

Journal

Annals of the Association of Economic Geographers, Volume 57, Issue 1, pp.2~20

Title

Characteristics and Challenges of Water Resource Management in Japan

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Abstract

At the end of the premodern period in mid 19th century Japan, nearly all drought-level river water runoff was used by the agricultural sector and water-use governance was implemented to resolve any water-related disputes. Since then, any major entity seeking to begin a water-use system in a river has been obliged to implement measures to ensure the supply water in periods of drought. In addition to supplying water in periods of drought, dam construction has been used for both flood control and electrical energy production, and in the years after World War II, multipurpose dams became part of the government's river policy. In recent decades, however, opinions on the value of dams and their effects on the environment and society have changed considerably, both in terms of science and technology and also values consciousness and values perception. Combined with a slight decrease in the demand for water in recent years, water resource policy in Japan is now approaching a turning point.

In this study, proceeding from the perspective and framework of resource management which embraces the cumulative advances in resources theory, we clarified the problems associated with water resource policies that have been implemented to date within the context of resource management and resource theory. In addition, we have examined the potential direction that this policy may take in the years ahead. Given the recent advances in resource research and the

application of the Zimmermann concept, the idea of water being both a production resource and an environmental resource has come to light. The significance of considering water as a resource lies in the discovery of hidden functions and values in nature. In present-day Japan, the process of proceeding from resource value discovery to utilization has become extremely complex, and conceptualization of resource management requires a methodology for dividing water-related matters into the categories of resource analysis, resource assessment, and resource utilization. In addition, consolidation of the results achieved in each category is required. This methodology has led to both the discovery and a renewed appreciation of environmental resources.

In order to apply the Zimmermann resources concept to the present, it is necessary to focus on the three-component array of science and technology, organization and systems, and values consciousness and perception, and to ascertain the mechanisms of each that act on the processes leading from discovery of a resource value to its utilization. In the present paper, we apply this framework to analyze the process of water resource development, as they have unfolded since the end of World War II, and the process of introducing environmental resources as a target for research and policy.

The emergence and growth of the science of natural history, from its beginnings in ecology, has brought into clear focus the multiplicity of values encompassed by environmental resources. This is inducing a major change in the values consciousness of the public relating to water. The reorganization of systems, however, is in its infancy. Although the present paper does not specifically address to sustainability, the categories of resource assessment and resource utilization are described in some parts of the paper directly related to sustainability. For resource management, when viewed in the perspective of future generations, sustainability will also become a central task in concert with its intrinsic objective of heightening the quality of environmental resources.

Key words

water resources, resource management, water resource development, environmental resources, resource values