

Takkapala Communal Irrigation System, Indonesia

Last Updated: November 30, 2022

1 Static Analysis - Collective action

The Takkapala Communal Irrigation System was a small-scale river diversion irrigation system in Malino village, South Sulawesi, Indonesia. This case, though, did not focus on the harvest of water resources but a rehabilitation project of the irrigation system undertaken in 1971 that involved \$250 of national subsidies and communal labor of the local communities. It was concluded that the inducement of communal labor resources by national subsidies was a success in this system, which the institutions had also contributed to.

1.1 The Commons Dilemma

There was no urgent commons dilemma in this case. The resource harvested in the system is water for irrigation, but not much information is known about the water resource management of the system. Communal labor for rehabilitation of the irrigation system, the main resource that the case study focused on, may be considered as another common pool resource. It was well motivated, thanks to the national subsidies, village leadership and community organization.

1.2 Biophysical Context (IAD)

- **Natural Infrastructure**

The Takkapala Communal Irrigation System was located in *Desa* (village) Malino, South Sulawesi, Indonesia. Of the total 10,000 ha area, 610 ha were low-land rice fields, 2,645 ha are upland rice fields, and 6,845 ha are forest lands. Rainfall was high and relatively evenly distributed.

- **Hard Human-made Infrastructure**

Malino was a relatively isolated village with no improved roads connecting it to any urban center. The village relies on communal gravity irrigation by river diversion, *pengairan desa*, the rehabilitation of which was the focus of this case study.

1.3 Attributes of the Community (IAD)

- **Soft Human-made Infrastructure**

The irrigation system was operated and maintained by village communities. Locally elected village ditch tenders *ulu-ulu desa* managed the systems, utilizing communal labor for operations and maintenance.

The rehabilitation project on the irrigation system, including the repair and raising of the diversion dams and the lining of some canals, was attributed to the *Subsidi Desa* program, which provided national subsidies to encourage community work. To get the subsidy, villages needed to submit a proposal to the Community Development Office of the municipalities *kabupaten* for assessment, through a subregency *kecamatan*. Proposals proved by the *kabupaten* heads are sent to the provincial governors for final approval. The funds appropriated for the *Subsidi Desa* program by the central government come from the Community Development Office, Department of Interior, and are channeled to the villages through the local administrative hierarchy.

Request for proposal originated with the village head. The village head first consulted intensively with the heads of their *rukun kampung* and *rukun tetangga* and then convened village meetings, where the formal proposal emerged. Heads of *rukun tetangga* and *rukun kampung*, the ditch tender, as well as individual farmers, were all involved in decision making. Leaders of *rukun kampung* and *rukun tetangga* not only made major decisions, but also took responsibility for scheduling and supervising the execution of the rehabilitation work. Leaving major decisions to the local community undoubtedly provided incentives for villagers to participate in the project.

- **Human Infrastructure**

Malino consisted of 71 *rukun tetangga* and 11 *rukun kampung* (unofficial community organizations) with 1,781 households and 9,828 inhabitants. Most residents were on farming employment. The village head of Malino was an ordinary farmer respected for his dedication to the community and for his piety. It was not clearly mentioned who the heads of *rukun kampung* and *rukun tetangga* were, but they were likely to have some management skills. The village ditch tender *ulu-ulu desa* was in charge of the operation and maintenance of the irrigation system.

- **Social Infrastructure**

Malino showed relatively stronger community ties among its villagers, as the village was relatively more isolated and self-contained. The village head was like a symbol of village unity than of administration.

1.4 Rules in Use (IAD)

1. Position Rules:

- Farmers who used the irrigation water for rice production, invested in animals and participated in the rehabilitation project, some of whom were also engaged in decision-making on the rehabilitation project
- Village head and heads of community organizations who came up with the proposal on the rehabilitation project
- Ditch tender who took care of the canals
- Officials of the local administrative hierarchy who worked for the *Subsidi Desa* program

- Provincial governor who approved the *Subsidi Desa* program proposals

2. Boundary Rules:

- The ditch tender was locally elected.
- The village head came to his place for his dedication to the community, but rules were not specified. The village head of the other village (Cemplang) in this case study was elected.

3. Choice Rules:

- Farmers might choose to participate in the rehabilitation project of the irrigation system when they were motivated by social obligation or economic benefits.
- The village head might choose to take the major initiative in planning and organizing the project, or leave major decisions to the local communities.

4. Aggregation Rules:

- The village head consulted intensively with the heads of their *rukun kampung* and *rukun tetangga* and then convened village meetings for the formal project proposal.

5. Information Rules:

- By decentralized decision-making, farmers could get the information on the benefits of the rehabilitation project of the irrigation system within their neighborhood communities.

6. Payoff Rules:

- Farmers could get increase in irrigated areas and in yields per hectare once the irrigation system was rehabilitated.

7. Scope Rules:

- Regular maintenance labor input was required to maintain the irrigation system.

1.5 Summary

The case of Takkapala Communal Irrigation System was considered as a success of the *Subsidi Desa* program in mobilizing local resources for the construction of rural infrastructure, indicated by the amount of local resources (i.e. communal labor) mobilized relative to the amount of national subsidies. According to the official data and surveys from 34 respondents in Malino, the proportion of locally mobilized resources was 82%, and that the village leadership and community organization were the main determinants of such success. The decentralized decision-making processes at Malino likely have provided incentives for the villagers to participate in the rehabilitation project and more awareness of the benefits of the project.

2 Dynamic Analysis - Robustness

The case source document did not provide sufficient information describing the institutions of the system and therefore was not sufficient for a robustness analysis. The recorded rehabilitation project was not a routine event. However, it can still be inferred that the linkage between the resource users (RU, Malino villagers and heads of unofficial community organizations) and the public infrastructure providers (PIP, mainly the village head though), namely linkage 2 in the robustness framework, was quite strong due to the decentralized and participatory decision making processes in Malino. Linkage 3 and linkage 6 were also demonstrated in the case as the hard human-made infrastructures (i.e. irrigation system) were operated and maintained by the community while also benefited from the nation's *Subsidi Desa* program. No information was available on how soft infrastructures could dynamically adapt to any feedback from RU or PIP. There was not much information mentioned about the resource system or exogenous drivers either.

3 Case Contributors

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