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Reviews of Web Sites, CD ROMs, Books

Governing Irrigation Systems in Nepal. Institutions, Infrastructure, and Collective Action. By Lam Wai Fung. ICS Press, Oakland, California, 1998. viii + 274 pp. US\$24.95. ISBN 1-55815-505-8.

At the dawn of a century in which water will be one of the main issues involved in responding to the needs of an increasing population, Lam's book deals with important issues such as the factors influencing irrigation performance and collective action. Thus, even if the analysis is based on case studies from Nepal, the full implications of the book lie outside these geographical limits with regard to the methodological approach as well as political implications.

It is evident from the book's first line that Lam takes a position against the "conventional policy analyses (that) normally address irrigation governance and management in terms of the technical aspects in irrigation systems" (p 1), showing that the research was carried out at a time (fieldwork in 1992) when irrigation management transfer policies and collective action theories were in their early stages. The aim of this research is to advance arguments and demonstrations (using statistical tools) against the technical approach to irrigation management and to propose an institutional approach ("if institutions are a key to understanding irrigation performance," p 6).

Lam champions the idea, which is one of the book's strongest conclusions, that the performance of irrigation derives more from water management institutions than the degree of modernity and sophistication of the hydraulic infrastructure. Indeed, sophisticated engineering infrastructure such as permanent headworks tends to bring about lower levels of performance. By increasing the water diversion capability, such structures exacerbate the asymmetries between head enders and tail enders in terms of access to water; this also affects interest in collective action and unbalances the bargaining power of each group. The implication of such findings is huge for irrigation development projects and the apportionment of funds between the construction of the irrigation network on the one hand and organization and maintenance of the system on the other hand. Lam also suggests "a critical assessment of the local situation before an engineering infrastructure is constructed" (p 204) in order to know how farmers are able to organize themselves and then how sophisticated the infrastructure should be.

Moreover, Lam seeks to answer the question of how institutional arrangements affect the performance of irrigation systems in Nepal. The underlying problem is to understand how to improve the performance of the agency-managed irrigation systems (AMIS). Such systems, built and managed under the responsibility of the Department of Irrigation (DOI), generally meet with constraints in terms of technology, physical condition of the network, water delivery and agricultural productivity, especially compared with farmer-managed irrigation systems (FMIS). The author seeks to understand the factors that explain this difference in irrigation performance. Hence, his research fits into the stream of irrigation studies that attempt to learn lessons from the manner in which farmers manage FMIS, considering above all AMIS and FMIS as irrigation systems with common features.

To answer the aims of his study, Lam focuses on 2 directions that constitute the 2 parts of the book. The first (Chapters 2 and 3) deals with collective action and the influence of the type of governance on individuals' incentives. In this part, Lam gives a remarkable description of the functioning (and lack thereof) of the DOI and of the problem of corruption as a real system from which it is difficult to escape. He analyzes the points that make cooperation between the 2 “teams”—farmers and DOI officials—difficult in the management process, emphasizing that this should not be a reason for the privatization of the service.

The second part (Chapters 4–6) deals with a statistical analysis of 150 case studies from the database of the Nepal Irrigation Institutions and Systems (NIIS) project. The first step in this analysis (Chapter 4) is a definition of the concept of irrigation performance, based on 3 dimensions (physical condition of the infrastructure, water delivery, and agricultural productivity) whose variables are tested. In Chapter 5, using regression models, Lam analyzes the effect of various institutional, physical, and socioeconomic variables on irrigation performance. Some rival hypotheses that could explain the difference between AMIS and FMIS are tested in Chapter 6.

These 2 parts are introduced by a chapter that outlines the theoretical context and background, such as the logic on which collective action theory is based, a presentation of the characteristics of common-pool resources (nontrivial exclusion, subtractibility, prisoners' dilemma game), and the notions of team production and coproduction.

The most important chapter for development and irrigation turnover process is the conclusion (Chapter 7), in which the results of the previous parts are used to make proposals for irrigation policies. Among these, and apart from what has come before, we notice the need for efforts to help farmers enhance their capability to work together and to avoid a dependence mentality rather than imposing rules on farmers (pp 192–193); a better distribution of irrigation tasks between farmers and officials, especially to avoid officials being involved in water allocation, as they do not have accurate information about its socioinstitutional aspects (p 200); the need for information and rules commonly accepted and negotiated instead of institutions as formal rules on paper (p 204); the need to take local institutions into account (p 204); and the need to give some autonomy to water-users' associations in order to avoid them being perceived as imposed by the government (p 208).

The book is notable for its honesty and clarity in the description of the scope of the study and in the presentation of results as well as for the caution taken in announcing conclusions based on these results. Unfortunately, there is no map to locate the sites or even the district names.

Some gaps must be recognized. First, there is very little information about the institutions themselves, how they are organized, how they work, how diverse they are, and whether there are any fundamental differences between those of FMIS and AMIS. There is a need for some anthropological analysis of these institutions in order to understand the various viewpoints that the author mentions (“from the farmers' perspective...”) as well as analysis of the social dynamics that drive the institutions. Second, as with much research on collective action theory, historical aspects are neglected. When an attempt is made to integrate them, it is done awkwardly; for example, the ages of the various irrigation systems are supposed to relate to the historical evolution of the influence of factors analyzed without taking into account the development policies or other historical factors that might have influenced the management of the systems. Third, there is no reference (confirmation or invalidation) to the analysis of [Yoder et al \(1987\)](#), which states that, in the hills of Nepal, the degree of organization is higher

when the main canal is long and requires a lot of maintenance work—the need for manpower for repairs explains the cooperation and the stronger organization. In the same way, the present research does not take a clear position regarding the theory that gives importance, in the explanation of collective action, to ecological data, risks, and difficulty with access to water.

The statistical approach also raises some questions. The problem it refers to is the definition and the measure of the efficiency of an institution. Lam defines irrigation performance in a convincing manner, but the measure of the efficiency and of the variables affecting performance is more subjective. Lam's interpretation seems consistent but sometimes falls victim to the figures and the meaning behind numbers and variables. For example, the dichotomy of Terai vs non-Terai irrigation systems with regard to the natural physical terrain could be discussed (river systems in the hills under natural conditions are closer to the Terai system than to the mountain system), and more accurate variables could be chosen to refer to ecological situations. Another example is that of water delivery, interpreted as concern with appropriation problems of water distribution and allocation (p 101)—and not with the physical problem of water delivery—which are a major difficulty in many AMIS. Figures are often perceived as more convincing and reassuring than qualitative arguments, even if they refer to vague categories (low, moderate, high).

Even if one does not completely agree with the approach proposed, the implications of this book for development policy are undeniable and the conclusions are important. I appreciate that the conclusion states the following fundamental points: “cooperation among individuals is not automatic” (p 187), “no recipe exists that will enable farmers to develop a reciprocity” (p 207) and “no recipe exists for the best configuration of institutional arrangement that fits all situations” (p 191). These conclusions remind us that managing water is an art involving both technical and social aspects, evolving within an historical and socioeconomic context that is different in each local situation.

REFERENCE

Yoder R., Martin E., Barker R., Steenhuis T. 1987 *Variations in Irrigation Management Intensity: Farmer-Managed Hill Irrigation Systems in Nepal* Water Management Synthesis II Project Report 67. Kathmandu: USAID

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