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# DESIGNING PROJECTS FOR IRRIGATION DEVELOPMENT

USING EXTERNAL CONSULTANTS

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## First Considerations

Over the past several years the Water Management Synthesis II (WMS-II) Project has assisted a number of AID Missions to develop project ideas and materials, background papers, project identification documents (PID), project papers (PP) as well as examine project strategies and the implementation of specific projects. This brief note is intended to make available to AID staff, to other consulting groups, and to host country colleagues ideas and suggestions that derive from those experiences as they apply to designing projects for irrigation development.<sup>1</sup> Project design by international development agencies is a complex process that must deal with the concerns of the host country decision-makers as well as the headquarters staff of the agency. Considerable dialogue among host country colleagues, AID Mission staff, and external consultants is required to meet these dual needs.

## The Planning Process

Most AID Missions have inadequate staff capacity to design irrigation projects without the assistance of outside consultants. Sometimes the Mission lacks staff with wide irrigation experience. Other times such staff are available, but the Mission cannot release them from other essential duties. Thus, outside consultants play a key role in nearly all AID irrigation development design activities. At times they also work on pre-project background and identification activities.

AID's design process involves four key parties: the host country, the USAID Mission, AID/Washington, and the outside consultants. Each brings to the process particular views and concerns that it wishes to see reflected in the project design. Producing an approved project design requires achieving agreement at two levels. The first is the broad conceptual level and the second the more detailed level of project objectives, procedures, and outputs.

The external team, contracted by the USAID Mission, is expected to formulate a design acceptable to the other parties. To do this, it must couple the team's technical expertise and experience with a range of irrigation projects with the country-specific knowledge of host country colleagues and USAID staff (and perhaps some team members). Creating a setting that facilitates the sharing of the knowledge and experiences of the various parties is a requirement for effective use of the external team. The following paragraphs suggest how this can be achieved. Several factors are considered: team composition, the scope of work, preparations for the team, team activities, the policy context, institutional and technical interactions, and team involvement in post-design activities.

## Team Composition: Who Should Be Included?

AID's project design process requires inputs from a number of professionals to deal with the technical, economic, environmental and social dimensions of project implementation and impact. Likewise there has been a growing recognition that irrigation development is a sociotechnical process that requires the contributions of several disciplines. The result is widespread agreement that sound irrigation project design requires planning by a multifaceted team able to deal with the technical issues of engineering, environment, and crop production as well as economic, administrative, and organizational ones.

The hallmark of project design teams provided under the WMS-II Project has been their multidisciplinary composition. Teams have usually included staff with experts in engineering, agronomy, economics, and social science. Teams generally have shared two other features. First, a majority of the team members have had prior experience applying their discipline to irrigation problems—the agronomists have worked with issues of crop production under irrigated conditions or the sociologists are familiar with community organization for irrigation management. Second, at least the team leader has been a professional with a record of viewing irrigation as a multi-faceted enterprise, and thus able to help team members effectively integrate their separate contributions. Always, a majority of WMS-II team members have been US professionals. But, several teams have successfully included national professionals.

Multi-disciplinary teams can be costly. To reduce costs, Missions have sometimes suggested inclusion of their staff (either ex-patriate or national) to fill team positions. This can have advantages, such as providing the team a direct source of information on Mission experiences and plans. However, if the Mission staff lack irrigation-specific experience, they may be inadequate substitutes.

But it is desirable to include the USAID staff member likely to be responsible for project implementation as an active team member. Project design is a creative process determined not only by the unique backgrounds that the team members bring to the exercise, but also by the common experiences they share in the process and the dynamics of interpreting these mutual happenings. Participation in this process can increase the USAID officer's understanding of team conclusions and suggestions and may enhance Mission commitment to the final proposal.

## Developing the Scope of Work

The scope-of-work (SOW) is an essential tool for directing the activities of the consulting team: it sets the charter for team activities. Mission staff often produce all-inclusive lists of ac-

<sup>1</sup>The reader interested in the specific WMS-II Reports prepared on this topic is referred to the selected bibliography at the end of this report.

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USAID staff can help by including policy questions in scope-of-work statements, insuring that the team includes staff with policy analysis skills, and helping the team gain access to relevant background documents and knowledgeable persons.

### **Combining the Institutional and Technical Components**

Irrigation systems that perform well exhibit a tight connection between the hydraulic technology and the institutions for managing those facilities: they operate as sociotechnical units. Sound irrigation project design must build on that principle of linkage. Sophisticated technology for distributing water will have little positive impact unless accompanied by appropriate institutional rules and organizational arrangements for properly operating it. Likewise, good rules without the needed physical facilities required for their implementation will be ineffective.

Unfortunately, a number of features of the design process can inhibit this essential connection. The external team may include a technical expert and a separate institutional specialist, each with distinct responsibilities. The host country agency, if it is an irrigation department, may have competent technical specialists, but lack staff knowledgeable about institutional matters. Usually, the design process gives precedence to technical decisions and treats institutional matters as secondary, merely supportive of the former.

Several steps can be taken to surmount these limitations. One is careful selection of the external team, as discussed above. A second corrective is to organize an institutional analysis early in the design process. Alternative solutions to technical problems can then be examined in terms of the institutional arrangements that would be required to successfully operate and sustain them. In this way, project design can incorporate both technical and institutional considerations.

A third procedure is for the design process to make assumptions explicit and unambiguous. Thus, for each irrigation technique or technology, assumptions about the requisite institutional conditions should be discussed. For each institutional arrangement suggested, assumptions about the supporting technology being proposed should be discussed. This explicitness will facilitate sound sociotechnical choices and avoid project designs that either install institutionally inappropriate technology or attempt to create institutions not supported by effective technological arrangements.

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### **Using the Team in Follow-Up Activities**

Under the present AID design and implementation sequence, significant changes in the primary actors occur at a number of points. Normally the external team operates in only a small portion of this design-implementation space—during the period of project identification and/or project paper formulation. The external team is not routinely involved in the presentation of the project paper to AID/Washington. And usually neither the external team nor the technical staff of AID participate in the final project loan or agreement discussions. These typically involve the AID Director, or his designee, and top-level staff of ministries such as finance or foreign affairs. Also, the external team rarely takes part in the start-up activities of the project (when often a new actor, the project contractor begins work) or in subsequent project reviews and evaluations.

Limiting the role of the external team in these ways is not all bad. Conflicts of interest might otherwise develop. Moreover, project designing is not so precise that any particular group can be presumed to have the final answer. But there also are drawbacks to this circumscribed role. AID's institutional memory may be insufficient to provide needed recall. Continuity may be foregone.

To avoid these shortcomings, some member(s) of the external team might participate in the various presentations of the project to AID/Washington and to both the technical agencies of the host country as well as the negotiations with the relevant financial and foreign affairs ministries, if possible. In each of these settings, the function of the external team member would be to advise the USAID staff regarding the likely impacts on project success of any late modifications to the Project Paper or the Letters of Implementation (LOIs). Second, if project implementation involves a contractor, the external team or designated members could help to orient contractor staff. Third, members of the external consulting team could participate in project reviews and evaluations to interpret the original intent of the project design and the context of the

Several WMS-II teams implemented their work in two phases separated by a lapse of several months. This phased approach has some important advantages:

1. Phasing allows a team to give policy and institutional issues priority in the formulation phase and careful attention to essential technical components of the project in the second phase. The first phase of the design process should address important issues such as the host country agency(s) to be involved, the institutional mix of community and government responsibility for irrigation operation and management, and the financial arrangements for recovering costs. Once agreement has been reached on the strategic architecture of the project design, more attention can turn to important technical dimensions in the next phase.

2. The period between the two phases can allow the host country and the Mission to consider results of the first phase and discuss needed refinements, if any. This period also consolidates understanding of what is being proposed and broadens the base of individuals and organizations familiar with the approach, clarifying any misconceptions or omissions of the team and building commitment to further planning and eventual approval. These interim activities can be facilitated by either Mission staff or someone from the consulting team.

3. Dividing planning into two phases also can make a large and diverse external team more manageable and effective. While the need for multifaceted teams is now widely recognized, their organization, management and effective utilization can be complex. Phasing of the external consultants can help resolve some of these difficulties. For one thing, phasing can facilitate obtaining the services of senior consultants who might be unavailable for a single assignment of many weeks. It can also reduce somewhat the logistical support burdens that a large team places on the team leader, USAID staff and host country officials.

In short, in some circumstances, dividing the total team effort into two stages can be an effective way to operate. If this is done, it is imperative that some team members participate in both phases to provide continuity, minimize the start-up time of the second group, and avoid the creation of two disparate reports. This can be achieved in two ways: 1) the team leader can participate with both teams, and 2) the first team can include a broad-based individual with technical expertise (this may be the team leader) to insure that technical matters are adequately raised in the formulation stage and fully considered in the final stage.

### Considering the Policy Context

Irrigation project design efforts frequently neglect broad government policies that can have a fundamental impact on proj-

ect outcomes—either by enhancing or by limiting project achievements. Opportunities to modify these public policies in the context of a specific irrigation project seldom occur. Thus, existing policies become conditions to which the project must adapt.

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Typically, project design considers economic policies such as pricing for farm products and, more recently, policies regarding repayment of investment costs and charges for operation and maintenance. But also important, and less frequently examined, are broad administrative policies that affect the recruitment, supervision, payment and other matters affecting civil service. This is a crucial gap because irrigation agency staff play a central role in many projects. A common mistake is to overestimate the administrative capacity of these agencies.

Another important policy area concerns the rights and roles of local organizations. A strength of many AID irrigation project designs has been inclusion of a local management component, such as some form of water user group. Sometimes because of existing national policies and laws that either discourage the formation of local organizations, or at a minimum, fail to create a positive policy context for their development, such plans have been thwarted.

Good irrigation project planning requires attention to several policy areas. One are the macro policies affecting economic and fiscal issues. A second are those policies affecting institutional matters such as the organization and performance of the civil service and the rights and responsibilities of local organizations.

If policies are either absent or do not support project means and goals, it will be necessary to decide whether to accept these conditions as constraints around which to plan or to incorporate policy modifications into the project plan of action. The consulting team must deal adequately with these matters.

tivities to be completed by each team member. This may be effective if there are opportunities for "negotiation" between the staff and the consultants prior to initiating the work and occasions to further refine the SOW as the work proceeds. Negotiation and refinement are desirable because the staff who prepare the SOW, while knowledgeable about AID design requirements in general, may be unfamiliar with the specific design needs associated with irrigation development. Much of the following discussion suggests important tasks to be identified in the SOW. The ideal scope-of-work identifies in broad terms the mandate of the team and omits unnecessary details, yet avoids ambiguities that may lead to false expectations. An effective SOW is most likely to emerge from the combined efforts of the Mission staff and the external consultants.

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### Preparing for the Team's Arrival

The key to preparing for the team's arrival and work period is achieving the right balance between too few and too many prior arrangements. Preparation involves mobilizing needed resources, while leaving the matter of their detailed use to the team itself. Three sets of resources are essential:

**1. Documentary materials.** These should include reports, documents and information from AID, host country government agencies and other bilateral and multilateral donors, as well as scholarly papers and reports by local and international researchers.

**2. Official briefings.** Senior US government staff and key host country officials are important sources of background information. Meetings with these officials need to be scheduled. Officials need adequate briefings to interact productively with the external team.

**3. Logistical preparation.** Country situations vary, but prior arrangements for internal travel clearance, scheduling of transportation, arrangements for interpreters, production of memos and interim reports, and related matters are likely to require attention. The Mission may wish to give one of its staff members responsibility for these arrangements. Another alternative is for a member of the consulting team to arrive in advance to implement some, or all of these actions. On at least two occasions, WMS-II has successfully used this approach.

### Team Activities: What Needs to Be Done?

WMS-II experience suggests that design teams need to strike a suitable balance between the following activities:

1. Obtaining adequate background information through review of existing documents and briefings from key officials.
2. Visiting rural areas to become familiar with the field conditions in which the project will be implemented. This involves acquiring first-hand knowledge of the physical environment in which project activities will occur, and, through rapid appraisal techniques, learning about the rural communities and households to be affected and the capacities of the implementing agency(s) field staff.
3. Meeting with host country colleagues—policy-makers, senior government staff, project implementors, knowledgeable academics, and other observers—to understand past experiences, current situations, and future plans for irrigation development, and the nature of the assistance requested.
4. Discussing with USAID staff broad policy objectives, Mission strategies, and current and past project design and implementation experiences. And, as the work progresses, frequently discussing with the Mission staff the emerging project dimensions.
5. Discussing with staff of other donor agencies their past experiences, current activities, and future plans in support of irrigation development.

During this period the team will receive and process much new information. It needs time to assimilate and organize this data and to formulate project implications. Within-team brainstorming sessions and discussions regarding appropriate strategies and needed actions are a critical part of this process.

### Suggested Timing of Team Design Activities

1. Orientation of Team in US
2. Phase I—Formulation Stage (4–5 weeks in-country)
3. Interim Period—USAID and Host Country Dialogue (2–3 months)
4. Phase II—Completion of Design (4–5 weeks in-country)
5. Post-design Activities: final negotiation  
contractor orientation  
implementation reviews

project planning and initiation. In short, the external consulting team is an important resource in which the Mission has invested; steps should be considered to appropriately utilize that resource in post-project planning activities.

### **First Approximations and Emerging Decisions**

In general, the capacity to collect and process a wide range of data in support of irrigation project design has increased. Also, new approaches to project designing recognize the limitations of a "blueprint" approach and the consequences of over-planning. Thus, what is needed in designing irrigation projects are a few clear goals and objectives and sound propositions for how to achieve these. Also needed is a set of procedures whereby learning and needed corrective action can occur as implementation advances.

In short, external consulting teams should be charged to develop designs that formulate a sound charter for action—identifying critical objectives and broad strategies for achieving them. These designs should also set in place procedures and staff arrangements to formulate implementation actions, to examine the outcome of implementation, and to enact corrections as required. The irrigation project design should be the best possible first approximation, but should contain within it modes for identifying and resolving emerging problems.

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### **Water Management Synthesis Project Design Reports**

- WMS 12 Ecuador/USAID: Irrigation Sector Review
- WMS 14 Peru/USAID: Irrigation Development Options and Investment Strategies for the 1980's
- WMS 21 Haiti/USAID: Evaluation of the Irrigation Component of the Integrated Agricultural Development Project No. 521-0078
- WMS 28 Selected Alternatives for Irrigated Agricultural Development in Azua Valley, Dominican Republic
- WMS 29 Evaluation of Project No. 519-018-1 USAID/El Salvador, Office of Small-Scale Irrigation—Small Farm Irrigation Systems Project
- WMS 30 Review of Irrigation Facilities, Operation and Maintenance for Jordan Valley Authority
- WMS 32 Small-Scale Development: Indonesia/USAID
- WMS 35 Irrigation Sector Strategy Review: USAID/India; with Appendices, Volumes I and II (3 volumes)
- WMS 36 Irrigation Sector Assessment: USAID/Haiti
- WMS 40 Watering the Shamba: Current Public and Private Sector Activities for Small-Scale Irrigation Development
- WMS 41 Strategies for Irrigation Development: Chad/USAID
- WMS 42 Strategies for Irrigation Development: Egypt/USAID
- WMS 48 Small-Scale and Smallholder Irrigation in Zimbabwe: Analysis of Opportunities for Improvement
- WMS 49 Design Guidance for Shebelli Water Management Project (USAID Project No. 649-0129) Somalia/USAID

For copies of the above reports write

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