

Establishing Sustainable Financing for Operation and Maintenance of Irrigation and Drainage Services in Asia

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Introduction

Some 40 years ago, World Bank policy on cost recovery recognised that full cost recovery might not always be possible or desirable, so that other sources of finance might be required at least for an interim period while incomes grew as a result of project investments. The goals of irrigation charges were identified as ‘economic efficiency, income distribution, and public savings’.

In today’s terminology the first of these goals would translate as efficient allocation of water among competing uses and demand management. The second would include “pro-poor” questions: should allocations or charges be adjusted in some way to benefit disadvantaged groups. The third would relate to the proportion of costs (O&M, modernisation, rehabilitation, original capital costs, environmental costs, opportunity costs...) that should be recovered from beneficiaries. Thus we may observe that over this extended period, the principles are virtually unchanged, while the terminology has got a little more complicated and refined.

About 25 years ago, a World Bank Policy Note reported ‘growing concern over the efforts to recover the costs of investment and of operations and maintenance’ because ‘government efforts to raise resources have been typically weak’ leading to ‘inadequate funding for O&M’, and a review of conditionality and cost recovery confirmed that loan covenants were fully met in only about 15% of irrigation projects, and that recovery rates ranged from 0% to 100% of O&M costs, with most in the range of 15–45%.

At the same time, the Asian Development Bank carried out an evaluation of its irrigation projects and came to conclusions similar to those of the World Bank: in most cases, executing agencies had remained in complete or partial default of irrigation service fee covenants.

Over this entire period, the dominant experience (worldwide, as well as in Asia) has been that expenditure on O&M—broadly defined as the average annual expenditure required to keep a system capable of operating according to its design—has been significantly less than necessary, so that infrastructure has deteriorated, service has declined, and repeated cycles of rehabilitation have been required.

Note that there are two separate parameters to consider here — actual expenditures on O&M (which are generally significantly less than required), and the proportion of those expenditures that the beneficiaries are paying.

During this period, higher aims of charging for the irrigation service (demand management, economic efficiency, pro-poor) have attracted much theoretical attention from academics and aid specialists. The Dublin principles established the concept of water itself being an ‘economic good’, and suggested that ‘full cost pricing’ could be a potent instrument for improving water management, while also raising more funds. The definition of full cost pricing included the following: O&M, future upgrading and rehabilitation, prior investment costs, externalities (such as impairment to the environment), the opportunity cost of water in alternative uses, inter-generational costs, etc.

World Bank policy in the 1990s broadly reflected these principles, so that the main policy statement of that era placed heavy emphasis on the potential for demand management through pricing and volumetric charging. By the early 2000s, however, the “economic” dimension of irrigation charges was losing ground, and by 2009, the World Bank’s Independent Evaluation Group, reporting on a decade of experience in water projects, pointed specifically to the basic failure of cost recovery policies in Bank-funded projects, and the failure to ensure sustainable financing of infrastructural investments.

A response to that critique is underway within the World Bank, so the present discussion of the topic at ADB is not unique.

Where are we starting from?

From the above, it seems we are starting from more or less the same place we were in 1970, 2005, and probably any year in between. Infrastructure is deteriorating; the service to beneficiaries is poor; in consequence productivity is low and farmers are unwilling to pay. The funds available to operating agencies are totally inadequate to improve things—indeed most are absorbed by staffing costs—so that the vicious cycle of deterioration continues.

Decomposing the Debate—the perspectives of the participants

There are at least four quite distinct actors involved in this issue: politicians (whose support is essential to whatever plan is adopted); planners (who wish to see financial and physical resources used productively); operators (who are charged with delivering a service and maintaining infrastructure); and farmers (who pay for the service).

Clearly there are tensions among these perspectives.

The politician’s perspective is probably the most complex. There are no votes to be gained from increasing water charges, yet the recipients of irrigation services

are typically a privileged group who have already benefitted from significant capital investments so are not a priority for further government support (better build another project and attract new votes!). In the short term, systems continue to deliver a slowly deteriorating service, so it may be better to wait until a full-scale rehabilitation project is needed, with the potential to attract external financing.

The planner's perspective (and that of the donors) will recognise merit in all the good things that service charges are supposed to achieve—allocative efficiency, demand management, targeted benefits to specific groups—but will also be conscious that allowing expensive infrastructure to collapse can only harm economic growth, while subsidies to O&M and expenditures on rehabilitation compete with alternative investments in new productive works.

The operators are often identified as the villain in the piece—incompetent, wasteful, unresponsive, corrupt—but actually face difficult challenges. They have insufficient funds to do the job properly, and the relationship between funds available and actual O&M performed is far from proportionate: agencies have to pay their staff, and if funds are short, the first cut will be on the works themselves. And staff costs may be excessive and inflexible because politicians like to increase employment. Additionally (and this has implications for appropriate charging mechanisms), the operating agency prefers stable and assured income to plan and execute its work. The costs of operating an irrigation system with full design supplies is no different from operating during a drought with only half supplies—indeed the latter may require more effort to supervise deliveries. So charging systems that result in wide fluctuations in revenues (volumetric, are irrigated) have significant disadvantages to the operating agency.

Finally, the farmers, whose views may be quite varied: those in the poorly served areas, receiving limited and erratic supplies will legitimately argue that they should not pay as much as those who are able to obtain regular supplies. The better-served farmers, though, may actually prefer poor operation because if water was equitably distributed they might get less. But in general, as widely evidenced in areas served by private tubewells, farmers are prepared to pay for a good service, and if the service is reasonable, full recovery of O&M is feasible.

At the most basic level, the politicians and the farmers will tend to want lower charges, while the agency and the planners would like higher charges.

Distinguishing the essential from the desirable

The history of failure to fund O&M from beneficiary payments or other sources, continued deterioration of facilities, repeated rehabilitation programs, and parallel debate about what charges ought to achieve, over a period of at least forty years, suggests that the first step we need to take is backwards and distinguish the essential from the desirable.

No financing institution (international or national) would fund a project that included the following information in its description:

“The Government of X, with support of the Bank, will invest \$Y,000 per hectare in irrigation facilities, which will not be properly maintained, and will need complete rehabilitation in 10 years.”

The proposal is ridiculous — yet we have been doing precisely this for decades. It is essential that adequate funding to maintain the design service be provided to the operating agency, and the guarantor of that funding must be the government.

Beyond this essential condition, there are a number of desirable features that can be included in any proposed charging plan:

- **Beneficiaries should pay for O&M**

Payment for the cost of service provision highlights several linkages: first, having benefitted from construction of the project, beneficiaries should not require further subsidy; second, it will be rare, in poorly operating systems, that benefits are uniformly distributed—which immediately suggests that charges should relate to (for example) area irrigated. Third, relating charges to the cost of O&M will make farmers sensitive to the efficiency of the operating agency. If they see staff under-employed, the farmers will question why they are paying for this; if the service is poor, a debate can be opened between the operating agency and the farmers to discuss the cost implications of an improved service. If the link between payment and service is broken, so that irrigation is just a “government service”, then the farmers will have no incentive to monitor the efficiency of the operating agency.

- **Beneficiaries should contribute to the capital costs of the system.**

This is really a policy decision for governments to make. If public sector finances are scarce, then those privileged to receive irrigation should contribute; if the beneficiaries are a relatively poor group then investments to improve their lives may justifiably be funded from general resources.

- **Charges should encourage farmers to allocate water productively, minimize waste, and reduce consumption.**

This is a complex topic, often presented in a simplistic and misleading manner. If water is rationed at the farm level, then the farmer has an automatic incentive to use it as profitably as possible, quite separately from what the price of water might be. Furthermore, as the farmer improves on-farm water management and yields increase, the water consumption will increase. Only as the price of water reaches levels comparable to its productive value will demand for consumptive use fall. Finally, very few projects serving small farmers in developing countries are capable of providing the individualized service at the farm level that is required for incentive pricing mechanisms to work.

- **Charges should reflect government policies regarding disadvantaged groups, so that the more prosperous subsidize the less well off.**

This, like the issue of capital cost recovery, is a purely national or local socio-political issue.

This menu of features that a charging system might have—in varying degrees—must be considered among the four groups listed above whose interests are of concern in developing a final plan. But first and foremost, the system must be financially sustainable.

Moving forward—step by step

The basic data that facilitate the debate about charges among the four interested groups identified above are rarely available: first we need to know (a) what are current revenues from users; (b) what does it currently cost to deliver water; (b) what would it cost if the system was properly maintained and operated, and (c) what is the water worth to the user.

Establishing these parameters precisely is difficult. Revenues may go directly to government; operating agencies often do not keep clear records of what is spent on a project-by-project basis—but a first round estimate as a point of departure is not overly difficult. Many countries have norms and estimates of what O&M should cost (as well as information about costs of construction). Estimates of farm budgets “with” and “without” irrigation give an idea of what the service is worth to the farmer, either per hectare or per unit of water delivered.

These basic data should provide some assurance that significant cost recovery is financially feasible—indeed if the estimated cost of the service exceeds the value to the farmer, then the system is not viable and closure should be considered.

The data will normally highlight various “gaps”. The gap between current expenditure and current revenues; the gap between current expenditures and what is actually needed; and the gap between what is actually needed, and the value of the service to farmers.

Where, as is usually the case, the service increases incomes by a multiple of the cost of delivery, we now have the basic data to open the discussion at the political level, and support from this group is critical. The argument runs as follows: The total resources required to operate the system effectively exceed current expenditures by a (now known) amount. Resources must be increased, immediately, to the required level or the system will deteriorate and require additional capital expenditure. The required total resources represent a (now known) proportion of the annual benefits that farmers are deriving from the system.

What is the proposed mechanism to bridge the gap? If the proposed mechanism involves a additional service charges to be introduced over a period of time, then what is the mechanism for funding the interim gap?

A simple, focused debate on these issues will raise many issues about willingness to pay, the efficiency of the operating agency, scarcity of government funds, the need to distinguish between better off groups, or large and small farmers with etc. Each will have its own local dimensions, problems, and solutions—and the debate will probably illuminate many of these.

But the clear and inescapable bottom line is that somebody has to pay, and for the last half century this has not been the case in many publicly constructed systems.

Sources: Charging for Irrigation Services, DFID, Cornish, Perry, van Steenberg; Charging for water in Irrigated Agriculture, FAO, ISBN 92-5-105211-5, Cornish, Perry, Burke, Water as an Economic Good: Theory and practice, LEI, the Netherlands, Petra Hellegers, Chris Perry