of ecological protection and establishment, leading to ineffective support to the new water ecological problem and water resources compensation mode. There are conflicts and contradictions in the department legislation, thus it causes conflicts between different departments, unable to meet the actual need of the water resource ecological compensation work under the new situation.

3 Countermeasures for the implementation of ecological compensation for water conservancy in Zhejiang Province

3.1 Clearly understanding the compensated basin's water rights ownership Basin is the area unit of nature, and the water environment protection is the main content of the watershed management. The phenomenon of dislocation between benefiting and protection in the upstream and downstream area is increasingly apparent, so it's hard to realize fair protection of basin water re-

sources if merely depending on the functional zoning of water environment. We should establish the water rights transfer policies, by defining the water rights, introducing the water rights transfer policies to adjust the use of the water resources, so that the places rich in water resources bringing the qualified water to the places lacking water resources can get some financial compensation. If we clearly understand the basin's property rights, we can establish the negotiation mechanism between these areas. Then we can buy the water rights from other regions through negotiation. The upstream areas can achieve joint construction of the ecological environment with the superior government and beneficiary cities through negotiation, and beneficiary areas can provide development opportunities for upstream areas through negotiation. At the same time, we should rapidly establish the regulations from constitution to the law of environmental protection, water, to ecological compensation for water conservancy bill, and to the complete legal system about basin's water rights transfer in every province and city.

3.2 Introducing the market mechanism to ecological compensation for water conservancy We should rationalize and improve the management mechanism, strengthen the cooperation between different department and districts, and integrate the capital and resources of ecological compensation for water conservancy, to form the join forces, and speed up the establishment of ecological compensation for water conservancy. First, we should cultivate the market of ecological compensation for water conservancy to make the resources and ecology become capital. The environment capital which reflects the scarcity degree of the environment, can realize the double effect of saving the resources and reducing the pollution. Second, we can give impetus to the market of water conservancy compensation through the forms such as establishing the market of water environment property, opening the environmental protection industry, and establishing ecological compensation liability insurance as well as water environmental taxes. Third, we should guide social parties to participate in water environment protection and water conservancy ecological construction, and encourage the ones who protect the water conservancy ecological environment and the ones who benefit from the water conservancy ecological environment to achieve reasonable ecological compensation through negotiation.

3.3 Participating in the implementation of ecological compensation by the main stakeholders The fundamental purpose of ecological compensation for water conservancy is to adjust the interest relationship between the stakeholders behind the water conservancy ecological protection, then forming the social system that is conducive to protecting the water ecological environment. The ecological compensation for water conservancy must gain the support and concern from all over the society, and we should encourage the related groups to participate during the process of the establishment. Citizen is not only the main stakeholder of public interests of the water conservancy environment, but also the most direct supervisor of the water conservancy ecological protection. So the majority of citizens should be given the rights to participate in

the water conservancy ecology, and be encouraged to through a variety of ways take part in the supervision and protection of the water conservancy ecology. We should strengthen the popular science education and public propaganda of ecological compensation for water conservancy and the general public's awareness of ecological compensation for water conservancy, and crystallize the policies of ecological compensation for water conservancy, to make the public generally participate in the ecological compensation for water conservancy actively. We should also guide the social parties to participate and explore various ways of ecological compensation for water conservancy, widen the market-oriented and society-oriented ways of ecological compensation for water conservancy, to form the situation which is fully developed in every aspect. We should also guide the local residents to participate in the construction of ecological mechanism based on the differences in water conservancy ecological environment in different areas.

3.4 Establishing the laws and regulations about the ecological compensation for water conservancy The ecological compensation mechanism is a large system project. Facing the problem of water resources shortage and water environmental deterioration, we should establish the comprehensive ecological compensation system for water conservancy which is on the premise of law, and dominated by the macroeconomic control. The key of this system is to improve the law system of the ecological compensation, and design the mechanism of the investment of ecological benefit and the safeguarding of interests. It is necessary to determine the concrete responsibilities and the method of performance in the ecological compensation in the form of regulations, to strengthen the authority and binding force, so that there are laws to abide by and the ones who break the laws must be prosecuted. And we should improve the present tax policy, collect more water conservancy compensation taxes, new water conservancy environmental taxes, adjust and improve the present resources tax. We should also encourage the local government to formulate the local compensation regulations under the frame of united water conservancy ecological system, and refine the national laws and regulations, to avoid the flaws in the national regulations.

All in all, we should gradually form a standard and effective ecological compensation mechanism wherein responsibility, profit and rights are related to each other; clearly define the use right of water resources; increase the participation of non-governmental organizations and citizens; actively use the market mechanism to implement ecological compensation; perfect the law system of ecological compensation for water conservancy, to promote the production and life quality of people in the watershed area.

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