BOOK REVIEW

NEW INSIGHT TO INSTITUTION DESIGN: THE INTERNATIONAL EXAMPLE OF IRRIGATION SYSTEMS MANAGED BY FARMERS

Elinor Ostrom, Crafting Institutions for Self-Governing Irrigation Systems. Institute for Contemporary Studies Press, San Francisco, California 1992, pp. xiv + 111.

Elinor Ostrom has analysed large- and small-scale irrigation systems around the world and argues that the relationships between water users and irrigation managers are just as important as well-constructed engineering facilities. The author describes several self-organised irrigation enterprises, many of which have been operating for hundreds of years. She points out that not all technically advanced irrigation systems have produced the projected outcome. Instead, invested capital has often been wasted as the result of institutional failure. She further claims that many future efforts should be directed towards improving the performance of existing systems rather than constructing new ones. The central thesis of the book is that the *crafting of institutions is an ongoing process that must directly involve the users and system suppliers throughout the design process.*

From 1950 to 1980 an almost three-fold increase occured in the total irrigated agricultural area throughout the world. The World Bank alone provided over $11 billion between 1947 and 1985 for that aim and another $7.5 billion for other projects that included substantial irrigation components.

One problem of large-scale irrigation projects has been the unrealistically optimistic design. The planned area to be irrigated is frequently much larger than the actual. Much of the land presumed to produce two crops has produced only a single crop. Agricultural yields have also been overestimated. Another problem has been the underinvestment in operation and maintenance. Routine maintenance has often been neglected, requiring later rehabilitation.

The initial plans of many irrigation projects in developing countries have focused on engineering designs. It has been assumed that large projects produce the largest benefits. However, there is considerable evidence to suggest that small projects have a higher potential for substantial returns than larger ones though in developing countries politicians may win more votes from large projects. The problems connected with design, construction, operation and management of large irrigation projects made international agencies and national governments re-evaluate their strategies. In 1973 the Asian Development Bank was one of the first agencies to emphasize the active participation and cooperation of individual farmers, followed by USAID in 1983. In the 1990s, many agencies are interested in farmer-managed irrigation systems.

The book presents examples of successful community-managed irrigation systems in Columbia, Indonesia, Mexico, Nepal, Peru, the Philippines and Spain. For instance, Mexico has about fourteen thousand farmer-owned irrigation systems. The farmers manage the system, perform maintenance and pay the operation and maintenance costs.

There are also examples of failures of farmer-managed irrigation, for instance, from India where water user associations were designed just on paper. Although farmers came to the initial meetings, no real organisation was born.

The world population has increased steadily since 1950, but agricultural yields have outpaced it. However, unless far more effective irrigation institutions are designed for the future, it is unlikely that higher agricultural production will continue to match the increased population growth in the developing world.

According to Ostrom, the term "institution" can refer to a specific organisation in a country such as a department of irrigation; it can describe human relationships in a society; or it can describe the rules by which individuals arrange certain mutual relationships. The book uses the term "institution" in the third sense. In many irrigation systems three types of opportunism may occur: free riding, friend seeking, and corruption. Such human weaknesses can never be totally eliminated but institutions can be devised so as to hold them in check. To disencourage opportunistic behaviour, coordination, monitoring and junctioning may have to be increased.

The term "crafting" emphasizes 1) the artisanship involved in the design, operation, appraisal, and modification of rule-ordered behaviour, and 2) the ongoing nature of "getting the process right". There is no "one best way" for organising irrigation activities. Rules governing the supply and use of irrigation or any particular physical system must be devised, tried, modified, and tried again. Therefore the choice of institution is not a "one shot" decision but rather an ongoing activity.

Major studies on self-organised irrigation systems throughout the world show that there is a wide variation in the rules-in-use. Nevertheless, the author stresses the following design principles:

1: The boundaries of the service area and the individuals or households with water use rights should be clearly defined.
2: Rules specifying water allocation should be related to local conditions.
3: Most individuals affected by operational rules should be included in a group that can modify these rules.
4: Monitors should be accountable to users and/or be users themselves.
5: Monitoring and junctioning should not be undertaken by external bodies but by the participants themselves.
6: Users and officials should have rapid access to local arbitration to resolve conflict between users or between users and officials.
7: The right of users to device their own institutions should not be challenged by external governmental authorities.
8: Appropriation, provision, monitoring, enforcement, conflict resolution and governance activities should be organised in multiple layers of nested enterprises. Large long-enduring

educational systems should be used. Small-scale workteams help prevent free riding because everyone monitors everyone else (social control).

Ostrom points out that self-organisation does not guarantee that optimal institutions will be crafted, nor will all systems get a set of rules that adequately addresses their problems. Analyses of failed attempts suggest deficient awareness of the existing institutions by project designers. All forms of opportunistic behaviour are shown where an abundance of funds is available for the construction of new and often large-scale irrigation projects providing subsidised water. Irrigation suppliers have faced exactly such a political and financial milieu during the past forty years in most developing countries. Developed countries have donated vast amounts of money to the developing ones. Yet, fees collected from farmers served by government-operated irrigation systems have been insignificant in many countries.

A recent study of six developing countries showed that in only one case did the collected fees equal or exceed the operation and maintenance costs of the systems. None of these countries collected enough to cover even a part of capital costs. The fees paid to private well operators demonstrate farmers' willingness to pay much more than the current subsidized price. However, proposals to raise user fees in government-owned irrigation systems meet strong opposition among farmers, politicians and irrigation officials. Farmers oppose fee increases because they would have to pay substantially more for water while land values would fall.

Water fees should be tied to system performance. If fees are not related to the availability of water, farmers may have to pay for water they never receive. Besides, in many developing countries, water fees are considered general income by national governments and are not channelled back to irrigation. Reforms involving the use of fees will always generate strong opposition.

Many similarities can be identified between user-managed irrigation systems in developing countries and water supply and sanitation systems funded by international development agencies over the last few decades. Especially bilateral agencies have for the last decades supported large, centrally-managed rural water supply systems based on free, or almost free, supply. It was not until the end of the 1980s that these agencies and developing countries started seriously speaking about cost-recovery. Like the users of irrigation water, domestic water consumers are also much more willing to pay for operative service than previously believed. There is also a long tradition of user-managed water supply systems e.g. in Denmark, Finland and the USA. One of the keys to success is the "champion", an individual manager who typically promotes the system and is often in charge of implementation and even operation. In user-managed irrigation systems social control seems to be very important, especially for the operation and maintenance of the systems.

In summary, the author points out that institutional improvements will require much time and work - decades rather than years.

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