

## **Study on the Assessment and Compensation of China's Resources and Environment Value Loss from Sea Reclamation**

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In recent years, large scale sea reclamations have caused depletion of coastal resources along with environmental and ecological function degradation in China's coastal areas. From surface, they seem to result from a higher pace of industrialization and urbanization. However, in essence they are the result of inefficient allocation of resources which is due to the underestimation of coastal resources value and lack of monetization of the environmental and ecological function of coastal resources under current resource price policy and market economy. The purpose of this paper is to study the compensation for coastal resource value, to search for an efficient economic lever which is able to restraint and adjusts the economic behavior of both the owner and the exploiter, to reduce and prevent resource waste and environmental damage during the economic development, in order to realize the highly efficient allocation and virtuous circle of natural resources.

Firstly, this paper builds up the value determination and value composition theory for coastal resource based on the review of classical economics and modern resource & environment economics, that is, the utility of coastal resource is the foundation to decide whether the coastal resource is valuable; its scarcity acts as the sufficient condition for coastal resource's value; monopoly is the system origin of coastal resource's value; the conflict during exploitation and the externalities decide the value composition of coastal resources. Based on the above, this paper further argues that coastal resource value involves three parts: marginal exploiting costs, marginal resources depletion costs and marginal external environmental costs. Value compensation for coastal resource is defined as the compensation for the latter two.

Secondly, inspired by the quantitative method for non-renewable resource depletion costs and environmental impact assessments (EIA), this paper builds up the model and methods for calculating sea reclamation coastal resource depletion cost and environmental and ecological cost and calculates marginal resources depletion costs and marginal external environmental costs in Jiaozhou Bay sea reclamation. The result shows that from the year 2002 to 2006 resource depletion costs in Jiaozhou Bay reclamation reaches as much as 410, 555, 200 Yuan while the marine space usage fee paid in the corresponding time period only consists 44% of it. Using contingent value method (CVM) and resource equivalent analysis the paper works out that environmental costs in Jiaozhou Bay reclamation is 16.2 billion and 13.44 billion respectively which make up 3.66% and 3.03% in Qingdao's GDP (2008).

Finally, based on the current implementation and management condition of China's sea reclamation value compensation policy, this paper specifies the guidelines and policies for coastal resource exploitation value compensation, builds up the system framework for the compensation of coastal resource exploitation environmental value loss, including: building up unified legal framework for the compensation of coastal resource value; perfection of the policy framework for the compensation of coastal resource value; enhancement of supervision and law enforcement, in order to create favorable resource value compensation environment, eventually realize the sustainable usage of coastal resources and harmonious developments of marine economy and resource environment.

There are three innovations in this article:

(1) Based on the theories of marginal opportunity cost and welfare economics, this paper establishes the theory for coastal resources' value determination and construction; (2) With reference to the depletion cost of non renewable and the internationally newly employed resource equivalency analysis (REA) , this paper builds up the depletion cost and the environmental and ecological cost assessment approach for sea reclamation and conducts quantitative analysis, which provide example reference for the assessment of value loss for other forms of sea usage; (3) with regard to the loss of coastal resources and the environmental and ecology degradation caused by reclamation , this paper points out that the key is low efficient allocation of resources caused by undervaluation of coastal resource and lack of comprehensive resource price compensation system, therefore further provides suggestions for establishing coastal resource exploitation value compensation system.

Key words: coastal resource value; sea reclamation; resource environment value loss; value compensation