



IFPRI

# FOOD POLICY STATEMENT

NUMBER 42, FEBRUARY 2005

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FOOD POLICY  
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## INSTITUTIONAL REFORMS IN INDIAN IRRIGATION

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Irrigation is critical to food security and economic growth in contemporary India. The performance of irrigation systems is of serious concern to farmers who rely on them for their crops and livelihoods and to governments that have invested heavily in their development. The most severe problems facing Indian irrigation systems are the increasing costs of new schemes, the huge backlog of incomplete schemes, and the increasing neglect of existing systems. Large-scale canal irrigation systems, in particular, are in poor condition: they are not properly maintained, operations are inadequate, water supplies do not reach the end of systems, and the timing of water supply is unreliable. The wide gap between actual and desirable performance threatens the sustainability of irrigated agriculture. How did this state of affairs come to pass?

### THE NEED FOR REFORM

As irrigation systems have expanded, their upkeep has become more expensive. Fiscal crises have made the subsidies required to sustain system operations and maintenance (O&M) unaffordable. Investment needs in other sectors have challenged the priority accorded to irrigation financing. The heart of the problem, however, lies in the institutional structure for irrigation management and the incentives for agencies and farmers.

Accordingly, in examining the nature and scope of the problems of large-scale surface irrigation in India, the authors of *Institutional Reforms in Indian Irrigation* focus on options for institutional reform and the outcomes of several pilot reform programs. They use qualitative and quantitative techniques to examine actual experience with irrigation reforms in India. They focus on two water-scarce states, Rajasthan and Karnataka, and two major irrigation projects within them to examine the existing irrigation situation, financing issues, and reform outcomes. The authors also examine comparative data on the factors affecting water users' associations and collective action in irrigation from 48 sites.

The authors conclude that institutional reforms must address the incentives of water suppliers and users and lead to new arrangements for joint management of irrigation. Reforms should be based on six principles: (1) the irrigation agency must be financially autonomous; (2) irrigation staff salaries must come from the fees charged for irrigation water; (3) the irrigation agency must be accountable to user groups; (4) third-party intervention in the form of an Independent Regulatory Commission for Canal Irrigation (IRCCI) may be necessary to prevent a deadlock between the irrigation agency and farmers when it comes to costs and incentives; (5) the primary tasks of the IRCCI should be to ensure transparency in contracts, obtain technical help, and act as a dispute settlement body; and (6) the pricing of water should be related to consumption to keep costs low.

### IRRIGATION MANAGEMENT

#### *Agencies*

Financially autonomous irrigation agencies, or nigams, are needed for efficient irrigation supply. Several states have initiated institutional reforms by setting up nigams. Empirical analysis of the performance of the nigram in Karnataka indicates that although it raised capital resources (through domestic bonds) and reduced the gestation lag that plagues

canal irrigation systems, fiscal and physical sustainability as well as performance have not improved.

This outcome relates to the structure and ethos of the existing nizam. In setting up the organization, little attention was paid to long-term performance of the system, full financial autonomy was not in place, irrigation rates did not cover O&M expenses, staff had no long-term identification with the organization, the nizam did not provide accountability to user groups, and farmers opposed the increase in fees because they had not been consulted. Nonetheless, the nizam approach has merit if implemented with proper objectives and structural changes, especially in ongoing irrigation projects.

### **Farmers**

Reforms to the irrigation agencies alone are not likely to improve system performance. Joint management between government agencies and water users is required. With local knowledge unburdened by bureaucratic regulations, users' organizations can be more efficient in carrying out critical O&M tasks. But for these participatory irrigation management (PIM) strategies to work, sufficient incentives must be in place for farmers to take an active role.

Several factors increase the likelihood that farmers will undertake collective maintenance and lobbying related to O&M. Farmers are more likely to carry out organized activities at sites where a canal serves one village, where temples or religious centers are situated, where larger command areas are close to markets,

where traditional leaders or college graduates live, and where community organizers provide initial leadership when collective action does not emerge spontaneously.

### **IMPLICATIONS FOR POLICY**

**P**IM programs hold considerable scope for improving system management, but they vary in scope and structure, thus differing in incentives and costs to farmers. Previous PIM policies focused on registering formal organizations with set responsibilities that focused on issues of concern to government. But organizations are not ends in themselves—farmers do much collective maintenance and lobbying without formal organizations. PIM policies, therefore, must address the concerns of users to ensure that farmers have sufficient incentives to participate.

First, legal changes must occur to empower user groups. If PIM programs are to make a major difference, user organizations need the authority to levy water fees, carry out maintenance tasks, and represent farmers' interests with government agencies. Without this authority, user groups will not be taken seriously by members or other organizations.

Second, clarifying and strengthening the water rights of user groups may provide one of the strongest incentives for farmers to participate in irrigation O&M. Currently, the government claims ownership of water in public canals. But if farmers pay an increasing share of the costs of the system, they become investors and should gain stronger rights.

Finally, the state will continue to provide critical services, especially water supply at main delivery points. But clear agreements should exist about who is responsible for maintenance activities. Maintenance activities that farmers perform are the most direct means by which PIM programs contribute to better irrigation system performance. Where farmers are involved in maintenance activities, the resources mobilized are significant—sometimes several times greater than the irrigation charges paid to the state.

These reforms are a move toward a new relationship between government agencies and farmers. Financially autonomous irrigation agencies, in which the staff depend on fees from farmers for their salaries, can make farmers into clients. If farmers pay for capital costs through levies, they should become shareholders in the system. And if farmers' organizations take on an increasing role in O&M, they should be seen as co-managers.

More than just structural changes are necessary to achieve adequate reform and improve the performance and long-term sustainability of irrigation systems. Changes in attitudes are also required in how government agencies view farmers and how farmers depend on the government. Effective partnerships require clear expectations, communication, and respect between parties. It is in the interests of farmers, irrigation agencies, and the society in general for India's canal systems to operate more effectively in the new millennium.