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# Governing Irrigation Systems in Nepal. Institutions, Infrastructure, and Collective Action / Lam Wai Fung

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anteed, in part due to this enduring political and social power of a neolatifundista class dominating regional politics.

The remaining 6 chapters, constituting the second part of the book, concentrate on the Lake Titicaca region, especially the 2 communities of Chua Visalaya and Llamacachi, to explore questions about the reform's lasting impact on community development efforts and the quality of life for Aymara families. Benton's 1971 field work with hacienda "ex-colonos" and others provided the basis for a "before and after" examination of the reform by comparing the post-1953 situation to conditions of production, marketing, and human dignity and welfare under the hacienda system. However, several anomalies in the situation uncovered by her research give the analysis some ironic twists. The traditional hacienda in question failed to fit the classic profile of a socioeconomic institution that was technologically backward, as it deployed an array of improved seed, mechanical equipment, pedigree livestock, and modern management practices.

Also, only 1 of her 2 studied communities had been previously incorporated into the hacienda system. Llamacachi had always remained independent from the estate system under the juridical status of a "comunidad originaria." These 2 communities, with their distinctive historical experiences within the same basic locality, enabled Benton to set up an interesting comparative research design. She found that, during the post-reform period, Llamacachi had achieved community development success by promoting onions as a new commercial crop through the new marketing channels for peasant producers opened up by the reform changes, while Chua Visalaya demonstrated a sluggish response to the new marketing opportunities.

The agricultural extension and other service programs of the Inter-

american Agricultural Services (IAS) (formerly a US government entity) delivered chemical fertilizers, improved potato seeds, pedigree sheep livestock, chemical insecticides, and pesticides to Aymara farmers in a timely fashion, which also tended to benefit Llamacachi rather than Chua Visalaya. Benton finds that the legacy of a paternalistic hacienda system may explain these differential responses to new economic opportunities. The impressive pride of the Llamacachi Aymara is illustrated by their unwillingness to allow their daughters to assume subordinate roles in domestic servant employment in the capital. Benton adds that, instead, these entrepreneurial women themselves were too busy "running their own businesses" to consider such low-status employment. The irony in this story is that the road to socioeconomic progress, rather than being paved with new land rights, resulted from collateral changes released in the countryside by the overall reform effort.

However, in the subsequent chapters, based on Benton's revisits to the 2 communities at different intervals over the 1980s and 1990s, this picture of agricultural modernization and material gain (eg, acquisition of various household consumer goods) by peasant families from the agrarian reform undergoes a reversal from anti-agricultural public policies (especially neoliberal ones) and other factors, sending the communities into ever increasing economic, social, and ecological stress. It is here that the issue of environmental sustainability—which had not been addressed in her agricultural modernization assessments in 1971—becomes central to tracing the 1953 agrarian reform's lasting legacy. Ongoing land fragmentation, labor shortages due to increased urban migration, overgrazing sheep, inappropriate tractor mechanization, changing land use patterns, and declining nutrition

combine to signal an overall bleak future for lakeside farming.

This latter, more pessimistic depiction of the lakeside communities also appears to call into question—at least implicitly—several of the technologies behind the positive gains promoted by the IAS program prior to the decline of such services and the resultant community changes. Thus, Benton's positing of the sequence of socioeconomic change in the postreform period in the Lake Titicaca communities is one in which farming and related community life got considerably better before it became worse in its current precarious condition.

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**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 theoretic-

cal 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

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## Growth, Poverty Alleviation and Sustainable Resource Management in the Mountain Areas of South Asia

By M. Banskota, T. S. Papola, and J. Richter, editors. Kathmandu, Nepal: ICIMOD; Feldafing, Germany: German Foundation for International Development; 2000. 590 pp. US\$15 (developed countries, agencies), US\$10 (developing countries). ISBN 3-934068-36-7.

This large compendium of “development” papers on the Hindu Kush–Himalayan region represents the proceedings of an international conference held from 31 January to 4 February 2000 in Kathmandu, Nepal. It was organized jointly by ICIMOD and its major sponsor, the German Foundation for International Development. There are 20 papers arranged in 5 parts: Part I—Perspectives and Issues (chapter 1); Part II—Overviews (chapters 2–8); Part III—Economic Opportunities and Options (chapters 9–13); Part IV—Land Systems and Natural Resource Management (chapters 14–17); and Part V—Access, Equity and Linkages (chapters 18–20).

As with most publications of this kind, there is a wide range in the quality of the individual chapters. Some are excellent, well-written scholarly contributions (especially those by Kreutzmann, Acharya, and Jodha, chapters 18–20). Some include valuable socioeconomic, demographic, and natural resource use data sets, and these alone make the acquisition of the book worthwhile. There are also some mundane, even trite, and parrot-style chapters and some banal country propaganda. This wide variation is not surprising when one considers that the contributors include recognized international scholars at one extreme and country-level bureaucrats at the other.