

“A” irrigation watercourse, “Area Three”, Indonesia

Last Updated: December 1, 2020

1 Static Analysis - Collective action

The Area Three irrigation is a large area of irrigation covering 33, 000 hectares, which is officially run and managed by the government. The project reported in the document described that the Area Three was categorized as small-scale project compared to other areas reported in the document. The area of the project received relatively high rainfall with predominantly rice paddy fields. Compared to the Area One, Two and Four, the Area Three (Indonesia has the highest rainfall average of 1,940). Topographically, the irrigation areas were mainly lowlands, some of these areas were interdependent run-of-the river systems. Historically, the irrigation was first built in the early 1900s.

1.1 The Commons Dilemma

Since the Area Three irrigation covers a quite large area of crops, the water source has been the major commons dilemma. During the dry season when rainfall was generally low, with the large areas of farm units needed water through irrigation. The limited water source from subsequent rivers was obviously the dilemma for further use of water by downstream farmers. At that time, the Indonesian government had just initiated infrastructure development including in the agricultural sector, the major sector in Indonesia. To some extent, this situation posed another pressure for the commons dilemma in Indonesian agriculture.

Although located in a tropical region with high rainfall on average, when the rainfall was low, conflict among water users often happened. Mediation of conflicts by officials in charge of water, usually government civil employees, was sometimes not successful especially if the water officials are not “agricultural oriented”. Another dilemma occurred when agricultural extension service is weak in skills and resources which resulted in the low level of farmers’ management. Officially, the potential appropriation problems were handled through mediation and regulation enforcement by water officials.

1.2 Biophysical Context (IAD)

Natural infrastructures: The Area Three covered the irrigated area of 33,000 hectares with a high rainfall average of 1,940. Crops’ characteristics were hugely contrasting due to different seasons. During the rainy season, or wet season, crops were supported by a supplementary irrigation system for rice. The Area Three irrigation region was also characterized by good and fertile soils, good natural drainage, and During the dry season, agriculture was mainly mixed between rice and ‘irrigated dry’ crops, like soybean or cassava.

Human-made Infrastructures: The irrigation system was characterized by a small to medium sized canal system in the hilly areas but wide in the downstream, coastal plain. The irrigation had a simple canal design, but it was relatively flexible with numerous control structures in downstream areas for canal rotation. It was equipped with gates and measurement structure at the watercourse head. There was no use of groundwater or low-lift irrigation. No serious environmental problems were encountered, but there were some erosions in upper catchment areas.

1.3 Attributes of the Community (IAD)

Social Infrastructures: The Area Three was relatively small average farm size so that the distribution of income and land were not markedly skewed but large with the increasing number of landless farmers. The average income was low, but farmers were highly skilled in intensive, irrigated agriculture. The water areas in the Area Three were large, but the farmers were organized into small sub-unit for internal operation and maintenance. The social cohesion among residents was high, with strong village council of representatives with locally appointed irrigation tenders.

Human Infrastructures: The majority of residents were farmers relying on rice as a staple and major agricultural commodities in the irrigated areas. Crops during dry seasons were not major commodities and were mainly consumed.

1.4 Rules in Use

1. Position Rules

Farmers were represented in village council, where they elected an official water tender. At a higher level of government, there were water officials appointed and employed by the government.

2. Boundary Rules

Farmers may irrigate their lands on a certain amount and allocation of time, which was managed by appointed water tenders.

3. Choice Rules

Responsibilities for canal management and agricultural extension were divided between two departments with different areas of jurisdictions.

4. Aggregation Rules

Farmers' choice of cropping patterns was limited by statutory restrictions on rice area in dry season.

5. Payoffs Rules

There was very limited upward mobilities between water staff grades, especially those who are appointed (not elected) by the government

6. Scope Rules

Water distributions were complex and when a certain modification was needed, there must be frequent meetings between junior and senior staff.

7. Information Rules

Some provision for periodic interdepartmental meetings was under District Administrators.

1.5 Summary

In a relatively small irrigation compared to the other areas (Area One, Two, and Four) covering 33,000 hectares, farmers were both as water users who have limited roles and rights due to quite strict regulations imposed by the government exercised through appointed staff involved in the project. The government, on the other hand, managed the irrigation through staff in more than one department with different jurisdictions. However, the staff and personnel were often poorly qualified in their skills. Crops were strictly regulated based on corresponding season, wet and dry season, where farmers had very limited choice.

2 Dynamic Analysis – Robustness

Not specified in the document.

3 Case Contributors

Tang, Shui Yan

Brady, Ute

Irawan, Popi