PN-AAW-389 48275

PAPER No. 6

FOOD AND AGRICULTURE ORGANIZATION
OF THE UNITED NATIONS

AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D.C.

EXPERT CONSULTATION ON IRRIGATION WATER CHARGES
FAO, Rome, 22-26 September 1986

INSTITUTIONAL MECHANISMS FOR THE APPLICATION OF WATER CHARGES

by

J. Atherton

The AID Approach to Irrigation Recurrent Costs: A Mix of Institutional Alternatives

Joan S. Atherton
U.S. Agency for International Development
September 1986

The views in this paper are those of the author and do not represent those of the United States Agency for International Development.

Introduction

In recent years the U.S. Agency for International Development (AID), along with other donor agencies and host countries, has become increasingly aware of the need to assure adequate coverage of the costs of operation and maintenance (O&M) in irrigation schemes. The reasons for this are several: to achieve and sustain high levels of agricultural productivity as efficiently as possible, to ensure that the benefits of such schemes are equitably distributed, and to provide for system sustainablity in times of increasing financial pressures, particularly upon the central governments of the less developed countries (LDCs).

This paper briefly reviews the experience of earlier programs to support irrigation, as summarized in a series of ex-post evaluation commissioned by AID on the topic, and the current policy with regard to recurrent costs. It then undertakes an analysis of the trends in the irrigation portfolio in terms of the implementation of the evaluation results and policy statement, and finally summarizes the major findings raised by two recent studies commissioned for AID on recurrent costs in irrigation.

The discussion is limited to cost recovery for recurrent costs, because AID does not insist on capital cost recovery,

although it is encouraged. The decision to recover capital costs is dependent on, among other factors, the range of instruments at a country's disposal for recovering costs (e.g., direct or indirect taxation), on whether the funds are a grant or loan to the country and on the point in the system at which recovery is attempted. For example, many AID projects require cash or in-kind contributions from farmers toward local-level building or maintenance costs, but charges are not levied to defray the costs of main canal construction or rehabilitation.

The discussion is not limited to water charges, however, because, as the analysis will show, AID has used a variety of mechanisms and combinations of approaches to meeting recurrent costs. This is in part attributable to the emphasis the Agency places on institutional development, and in part to the conviction that the only means of bringing about sustainable improvement in system performance and maintenance is by trying to ensure that viable institutional capacity to address the problems is in place after the donor assistance has ended.

Evaluation Findings

In 1979, the AID Administrator initiated a set of ex-post evaluations designed to assess long-term project impacts. The impact evaluations were to be topical and produced in series that would have cross-regional comparability and whose findings could be generalized. The series on irrigation was completed in 1983. The summary findings, as presented in Irrigation and

AID's Experience: A Consideration Based on Evaluations[1/],

made the following points related to the recurrent cost issue:

- The primary policy issue is who pays for irrigation. The principle of some cost recovery from beneficiaries should be encouraged. The traditional, community-based irrigation systems are often ignored in policy considerations, sometimes because they represent effective, local-level sources of power.

- Governments are having increasing difficulty supporting new construction, and are turning to rehabilitation of older works. Rehabilitation requires relatively less new capital and seeks to build on the sunk investments and earlier productivity of older schemes and farmers' previous experience in irrigation.

- Scale: Smaller, community-based systems take advantage of management that is aware of local issues and offer scope for innovative and user-oriented designs, while larger systems are almost invariably government-run or managed through a parastatal. The evidence regarding relative efficiency of large vs. small is mixed. Many of the larger systems have split or diffused management, delegating some decisions to locally-based public or private groups.

- Public vs. private: Community-based systems may be regulated by government or be part of larger governmental systems. Private management may be more effective when local knowledge is required, when decisions must be made frequently but not routinely, when quick responses are necessary and when changes in cultivation practices occur. Drainage seems more a public concern. The question of market forces operating for water charges and repayment of infrastructure has rarely worked in donor-supported systems.

- Lack of good management has been noted as the main cause of mediocre system performance. Water management is partially cultural, and is dependent on farmers' perceptions. The management aspect affects the allocation of sufficient water and therefore the relative equity of the system. Water management from the farmer's perspective is often based on pragmatic expectations of water availability rather than on scientific principles. Although irrigation is intended to overcome the unreliability of the natural environment, often the human element proves equally whimsical. There is little dispute that more farmer involvement in system planning will lead to better farmer management.

- There is a generally perceived need for water user associations (WUAs), but in some cases they have been difficult to form.[2/] In some societies, however, traditional, community-based groups have been very effective, although participation diminishes as the size of the groups expand. Primary functions of WUAs are adjudication of disputes, allocation of labor and allocation of maintenance costs. It is recommended that WUAs be formed before construction begins and that farmers be involved in the planning stage of construction or rehabilitation.

In reviewing the eleven individual impact evaluations included in the series (see Annex A for a list of evaluations reviewed), one notes that the problem of sustainability is prominent in all but two of the reports. Sustained benefits of investment in irrigation are closely linked to good water management, or lack thereof, at various levels in the system. However, only four of the reports mention any kind of direct charge levied on farmers to contribute toward operations and maintenance, and hence, management. In all four cases, the charge is not directly related to measured water usage, but is 1) an in-kind payment related to yield per unit of land (Philippines), 2) an arbitrarily set cash fee for the use of water (Peru), 3) a "partial" payment credited to each farmer's account upon the state sale of the regulated commodities produced on the scheme (Sudan) or 4) a cash or kind payment to cover both spare parts and pump maintenance (Senegal). In the latter case, irrigator groupements are also required to amortize the costs incurred by the parastatal in system development.

All but three of the evaluations examined projects with a participatory element, which to varying degrees implied the substitution of labor for capital, in its approach to system O&M. Of the eight that did, six were small-scale, community-based systems, but two were larger schemes with an element of government involvement in water management. The evaluation of the Pakistan project perhaps best expresses what has become a major theme in AID's approach to improved cost recovery for O&M.

> An immediate and very significant impact of implementation of the project, prior even to the attainment of any results from improved water management, was the impetus it provided to the Government of Pakistan to shift its development priorities from large infrastructure projects such as dams to water management -- a previously neglected function. . . . (However, u)nit costs of watercourse improvement could have been reduced, or the project could have been spread further for the same overall cost if farmers had been required to share in the cost, which they repeatedly indicated willingness to do. . . . Increasing farmers' financial stake could have had the added benefit of improving the quality of work performed, as well as their interest in sustaining improvements through subsequent maintenance.[3/]

As noted in the evaluation of the Korean Irrigation Project, local participation is desirable, but is not a prerequisite to increasing farmers' financial stake. The Korean project was placed in a socioeconomic environment characterized by a high degree of bureaucratic centralism and hierarchical structures that did not allow for participation in decisionmaking. The government handled virtually all O&M, and its costs were covered by the very high national returns to rice and barley production, allowing foreign exchange savings

by reducing imports, and eventually earning foreign exchange with agricultural exports.

The Korean evaluation also noted that to some extent equity, as well as efficiency, had been achieved by government subsidization of rice production. It pointed out that at the existing support price for rice, farmers could have afforded to pay for the use of water, and to amortize system construction, but smaller farmers would have had to diversify to other commodities such as vegetables, which was at that time illegal on government schemes.[4/] (This points to another issue that will be taken up later: the influence of macroeconomic and certain agricultural sector policies upon cost recovery in irrigation.)

The review of the impact evaluations indicates that improved water management has been an AID concern since the mid 1970s, and in some instances even earlier. The concern, though, was largely motivated by a desire to achieve greater economic efficiency on irrigation schemes, whether newly constructed or rehabilitated. No consistent thought was given in project design to the need for financial sustainability and therefore to water charges, or for that matter, to other means of meeting the recurrent cost requirements. Even at the time of the impact evaluation series, operation and maintenance concerns were still connected to the efficiency argument, and had not yet been raised as a financial viability question in formulating the analytical framework for the series. The

financial rationale did emerge somewhat from the findings of the evaluations themselves, and were expressed obliquely in the summary report. The merits of water charges versus more indirect means of assessing beneficiaries were not explicitly addressed. However, considerable emphasis was placed on farmer participation in design, operation and maintenance of irrigation schemes, and this to some extent responded to efficiency, financial and equity concerns.

Recurrent Costs Policy

In May 1982 AID published a policy statement[5/] governing its support for recurrent costs (those costs of development activities which recur) in its projects and programs. The statement was prompted by a growing awareness that many LDCs are not allocating adequate resources to finance the recurrent costs of their existing portfolio of development investments, causing these investments to become unproductive, and portending a similar problem with subsequent investments. The background statement pointed out that both host governments and donors have brought about this situation - host governments by inadequate revenue generation, misallocation of resources and inappropriate fiscal and monetary policies; and donors by refusing to fund recurrent costs while continuing to make new resources available for capital costs, thus overburdening the host country capacity to meet operating and replacement needs. The paper also pointed out that poor choice of development investment or poor project design may exacerbate the recurrent cost burden.

In view of the problems outlined in the paper, the policy guidance to AID field missions requires that an analysis of the recurrent costs situation in a country be conducted in formulating AID's country assistance strategy, so that the situation is well understood and AID's projects do not exacerbate the problem. This may result in a dialogue with the host country about its own revenue generation and resource allocation, and with other donors regarding allocation of donor resources for both new capital investment and recurrent cost support either to specific projects or as general budget support.

At the project level, the policy guidance is quite specific. First, AID is to work with the host government to design projects so as to assure that their recurrent cost components are consistent with economic feasibility, using realistic pricing; maximize the generation of revenues from services rendered; privatize public services to the extent possible and rely on local participation to mobilize local-level resources. If an AID mission chooses to finance recurrent costs as either general budget or specific project support, the following conditions must be fulfilled:

- The host country policy framework must be acceptable in terms of revenue generation, resource allocation and macroeconomic policies, or moving toward such a framework.

- An analysis must have been performed to assure that recurrent costs support has a higher development impact than new investments.

- The host country must be shown to be unable to undertake recurrent cost financing.

- A carefully phased plan must have been developed to shift the entire recurrent cost burden to the host government over time.

Finally, the policy notes that if a host government refuses to take sufficient action on project design and/or policy reform, AID should seriously consider reducing the level of assistance to the affected sector or country.

Other AID policies also have a bearing on the treatment of cost recovery for O&M. For example, the Agency's policy on food and agricultural development policy encourages the development of human and institutional capacity that permits a country to develop and apply food and agricultural science and technology toward sustained increases in food availability and improved food consumption. Similarly, the local organizations and cooperatives policy papers support the reliance on local, private sector groups to participate in all phases of a project. The local organizations policy paper specifically states that

> It has become increasingly clear that substantial and long-lasting development cannot be accomplished unless local resources are engaged not only to augment the efforts of government and donors, but also to engender interest in and commitment to a project. . . . A.I.D. planners who wish their programs to benefit through the commitment of local resources should include appropriate local groups in substantive project decision-making.[6/]

Local organizations are only one means by which AID's projects address the sustainability problem. Although other

AID policy statements may have a bearing on the issue of cost recovery in irrigation, the most broadly applicable policy is that on recurrent costs. The next section will examine the extent to which the policy guidance and the findings of the impact evaluations have affected the design of irrigation projects so that there is a more systematic effort to address directly the recurrent cost problems.

Analysis of the Project Portfolio

For the purposes of this paper, 40 AID project design documents (in AID terminology, Project Papers) were reviewed. (See Annex B for a list of projects reviewed.) The projects reviewed were designed between calendar years 1975 and 1986. They were reviewed specifically with regard to the designs' treatment of the O&M issue, and to determine if any trends over time could be observed. Of particular interest was the degree to which the 1982 policy statement on recurrent costs had had an impact on the project designs.

The table on the next page presents the results of the review of the 40 projects, of which 26 were written before 1982 and 14 were written between 1982 and 1986.

There appears to be a fairly clear trend toward an increased AID effort to address the sustainability problems of irrigation projects by directly dealing with the operations and maintenance issues in the period since the 1982 policy paper was published.[7/] However, there was obviously a considerable amount of awareness of the problem prior to 1982, as over one

PROJECT PAPER REVIEW

	Pre-1982[a]	1982-1986[b]
Number reviewed	26	14
Action addressing O&M	10 (38%)	9 (64%)
Analysis of O&M issues	15 (58%)	10 (71%)
Means of Addressing O&M Problem		
Water charges	10 (38%)	10 (71%)
In-kind payments	4 (15%)	4 (29%)
Special taxes	3 (11%)	2 (14%)
General tax revenues	1 (3%)	3 (21%)
Community management[c]	13 (50%)	9 (64%)
Covenant[d]	0	5 (35%)
Combination	8 (31%)	9 (64%)
Level to which institutional support directed		
National	8 (31%)	7 (50%)
Regional	4 (15%)	5 (35%)
Community	13 (50%)	9 (64%)
Combination	8 (31%)	4 (29%)

a/ All percentages in this column are of 26 pre-1982 projects reviewed.

b/ All percentages in this column are of 14 1982-1986 projects reviewed.

c/ May include water charge or other cash payment and in-kind payment, including labor.

d/ Condition mutually agreed upon by the donor and host country at the outset of a project. In this case, the covenants usually referred to the imposition of water charges or other fees/taxes, raising fees to more realistic rates and indexing them, earmarking revenues for O&M, establishing WUAs or similar measures.

third of the project papers did address the O&M issue through an action component, and more than two thirds recognized the problem but did not design into the project an approach to it.

The reason for the apparent lack of attention to the sustainability problem may have lain outside of AID's control. There may have been a reluctance on the part of the host governments to come to grips with the O&M question. Several of the analyses in the later project documents suggest that host countries have now begun serious efforts to attend to operations and maintenance problems for reasons both of efficiency and financial constraints. Perhaps the most salient example in the projects reviewed comes from four project papers from the same country. In the first three papers, two written in 1976 and one in 1979, almost identical language appears to the effect that

> There will be no direct cost recovery which can be directly attributed to the project because farmers do not pay a user charge for water. The Ministry of Irrigation has no present plan to institute such a charge, claiming that such a practice violates traditional practices. . . It should be noted that farmers contribute heavily to national revenues through the administrated [sic] prices for key agricultural products, which are considerably lower than international or true economic prices.

However, by 1980, when the next project was designed, the thinking had changed significantly.

> There is no provision for irrigation water user charges in this project. Historically [Country X] ha(s) rejected charges for water because it runs counter to . . . religious tradition. Nevertheless, it may be possible to gain acceptance of a distinction between charges for water use, which have been rejected, and charges for water delivery. These latter are in fact applied, albeit

on a token scale to urban consumers, and are implicit in the present distribution system for water to farmers' fields.

The above example is perhaps the most dramatic, but not the only one. It is notable that in the sample reviewed, AID did not covenant with host governments prior to 1982 to require attention to O&M (usually by institution and effective collection of a water charge, but sometimes by earmarking revenues). Given the negative experience with covenants reported upon by the World Bank[8/], it is doubtful that AID might have been any more effective at requiring governments to address the O&M issue until their own internal imperatives drove them to do so.

On the other hand, there was some action on cost recovery underway before the publication of AID's recurrent cost policy paper. The data indicate that over one third of the projects which AID funded prior to 1982 included a water charge to the beneficiaries for purposes of O&M, and sometimes of partial capital cost recovery. The other technique relied upon was the formation of some sort of organization at the community level. In this analysis, such organizations shall be termed water users' associations (WUAs), but many were already extant groups, ranging from extended families to cooperatives, which were managing water use at the local level before AID began its activity. Half of the projects designed during the earlier period included reliance on WUAs for local management and maintenance. These trends have accelerated in the period since

1982, with 71 per cent of the newer projects including water charges, while WUAs are included in 64 per cent. It is also evident that more projects are combining means of meeting the recurrent costs, mostly through a mix of national or regional and local institutions. The reasons for this were well expressed in one of the project papers.

> Conceptually, the project defines the problems of irrigation efficiency in term(s) of those above the public outlet and those below although the workplan itself is integrated. When USAID undertook its first irrigation project in 1978, the widely shared belief was that irrigation efficiency could be increased by improving the design standards and construction practices for irrigation systems. This above-the-outlet approach dealt primarily with technical concerns or, more specifically, water delivery. . . . The problem has proved, however, to encompass more than water delivery and its associated design and construction.
>
> The assumption had been that once water was delivered to the outlet on a reliable and timely basis, the farmers and agencies that work with farmers would be capable of distributing water efficiently and equitably. It was also assumed that the knowledge and incentives required for the efficient application and utilization of water were or would soon be in place. Experience has shown these assumptions to be invalid. While [Country Y] and USAID continue to believe that well designed, well constructed schemes are critical to irrigation efficiency, we now recognize that addressing constraints below the outlet, such as water distribution, application and utilization is equally essential to irrigation efficiency and substantially more difficult.

Although not well reflected in a quantitative analysis, this view is widely shared by AID field missions and is implicit in the design of most irrigation projects started after 1981. In numerical terms, almost two thirds of the projects now include a community management component, compared to one half prior to 1982. These figures do not adequately

indicate some of the nuances that one can note in the project narratives. Although almost all project designs are characterized by a recognition of the connection between improved water management and economic efficiency, the later papers also make an explicit connection between improved water management and coverage of the financial costs of system maintenance. Most often this connection is made by noting that beneficiaries are more likely to pay for water that is delivered in a timely and reliable manner, but there is also simply the matter of being able to measure water in order to impose charges. Even where indirect mechanisms such as land betterment taxes, or surcharges on crops are utilized, the benefits of improving management, such as less waterlogging, less salinity, better drainage and so forth, are taken to mean that productivity should improve and revenues rise.

This connection of water management to the ability of systems to be self-sustaining, both financially and otherwise, leads to AID's emphasis on institutional development and a variety of approaches, rather than a single instrument such as water charges. In order to break out of a cycle in which willingness to pay for services can only be expected of farmers if services are indeed rendered, and rendered properly, but doing that takes resources, which will not be forthcoming until performance improves, AID is, in effect, advancing the necessary resources to improve performance and demonstrate to farmers that it is worthwhile participating in the upkeep of

the scheme. Where new water development is occurring, project designs attempt to stop the cycle before it starts by addressing questions of who should manage what, how maintenance should be performed, who should pay and in what form, and so on.

The approaches to institutional development operate at different levels, as indicated in the quantitative analysis. At the national level, it may take the form of training and technical assistance, often to bring about a reorientation toward more interaction with users, a greater degree of responsiveness and greater accountability in terms of agronomic and economic efficiency and financial management. There are a number of projects involving regional institutions or irrigation authorities. In some instances, those regional institutions already have a significant degree of autonomy, particularly with regard to raising and expending revenues, and in terms of decisionmaking authority, but their personnel may have the same needs for technical assistance, training and commodity support that the centralized systems required. In other instances, however, the AID project is strongly supporting a decentralization of authority for system management, again by improving regional capacity, but also by dialoguing with the central governments, or by placing certain covenants in the project agreements.

Finally, the support for water users' associations, and related community management has several objectives. First, it is a means of mobilizing local resources and relieving the

financial burden on the central government. Second, it is a means of empowerment at the local level vis-a-vis higher levels, so that good performance can be demanded from the system, and resources can be withheld if service is not forthcoming. Third, it partially addresses the equity issue, as there are usually disparities among the water users in a system, and the group approach, in which head-enders are brought together with tail-enders, or the latter are simply empowered to deal with their better-off neighbors, has achieved some success.

It should be noted that there is considerable regional variation in AID's portfolio of irrigation projects, and therefore variation in the means of dealing with the financial and management sustainability concerns. In Asia, and in one country in the Near East, irrigation activities play a much larger part in the overall assistance program than in the other two regions. Asian systems tend to be large, and often AID's projects involve several of the institutional levels discussed above. Improvements in water management must come simultaneously at many levels. In Africa and Latin America, there are predominantly, though not exclusively, projects supporting small-scale, community-based systems, many of which supplement dryland agriculture. In the smaller community-based systems, attention to national irrigation institutions is not generally required, but the initial design of the system must be more carefully scrutinized to ensure the feasibility of

local management, and then that the need to equip local institutions for the task is addressed at the same time as the physical infrastructure is being developed, rather than relying upon an assumption that the institutions would materialize after the construction was completed.

This analysis of the project designs must be viewed as a progress report, because many of the newer activities are only now beginning implementation. Some have had interim evaluations, but true impacts related to sustainability will not be measured for some time to come. Some trends are emerging, though, and do appear consistent with the lessons learned from evaluation and with AID's recurrent cost policy statement. More recent projects are systematically addressing the financial sustainability problem as well as the efficiency one through various project components, including policy dialogue with the host country, as evidenced by the inclusion of convenants regarding coverage of recurrent costs. More decentralization of the responsibility for O&M, and devolution of authority to mobilize and allocate local resources also appears to be taking place, albeit slowly. Perhaps equally important, the above project review indicates that AID as an agency, as well as the host governments with which it works, has thoroughly comprehended the need to address both efficiency and financial viability in its irrigation project designs. The record regarding equity is more mixed, with heavy reliance on community groups as the principal means of achieving this latter objective.

Studies of Recurrent Costs in Irrigation

Two AID-funded studies of the operation and maintenance problem, and the need to meet recurrent costs in irrigation have been completed in the past two years. These provide some additional insights, and will assist in shaping future policy dialogue and project designs and in implementing current projects. By examining country cases, the studies describe a range of alternatives, and bring to AID the experience of host countries and donors that lies beyond the rather narrow vista of AID's own experience. One study was supported by AID's Program and Policy Coordination Bureau, which examined the Peru, Dominican Republic, Morocco, Philippines and Indonesia cases and presented an analysis of the implications of direct and indirect charges in meeting recurrent costs, as well as the role of increased farmer participation in system management to defray such costs[9/]. The second was commissioned by AID's Bureau for Asia and Near East, and included country studies of the Philippines, Nepal, Maharashtra State (India) and Sri Lanka and a cross-country analysis of the four cases that provides operational recommendations for donor and/or host country projects[10/]. Although quite different in their objectives, the conclusions of the two studies are complementary.

The worldwide irrigation pricing and management study was policy-oriented in nature, and thus reached some conclusions on questions that should be answered prior to deciding how O&M

requirements should be met in a given project. The principal conclusions of the study, very briefly summarized, were

(1) All system planning should include a means for cost recovery and all beneficiaries, no matter how poor, should be asked to pay something toward O&M.

(2) Direct charges are preferable to indirect charges.

(3) Payment need not be in cash; in-kind payment is often better.

(4) Revenues generated should be directed back to O&M on a system-by-system basis as much as possible; they should not be returned to the general treasury.

(5) Local-level control, of both resource mobilization and resource allocation (including labor) results in higher rates of participation and appears to result in improved O&M, although there are as yet very few cases in which responsibility has been thoroughly devolved.

The study of recurring costs in Asia pointed out seven alternatives in meeting those costs: "(a) increased investment by government; (b) collect more fees from users to invest in O&M; (c) turn systems or parts of the systems over to groups of farmers and let them do the O&M;. . .(d) have farmers contribute the labor part of O&M;" (e) turn O&M over to a third party (e.g., a private or state assisted enterprise; and (f) have donors provide a fund for O&M; or (g) establish a commissioning fund, in which donors set aside the first few years' O&M on a declining basis while the government increases its contribution over the same time period.[11/] The feasibility of each of these alternatives was discussed, pointing out that options increasing farmer participation have met with some success, that the third-party and commissioning

approaches are largely untried, and that the experience with the other options has been negative.

The study concludes with conditions for increasing the collection of fees from farmers. The first four are necessary in all circumstances, and the fifth and sixth may be required in some instances. The six are:

(1) a current information system on water recipients;

(2) dependable water delivery;

(3) efficient fee collection;

(4) actual application of funds collected to system O&M;

(5) collections may have to start at the time that a project starts or a system is rehabilitated in order to take advantage of the economic surplus generated as well as to accustom farmers to fee paying;

(6) penalties for non-payment may need to be imposed.

The study also points out that there may be a lag time between improved system performance and willingness to pay fees, and that donors need to explore the alternatives and put in place a mechanism for meeting recurrent costs at the outset of an irrigation project.[12/]

One other issue that emerged from both of the above studies, from the World Bank's study[13/] and from AID's evaluation series, is the importance of carefully analyzing the impact of macroeconomic and sector policies on the ability of the beneficiaries to absorb more of the recurrent costs of irrigation. A number of country cases have been cited in which the implicit tax burden imposed upon farmers by controlled

prices, controlled access to inputs or markets and the like severely limit the profitability of farming and the farmers' ability to pay direct water charges, special levies, betterment taxes or, for that matter, to contribute labor that is required elsewhere in order to supplement the farm income when returns to farming are administratively controlled. An inappropriate policy environment may also limit the foreign exchange available for necessary spare parts (as frequently happens in pump irrigation in Africa), or reduce the returns to farmers such that their interest in maintaining the system wanes.

Conclusion

In reviewing the impact evaluations and project papers, this analysis has concluded that a trend is emerging whereby AID is systematically addressing the need to meet recurrent costs in irrigation in order to achieve sustained benefits from its investments and those of the host country. The approaches used are diverse, but concentrate on financial and institutional viability simultaneously. A variety of means, including direct charges, indirect revenue generation, payment in kind, mobilization of labor and combinations of these elements, are used. Attention is given different institutional levels, from national to local, in whatever mix is appropriate. The linkage between system performance and willingness to pay has also become clear to AID, and many projects concentrate on improving water management, through institutional development as well as including a component for

physical rehabilitation (or new construction). This is again a recognition of the importance of systems and procedures as well as trained personnel in the sustainability of irrigation systems. Insights from the analyses of country case studies are also being used to improve our understanding of the appropriate policy framework, host country and donor constraints in policy implementation and the different alternatives available to overcome those constraints. Although the record is far from perfect, the trends in comprehension of the problems in, and action interventions to improve, irrigation system operation and maintenance are encouraging from the perspective of at least one donor agency.

Notes

1/ Steinberg, David I. et al., Irrigation and AID's Experience: A Consideration Based on Evaluations, AID Program Evaluation Report No. 8 (Washington, D.C.:U.S. Agency for International Development, 1983), pp. iv-ix.

2/ Studies of local organizations in development show that group formation and mobilization to take on an unfamiliar development function are lengthy processes requiring intensive effort. The timing an level of effort are not always compatible with the short duration of many development projects, especially those involving the construction of physical infrastructure.

3/ Painter, James E. et al., The On-Farm Water Management Project in Pakistan, AID Project Impact Evaluation Report No. 35 (Washington, D.C.:U.S. Agency for International Development, 1982), pp. 22 & 27.

4/ Steinberg, David I. et al., Korean Irrigation, AID Project Impact Evaluation Report No. 12 (Washington, D.C.:U.S. Agency for International Development, 1980) pp. 6, 11 & 13.

5/ U.S. Agency for International Development, AID Policy Paper: Recurrent Costs (Washington, D.C.:U.S.A.I.D. 1982).

6/ U.S. Agency for International Development, AID Policy Paper: Local Organizations in Development (Washington, D.C.:U.S.A.I.D. 1984), p. 7.

7/ Of the five project designs that did not contain an action component on O&M, one project's analysis indicated that the regional authority was already recuperating sufficient funds to meet recurrent costs; one was a private voluntary organization initiative to which AID's policy cannot be stringently applied; one project was comprised entirely of technical assistance and training for irrigation management; one was a continuation of an earlier project and one was reviewed and approved at the field mission. Strictly speaking, only the last two should have been in compliance with the recurrent costs policy and were not.

8/ World Bank. World Bank Lending Conditionality: A Review of Cost Recovery in Irrigation Projects (Washington, D.C.:World Bank 1986).

9/ Carruthers, Ian et al., Irrigation Pricing and Management (Washington, D.C.:Devres, Inc. 1985).

10/ Easter, K. William, Recurring Cost of Irrigation in Asia: Operation and Maintenance (Ithaca, NY:Cornell University 1985.

11/ Ibid., pp. 46-48.

12/ Ibid., pp. 56-59.

13/ World Bank, op. cit.

ANNEX A

Impact Evaluations Reviewed

Development Management In Africa: The Case of the Bakel Small Irrigated Perimeters Project in Senegal. AID Evaluation Special Study No. 34 (Washington, D.C.: 1984).

Bangladesh Small-Scale Irrigation. AID Project Impact Evaluation Report No. 42 (Washington, D.C.: 1983).

Egypt: The Egyptian American Rural Improvement Service, A Point Four Project, 1952-63. AID Project Impact Evaluation Report No. 43 (Washington, D.C.: 1983).

Korean Irrigation. AID Project Impact Evaluation Report No. 12 (Washington, D.C.: 1980).

On-Farm Water Management In Aegean Turkey, 1968-1974. AID Project Impact Evaluation Report No. 50 (Washington, D.C.: 1983).

The On-Farm Water Management Project in Pakistan. AID Project Impact Evaluation Report No. 35 (Washington, D.C.: 1982).

Peru: Improved Water and Land Use in the Sierra. AID Project Impact Evaluation Report No. 54 (Washington, D.C.: 1984).

Philippines: Bicol Integrated Area Development. AID Project Impact Evaluation Report No. 28 (Washington, D.C.: 1982).

Philippine Small Scale Irrigation. AID Project Impact Evaluation Report No. 4 (Washington, D.C.: 1980)

Sederhana: Indonesia Small-Scale Irrigation. AID Project Impact Evaluation Report No. 29 (Washington, D.C.: 1982).

Sudan: The Rahad Irrigation Project. AID Project Impact Evaluation Report No. 31 (Washington, D.C.: 1982).

ANNEX B

Project Papers Reviewed[1]/

Country	Title
AFRICA	
Cape Verde	Tarrafal Water Resources Watershed Management and Soil Conservation
Chad	Irrigated Crop Production PVO Development Initiative
Mali	Action Ble
Mauritania	Small Irrigated Perimeters
Niger	Irrigated Agriculture
Senegal	Small Irrigated Perimeters
Somalia	Shebelle Water Management
ASIA AND NEAR EAST	
Egypt	Water Use and Management Canal Maintenance Irrigation Pumping Irrigation Management Systems
India	Gujarat Medium Irrigation Rajasthan Medium Irrigation Maharashtra Irrigation Technology and Management Irrigation Management and Training Hill Areas Land and Water Development Maharashtra Minor Irrigation
Indonesia	Sederhana Irrigation and Land Water Development II Small Scale Irrigation Management

Pakistan	On-Farm Water Management Irrigation Systems Management
Philippines	Small Scale Irrigation Bicol Integrated Area Development III Small Farmer Systems I
Sri Lanka	Mahaweli Ganga Water Management I
Thailand	Northeast Small Scale Irrigation
ANE Regional	Water Management Support

LATIN AMERICA AND CARIBBEAN

Bolivia	Disaster Recovery Project Village Devlopment Project
Dominican Republic	On-Farm Water Management
El Salvador	Small Farm Irrigation Systems Water Management
Guyana	Small Farm Development - Black Bush Region
Haiti	Water Resource Development Community Water System Development Integrated Agricultural Development
Honduras	Irrigation Development
Peru	Use of Treated Sewage for Irrigation Land and Water Resources Management Improved Water and Land Use in the Sierra

---

1/ Not all projects reviewed had an action irrigation component (e.g., construction, institutional development, etc.). Of the projects listed, only 40 proved amenable to analysis for treatment of irrigation recurrent costs. There are more projects in the AID irrigation portfolio than reviewed for the analysis, but documentation was not available in Washington, D.C. on the irrigation projects excluded from the sample.

References

Carruthers, Ian D. et al. Irrigation Pricing and Management. Washington, D.C.: Devres, Inc., 1985.

Easter, K. William. Recurring Cost of Irrigation in Asia: Operation and Maintenance. Ithaca, N.Y.:Cornell University, 1985.

Painter, James E. et al. The On-Farm Water Management Project in Pakistan. AID Project Impact Evaluation Report No. 35. Washington, D.C.: 1982.

Steinberg, David I., Cynthia Clapp-Wincek and Allen G. Turner. Irrigation and AID's Experience: A Consideration Based on Evaluations. AID Program Evaluation Report No. 8. Washington, D.C.: 1983.

Steinberg, David I. et al. Korean Irrigation. AID Project Impact Evaluation Report No. 12. Washington, D.C.: 1980.

Svendsen, Mark. An Unofficial Donor Perspective on Irrigation System Recurrent Cost Recovery. Mimeo, 1986.

U.S. Agency for International Development. AID Policy Paper: Food and Agricultural Development. Washington, D.C.: U.S. Agency for International Development, 1982.

U.S. Agency for International Development. AID Policy Paper: Local Organizations in Development. Washington, D.C.: U.S. Agency for International Development, 1984.

U.S. Agency for International Development. AID Policy Paper: Recurrent Costs. Washington, D.C.: U.S. Agency for International Development, 1982.

World Bank. World Bank Lending Conditionality: A Review of Cost Recovery in Irrigation Projects. Washington, D.C.:World Bank, 1986.