

Paper 7

Institutional Adaptation and Institutional Change

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INTRODUCTION AND SCOPE OF THE PAPER

THIS PAPER EXAMINES institutional issues that face irrigated agriculture in the Asian region in response to changes in the irrigated agriculture sector. The rapid developments in irrigated agriculture in the past three decades have been achieved with remarkably little change in the institutional setting for agriculture, in organizational arrangements, or in irrigation technologies.

It is unlikely, however, that this slow rate of institutional modification can resist change much longer. Dramatic changes in agricultural policy, the reduced profitability of foodgrain-based agriculture versus nonagricultural opportunities, the rapid increase in competition for scarce water and other resources, all lead to pressure on institutions to change. These changes will have to be of two types: internal changes in organization, procedures and general operational performance to try to keep irrigated agriculture profitable and an efficient user of scarce resources, and changes in the nature of the institutions themselves that will result in a variety of institutions very different from the traditional, paternalistic public works organizations.

During the coming decades there will have to be considerable experimentation with different modes of ownership of irrigation infrastructure and agencies and other services traditionally provided by governments. Possibilities include private corporations, farmer-managed commercial ventures, stronger links with agribusiness and decentralized planning and management bodies for water allocation and utilization, all of which contrast with current institutional arrangements.

INSTITUTIONAL RESPONSES TO CHANGES IN IRRIGATED AGRICULTURE

The 1960s marked the start of one of the greatest revolutions mankind has seen. Faced with the specter of mass famines throughout Asia, vast sums of money were provided for agricultural research, for production of improved inputs in the form of fertilizers, pesticides and other agricultural chemicals, and in the provision of millions of hectares of new irrigated lands.

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The results of these investments were dramatic. By the 1980s many countries had moved from being net importers of rice (Indonesia was the world's largest importer of rice in the early 1960s) to conditions of rice self-sufficiency. With the overall threat of starvation effectively eliminated, at least at national level, countries began to experiment with a range of different scenarios for the irrigated agriculture sector.

Typically, these policy changes related to the production side of agriculture: crop diversification became a policy common to many countries in the region because rice was sufficiently abundant that prices stagnated, or were deliberately kept relatively low as a subsidy for urban consumers. Policies aimed at changing cropping patterns have not, by and large, been so successful as that of the simpler policy of national rice self-sufficiency. This is partly a reflection of soil and other physical conditions that make change from rice to non-rice crops difficult; partly because many farmers have chosen to continue to enjoy the relative security, albeit with low profits, of rice production; partly because of off-farm income opportunities or labor shortages; and partly because the institutional requirements to support crop diversification are different than those for intensive support for monocropping.

Monoculture is easy to support institutionally: the range of inputs required is limited; farmers can quickly adapt to a particular cropping technology; marketing and pricing can be relatively easily focused and controlled; and extension agents can focus on a single package of advice. But shifting to diversified cropping systems in the present institutional setting has proven difficult and disappointing.

At the same time, the glamour of large investments in agriculture began to fade: lending institutions began to seek alternatives such as support for privatization of government services and institutions, sector support rather than specific infrastructure projects, and structural readjustments that aim at reducing public service expenditures as a way of easing the debt burdens of most countries. Yet, in the agriculture sector, the response to these changes has been small compared to those in other sectors that have a more commercial, profit-making orientation.

The pressures that divert investment and interest away from a relatively conservative and slow-growing irrigated agriculture sector are only going to grow stronger: competition for profitable investments, the attraction of high returns in the industrial sector, the willingness to start to reduce subsidies for operation and maintenance of facilities for irrigated agriculture, greater awareness of the economic value of water in different sectors, are all forcing agencies concerned with irrigated agriculture to take a new look both at how they go about their day-to-day business, and at how they organize themselves to do this efficiently and effectively. The rest of this paper examines this latter problem.

The next section on *Institutional Modification to Meet Future Challenges*, presents a few options for reorienting existing irrigation management agencies through internal modification. Some of the options of this section could pave the way or accompany more fundamental reforms. The section on *Fundamental Institutional Change* (p 110) considers several options for more fundamental reform.

INSTITUTIONAL MODIFICATION TO MEET FUTURE CHALLENGES

The model of a public works-type of organization proved highly effective in meeting the expansionist challenges of the past two to three decades. In this type of environment much of the organizational dynamism was generated through the development of projects that carried with

them opportunities to expand departmental budgets, increase staff and establishment, and the chance to see concrete results in a short period of time.

As the number of opportunities for projects diminishes, organizations find themselves facing a potentially difficult choice. Some organizations have attempted to continue to develop new project proposals, both because this is what they are comfortable with and because it is the only way in which staff levels can be maintained. No agency voluntarily cuts staff. However, the search for new money to finance new projects is difficult: money is scarcer, projects are frequently more complex, and they are often marginal in terms of economic returns compared to investments in other sectors.

Some organizations have taken the harder decision, namely, to try to make internal modifications that can help meet the challenges imposed on them from outside.

The following selection of internal modifications is not comprehensive, nor is it suggested that any one agency has to adopt all of them. They represent options or choices that policymakers at sector level and senior managers of concerned agencies can consider in an effort to keep their own organizations alive and responsive into the future.

Performance Responsiveness: Breaking the Administrative Mode

Many irrigation agencies have been able to continue to attract both project and recurrent funding support with little regard for actual performance levels. Effectiveness and efficiency of water use, of staff, or of the O&M budget are rarely assessed in an objective way, using feedback from reliable data on performance.

This general lack of responsiveness to performance is characteristic of agencies that are administrative or bureaucratic in nature. In these less-progressive institutions the concern is with the management of inputs and ensuring the conformity with rules and regulations rather than on whether a set of objectives is being fulfilled.

Any well-managed organization has some kind of cycle of objective setting, development of short-term operational targets, monitoring short-term performance to assure the targets are met, and periodic evaluation to determine whether the objectives were both appropriate and feasible. Yet it is common to find agencies that have great difficulty in defining their objectives clearly, and where targets have become routine and stereotyped. Under such conditions, performance data are rarely collected systematically, it is rarely accurate, and the gap between "formal rules" and "informal reality" steadily widens.

Responsiveness to performance is not limited to output from irrigation systems or the irrigated agriculture sector. It is also concerned directly with the performance of individuals in the agencies, in terms of their efficiency, their capacity to set objectives, fulfill targets, and be honest about their own inputs into the management process. This means not only a greater focus on human resources development, including management training that redefines roles and relationships within an agency; it also has to address rewards and incentives.

An administrative orientation is one that gives little reward for personal initiative and innovation. Promotion is based on longevity of service rather than on performance, and compliance with rules is given greater recognition than innovation. Salaries are based on rank and years of service rather than as a measure of contribution to the organization. There may be specific disincentives for those who try to work hard, try out new ideas, and search for change and dynamism.

The contrast with business is striking, yet it is the world of business and privatization that is attracting the greatest investment and interest these days. At least in part, this is because the financial risks and potential benefits can be more clearly identified, and there is less chance of supporting inefficient monopolistic style enterprises.

Assessing Performance

The shift towards a more performance-oriented organization requires useful and effective performance measures. Traditionally, there has been a great emphasis on the measurement of agricultural output, normally incorporating such indicators as irrigated area, yield, cropping intensity, or irrigation intensity. In part, this reflects the economic focus of new project development where there is significant pressure from donors or lenders to ensure that expected project benefits have been achieved; in part, it reflects the concerns of the agriculture sector objectives.

However, performance assessment measures for other aspects of the concerns of agencies are much less well developed. It seems surprising that with increasing concern over water resources, and the loss of water from the agriculture sector to other sectors, that measures of water use efficiency and water delivery performance are rarely developed or adopted by agencies. Methodologies for assessing water user efficiency and water delivery performance exist; if the objectives are specified, performance assessment measures can be readily identified. But these measures are rarely used in routine management—in fact, some agencies do less assessment of water delivery performance than they did in the past.

Similarly, with increasing concern over the level of funding, particularly for O&M, expressed at numerous forums on irrigation management issues, few agencies use financially based performance measures. This is the equivalent of a business continuing to produce a product without assessing the costs of production and distribution. Such “business” used to exist in the former Soviet Union. Irrigation management is big business; and basic business management principles need to be adopted for assessing and improving performance.

Changing Operational and Maintenance Procedures

Many irrigation agencies have found it difficult to modify operational or maintenance procedures in response to changing water availability or new agricultural policies. Although many countries have adopted policies of crop diversification away from rice to other potentially more profitable crops, the operational procedures of most agencies have not changed. The requirements for crops other than rice are sufficiently different in terms of overall water requirements and scheduling that alternative operational practices need to be adopted. These practices require more intensive operations and monitoring, with more precision in terms of the timing and amounts of water delivered. Agencies that do not make these changes in response to farmer interest in growing other crops end up delivering more or less the same volumes of water along canals irrespective of whether rice or non-rice crops are being grown.

A contributing factor to this situation is that agencies that continue to adopt a more administrative approach are more concerned with calculating likely requirements than assessing the situation in the field and making operational adjustments accordingly.

Maintenance procedures rarely change, even though the available budget may be inadequate or inappropriate. Instead, the quality, frequency and quantity of maintenance work are continuously reduced as budgets decline. Again, the expansion of recent years helped mask some of these problems because of the comparative ease of securing funds for rehabilitation of deteriorated systems. As these projects become less numerous, managers will be forced to be more efficient and focused in the use of limited maintenance budgets.

Technical Skill Development

A somewhat depressing characteristic of many agencies is that they are less well equipped to manage systems effectively than they were before the recent period of expansionism. This is partly because many staff of the agency have been more involved with the design and construction

component than with the operational or maintenance aspects, and partly because the lack of concern with actual performance carries with it the lack of interest and capacity for using certain special skills.

This is probably seen most clearly in respect of hydrology and hydraulics within a number of irrigation agencies. The capacity to measure water, which was already scarce, has declined significantly in recent years. The capacity to utilize forecasting and other techniques to better assess probable water supplies is also noticeable by its absence. Irrigation management agencies cannot argue their case effectively for maintaining their share of scarce water supplies if they cannot measure it very well.

Similarly, few agency staff have experience or training in alternative scheduling arrangements, and thus are likely to follow routine procedures for canal operation rather than adopt innovations.

In another direction, the capacity to adopt modern technology is relatively limited. Only slowly are computers being adopted for day to day operational support; remote sensing or use of Geographic Information Systems is almost unknown, so opportunities for more rapid data retrieval and processing are being missed. This reflects the lack of interest in measuring performance, or improving efficiency of operation or maintenance, as well as the inadequate technical capacity of agency staff. There is a depressing record of projects that introduce modern conveyance and control technology in irrigation systems and then let it fall into disrepair because of the inability of agencies to provide adequate operation and maintenance.

Reorganization to Meet New Priorities

Changes in sector-level objectives and priorities have rarely been reflected in changed organizational structures of agencies. An institution intended to fulfill one set of objectives may be poorly equipped to meet changed objectives or priorities.

The rapid decline of new irrigation development and greater concern for water resource management issues and financial efficiency have not been reflected in organizational structures: design divisions still exist even where design work is limited or nonexistent. System design is frequently undertaken far away from the site itself thereby limiting opportunities for inputs by system managers and water users. It remains common for managers charged with system operation and maintenance to merely inherit a system without prior contact with the design staff, and for design staff to have had no operational experience which they can incorporate into their subsequent work.

A similar situation arises in respect of water resources allocation. Agencies charged with water resources planning are normally separated from the agency charged with operating and maintaining irrigation systems, yet the system manager is a major participant in the annual or seasonal cycle of water allocation to farmers and other users. Where water is scarce, then the planning, allocation and implementation of activities associated with water use have to be planned together rather than disjointed between agencies, or even within a single agency.

In many countries there is a strong trend towards promoting irrigation associations and turning over responsibility for management of lower portions of systems to farmers; some countries have also implemented joint decision making at higher levels of large irrigation systems. But few irrigation management agencies have reorganized themselves to work effectively with farmer organizations.

Research Capacity

In comparison with commercial enterprises with the same gross turnover, the irrigation sector spends remarkably little on research and development for new ways to improve service and

resource use efficiency. The agriculture sector has, by comparison, spent a great deal more on seeds, fertilizer and plant protection technology research.

Where agencies do have a research wing it is almost inevitably hydraulic research or involved with determination of crop water requirements. In more recent times, there has been some acceptance of research that aims at improving existing procedures and activities. In a number of countries this is the type of research carried out by IIMI in its initial phase of work. However, this approach is limited in its capacity to bring about change: it may improve efficiency but there is little institutional change involved.

More fundamental collaborative research activities are much rarer. Typically, these would involve an agency articulating its long-term policies and objectives, and then sitting together with universities and other research institutions to try to find innovative solutions. The capacity of irrigation agencies to interact with research organizations is small, and there are few organizational structures that include opportunities for manager-researcher interactions. Irrigation agencies have limited capacity to identify research needs, determine what research has been done, and make use of research results. This is severely constraining the capacity to innovate and adapt to changing pressures.

Finally, there are few—if any—irrigation organizations that have “think tanks” or similar visionary groups that can help senior policymakers in their task of deciding what directions to pursue, and what the implications are of different alternatives.

FUNDAMENTAL INSTITUTIONAL CHANGE

In recent years, there have been a number of dramatic changes that fundamentally affect the very nature of irrigation organizations. These changes normally result from major changes in government policy towards the irrigated agriculture sector, the rural sector, or even in the basic philosophy regarding the appropriate role of the government itself.

Almost every country seems to be in the process of change or experimentation with innovative organizational forms in various sectors. Here again, the irrigated agriculture sector seems more conservative in Asia—though not in other regions of the world. Nevertheless, each of the following types of change in the irrigation sector is being attempted somewhere in Asia.

Decentralization

Decentralization refers here to the transfer of responsibility for irrigation management and provision of agricultural support services from central government to provincial, regional or even local level. This type of move has two sets of implications. The first is that control over staff responsible for operation and maintenance of systems may pass to the civil administration, taking them away from the relative security of a technologically oriented agency.

The second is that the same adherence to nationally developed regulations, guidelines and procedures may weaken. In principle, this provides an opportunity for greater flexibility and innovativeness by O&M staff. It may also provide fewer opportunities for transfer to lucrative postings, and more focus on the less-glamorous but essential O&M tasks because the smaller administrative center may generate fewer project funds. With decentralization, the central irrigation agency may survive, but with reduced resources and power, and with entirely new functions. Or it may not survive.

Turnover of Operational Responsibility

Joint management of systems has spread throughout the region to some degree or another. Although the process whereby responsibility for operation and maintenance of increasingly large portions of irrigation systems is transferred to farmers or water users seems at first an attractive solution to financial and manpower problems within agencies, this has proven an elusive goal.

A significant reason for this elusiveness relates to the changed role of agencies. When O&M responsibilities for farmers were confined to within a tertiary block, agencies had little direct incentive to involve farmers in true joint decision making. There were, and still are, nominal attempts at consultation, but in practice the technical concerns of the government agencies still outweigh the interests of farmers.

It will be a major change for most irrigation agencies to actually transform themselves from this rather paternalistic role to one of supporting democratic forums of irrigation districts or associations similar to those found in Northeast Asia, Europe or the United States. This involves sharing, or transferring authority and are entirely a new kind of relationship with farmers, who become active customers rather than passive supplicants.

It seems unlikely on present evidence that agencies are really capable of making such a dramatic change. There is little evidence to date that agencies have made the change in attitude in the policy-planning-resource allocation processes that precede and support routine operation and maintenance decisions. The same decision-making processes are unlikely to be effective in supporting a significant change in roles between agency staff and water users.

Privatization

A recent trend in certain countries has been the privatization of state monopolies. A few years ago it would have been almost inconceivable to imagine telephone companies, national airlines, water and other typical monopolies being offered for sale to private investors.

If irrigated agriculture is in principle profitable then it can also be considered a potential candidate for privatization. This is a complex issue, which cannot be dealt with fully here. It may involve changes in water rights, so that operating companies can charge for their services as wholesalers of water to individuals or groups of water users. It may conceivably involve creating companies, with farmers as owners (by owning stocks), which replace public works-type agencies entirely. These may acquire ownership rights to infrastructure or may lease them from the government.

Such changes are increasingly likely in respect of urban water supplies. Assuming that water resources as a whole are to be treated as a single commodity, then it is likely that irrigation water sales will be included in the total package. The experience of the United States and Europe is that it is very difficult to deregulate one part of the water industry (normally urban and industrial water) while protecting another (water for agriculture).

Commercialization of Irrigation Agencies

The ultimate change in irrigation institutions is the commercialization of the irrigation sector. This is another step beyond privatization of existing systems. It may be a likely route if there is demand to adopt modern irrigation technology. In Europe and the United States the growth of sprinkler, drip and trickle irrigation is almost entirely the result of individual farmers interacting with commercial companies. In addition to providing the irrigation equipment, the same companies are involved in providing extension advice, computerized irrigation scheduling programs, and other facets of the technological package.

This type of change may require larger farm sizes than those found throughout much of Asia at present, but if the trend of land abandonment continues, it is not impossible to envisage land consolidation into larger, commercially sized units directly linked to agribusiness concerns. Indeed, agribusiness may take over the operation of the land.

CONCLUSIONS

It is not possible to predict which course an individual country may choose to take. This will reflect the complexity of the social, political, cultural and economic conditions, and the way they interact with each other at different times.

Some countries may adopt a policy of general disengagement from control over resources, preferring privatization, market forces, or other economic theories to guide their policies. Others will feel that the need for continued food security, the desire to stem urban growth, or the continued support of the rural sector merit some elements of subsidy, control or centralized direction.

One thing, however, seems certain. Change is coming and it cannot be prevented. The recent rapid transformation of the economies of the Soviet Union and Eastern Europe has demonstrated that major changes in attitudes to publicly managed enterprises can occur in a remarkable short time frame. This does not mean that the same rate of change will occur in Asian countries, but it is incumbent on policymakers and planners to predict change, to help guide it, and to be prepared for whatever eventualities actually occur.