

Sustainable Water Resources Management: Small Island Developing States as a Case

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1. PURPOSE OF THIS STUDY

It is a critical issue for Small Island Developing States (SIDS) to manage water resources sustainably because of scarce water resources and carrying capacity. In SIDS, the constraints on water resources and carrying capacity are critical elements because the mismanagement of water resources leads to serious health problems. However, there are few researches on sustainable water resources management in SIDS. As a first step toward a sustainable water resources management, this paper examined the implications for SIDS of three approaches: supply-side management approach, demand-side management approach, and critical natural capital management approach.

2. RESULT OF THE EXAMINATION

SIDS are characterized by the environmental constraints on land areas, water resources, carrying capacity and the vulnerability to the effect of Global Warming. These characteristics determine the way of the management of water resources. First, the supply-side management approach increases so much amount of water flow that there are risks of water resource depletion and pollution. Second, the demand-side management approach enables SIDS to reduce the amount of flow of the water resources by efficient water uses. However, it will not always ensure that control water flow below the sustainable standard. Finally, the critical natural capital management approach which aims water resources stock management controls important environmental functions of water resources by sustainability standards, so this approach has the significance as a theoretical framework for SIDS where the water resource management which focuses the avoidance of artificial influence on water resources is needed.

3. CONCLUSION

In SIDS confronting with serious environmental constraints needs water resource stock management, so it is required to clarify the limitations and problems and deepen the critical natural capital management approach. The limitations and problems of the critical natural capital management approach clarified in this paper are below:

(1) Theoretical limitations and practical issues of critical natural capital management approach

It is possible to control the artificial effect within SIDS scale, but it is impossible to consider the effect of Global Warming or Sea-level-rise simultaneously in the critical natural capital framework. And also, setting the sustainability standards and the financial burden for monitoring may be the practical issues of the approach.

(2) Beyond the limitation of critical natural capital management approach

There are two ways to go beyond the limitation of critical natural capital management approach. The one is the technology like desalination of brackish water, and the other is the management of the global artificial effect like global warming, by the Global society. It is important to integrate the technology and management (by global society) because technology will bring SIDS a short-term adaptive solution, and the management will be a long-term solution.

(3) Future issues of critical natural capital management approach

It is needed to clarify how to null SGAP and how to ensure the validity of SGAP in critical natural capital management approach. Moreover, it is required to examine the issues through the practical application of the critical natural capital management approach.