

Nohwa-do and Bogil-do, Communal Water Resources Management, South Korea *

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1 Part I: Static Analysis - Collective action

The southernmost islands in South Korea, Nohwa-do and Bogil-do, are situated off the coast of the province of Jeollanam-do, are joined by a bridge, and they share a reservoir in Bogil-do. Although the surface area of the two islands is almost identical, Nohwa-do (5,000 people) has more than twice as many residents as Bogil-do (2,800 people).

1.1 The Commons Dilemma

- The Nohwa-do and Bogil-do residents' water reservoir has dried up as a result of the extreme drought. In 2017, the Bogil reservoir's water storage rate barely reached twelve percent, forcing the suspension of water service for two days in Nohwa-do and eight days in Bogil-do, respectively. Since Nohwa-do lacks a reservoir, residents of the two islands were forced to share water supplies. However, due to the severe drought, residents of Bogil-do refused to share their water. Additionally, as abalone fisheries have grown in popularity, more water is being used in the abalone processing process.

1.2 Biophysical Context (IAD)

- **Natural infrastructure:** The southernmost island, Nohwa-do and Bogil-do, are situated off the Jeollanam-do Province's southern coast. Bogil-do shares a single reservoir with Nohwa-do residents. There are five reservoirs in Nohwa-do as well, however the water there is unusable due to pagodite mining contamination.
- **Hard human-made infrastructure:** In Bogil-do, the local government built a plant for water intake in 1989 and a facility for water purification in 1981. Both islands have higher water rates than the national average, but their realization rates, at 25.8 percent, are very low and their water costs are the highest in their province.

1.3 Attributes of the Community (IAD)

- **Social Infrastructure:** Despite being geographically adjacent to one another, Nohwa-do and Bogil-do have only been together for more than ten years. They had to use

*This document uses *the Revised Romanization of Korean romanization system*, which was made public by the Ministry of Culture and Tourism of South Korea. The terms from the original text are given in parentheses to prevent misunderstanding.

a boat to get to each other before erecting a bridge between them. In contrast to Bogil-do, which is difficult to develop due to being a national historic region, Nohwa-do is relatively well developed because to the construction of recreational amenities that draw visitors from the mainland. Bogil-do residents have a feeling of isolation and inferiority as a result.

- **Human Infrastructure:** None were mentioned in the original document.

1.4 Rules in Use (IAD)

1. **Position Rules:** Nohwa-do and Bogil-do residents may ostensibly engage in the governance system according to the rules-in-form, however it was not often the case. Residents either elect decision-makers or appoint them as public servants. The local government structure is quite hierarchical, and all decisions must be approved by the national government. Employees of K-Water (The Korea Water Resources Corporation) as a public infrastructure provider are employed via a private company-like hiring process.
2. **Boundary Rules:** Since there is no formal organization in charge of the shared problem, a crowd of individuals collected and broke apart as a result of the particular incident. Only public leaders and decision-makers made crucial judgments. K-Water is exclusively in charge of managing the water resources.
3. **Choice Rules:** All water resources on both islands are solely managed by K-Water, who was given this responsibility by the local government. Although it is official for local governments to manage their own water resources independently, they were forced to delegate this responsibility to K-Water due to pressure from the central government to liberalize water management policies.
4. **Aggregation Rules:** The local county council elected by the residents assembles to supervise the local businesses and public servants, but they were not very successful.
5. **Scope rules:** None specified in the source document.
6. **Information Rules:** When the local county council oversees the activities of the public official, they investigate the information given to them but they did not take any responsible action to avoid the dilemma.
7. **Payoff Rules:** None specified in the source document.

1.5 Summary

The lack of proper and active public engagement and a hierarchical decision-making process between local government and central government when it comes to managing water resources is the root cause of the commons issue occurring in Nohwa-do and Bogil do.

2 Part II. Dynamic Analysis - Robustness

The hierarchical decision-making process and lack of independence for public officials prevent them from managing water resources effectively. K-Water was given a large budget by

the local government to manage water, however they lacked competence and were unable to lower water costs or raise water realization rates.

3 Part III. Case Contributors

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