

論文の内容の要旨

論文題目 Institutional arrangements for enhancing sustainable community-based irrigation: the case of Northern Sagada, Philippines

(地域共同体を基盤とした持続可能な灌漑を実現するための制度設計：フィリピン共和国北サガダ地域における事例)

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This study addresses the case of Mabileng-Oliwek Communal Irrigation System (CIS), a community-based gravity-flow irrigation system that supports rice terrace farming in Northern Sagada, Philippines. Like in most mountain communities, common property is a necessary arrangement as no individual farmer can afford the cost to build and maintain an irrigation system on their own. As a CPR, Mabileng-Oliwek CIS is defined by its subtractability and high cost of exclusion. From its construction in 1952, Mabileng-Oliwek CIS was operated and maintained through self-organized institutional arrangements. Appropriation and provision rules were agreed upon by the users themselves and enforced by the council of male elders who acts as leaders of the traditional socio-political unit in the community called *dap-ay*. In the early 1990s, Mabileng CIS was selected to be one of the project beneficiaries of the Second Communal Irrigation Development Program (CIDP II) by the World Bank. As part of the irrigation development project, the physical structure of the canal was improved and concretized. Furthermore, the local farmers were organized into a duly registered Irrigators Association (IA) and the existing traditional rules for irrigation management were formalized.

The present case study was selected to address the need to investigate the interactions of the state with local self-governing institutions. In doing so it aims to elucidate the processes of transforming an informal self-governing irrigation system into a state-supported formalized system and to examine the governance outcome of state initiated institutional change.

The growing reality that the world is facing a resource management crisis has driven many scholars in search of the right institutional arrangement for resource governance. Institutions or simply the rules devised by humans to guide their social interactions can either be informal such as norms, traditions, and customs or in the form of formal law or organizations. However, though it is generally agreed that institutions are needed to solve resource problems, there is no consensus as to what institutional arrangements would be best. Instead, what has been largely accepted by both policymakers and scholars alike is that there are three possible choices of governance structures, government control, privatization or community-based management.

Buttressed by the many successful cases of resources managed at the local-level, many anthropologists and social scientists have come to advocate community-based management. To further this argument, the literature on commons has often highlighted the failures of state-control and private property. In addition, scholars on community-based management usually emphasized the successes of self-governing commons despite the lack of government support.

However, recent studies have come to argue that the different institutional arrangements do not necessarily operate in isolation. The involvement of the state in particular, is in fact highly necessary if not inevitable, given that the creation and enforcement of resource management rules falls under the purview of the government. Nevertheless, the combination or interaction of the different institutional arrangements is yet to be discussed thoroughly in the literature

One of the most iconic models of successful local-level management is the community-based irrigation system. These irrigation systems are usually of small-scale and managed by the community through self-organized institutional arrangements. Given that majority of the world's poor rely on small-scale farming which is also highly reliant on small-scale irrigation systems; the study of community-based irrigation is invaluable for ensuring a sustainable livelihood for local communities. Many of these community-based irrigation systems were originally constructed without government support, however, the growing trend of decentralized resource management schemes, as of recent, lead to increased interaction between the state and self-governing irrigation commons.

There are several criteria established criteria to measure the success or failure of institutions such as efficiency, equity, effectiveness, etc. However, based on review of literature and field survey two indicators have been identified as appropriate for local context of Northern Sagada. First indicator is the number of cultivated paddies and second is the quality of irrigation canals. These two physical conditions served as benchmark indicators for the 'success' of irrigation management. Based on the results of 82 semi-structured interviews and self-assessment of the physical conditions of the canal and the service area of the irrigation system, it was found that current management was failing. Further investigation revealed that the local farmers themselves are highly aware of this situation.

To address the emerging problems in the management of community-based irrigation in Northern Sagada, Philippines this study focuses on the diagnostic evaluation of institutional arrangements for managing irrigation. Two interrelated questions are raised for the study. First, why it is difficult for local irrigators to change existing institutions despite acknowledging that they are no longer effective? Second, how can the role of the state be improved to further reinforce self-governing institutional arrangements that are necessary to avert the tragedy of the commons?

In pursuing these research questions, the present study adopts a social constructivist approach to analyze the changes in the collective management of community-based irrigation. The focus on qualitative method was driven by the research goal of emphasizing the subjective viewpoints of different stakeholders. This provides an opportunity to gain a deeper understanding of the different ways people experience, interpret and act upon their realities. The most important source of primary data for the study is the in-depth interviews with key informants representing those who are most knowledgeable of the historical development of local institutional arrangements for irrigation management. This is further complemented with semi-structured interviews (n=82) and survey questionnaire (n=120) to validate and confirm the findings of the key informant interviews with a larger number of sample and more diverse age representation.

Findings of the study show that to encourage community participation, the state employed a consultative and bottom-up process in the establishment of Irrigators Association (IA), which aims to strengthen the institutional development of community-based irrigation. This participatory process allowed the community of users to harmonize the organizational structure of IA on existing irrigation institutions such as the *dap-ay* which is the traditional socio-political institution in the community, and *barangay*, the local unit of state governance, which enhanced the legitimacy of IA rules. However, the co-existence of IA, *barangay* and *dap-ay* also inadvertently resulted to a complex institutional arrangement where transaction cost for monitoring other users becomes very high. Since individual users cannot afford the high cost of monitoring, the level of distrust between users is increased. The high level of distrust increases the cost of bargaining and negotiation which ultimately increases the cost of construction and enforcement of rules. The study concludes that state intervention could serve to improve user self-governance by investing on trust-building between the users to increase their confidence in investing in collective activities. This would also keep transaction cost low and enable users to modify existing resource management rules when needed.