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FROM: AID/W

SUBJECT: Potable Water: Results of A.I.D. Workshop

REFERENCE:

The Administration is currently considering a very major commitment to assist potable water development over the next decade. Because of the importance of this subject, evaluating potable water activities was chosen as one of five evaluation topics which all AID/W Bureaus would cooperate closely on during this year.

A workshop was held November 16-17 as a state-of-the-art exercise preparatory to organizing field work on successful and less successful potable water projects. A report of the workshop is enclosed.

Potable water projects have run into difficulties in a large number of cases. If A.I.D. plans more activity in this area, it is important to keep up-to-date on what our experience has been so that those designing new efforts can learn as much as possible from the significant number of failures and the interesting successes in this field. The Workshop report stresses what lessons are thought to be known at this time. AID/W experts, along with internationally recognized potable water experts, contributed significantly to the attached report. Upon completion of a fairly extensive amount of field work during the next several months, a final workshop will be held and a more detailed report will be issued to you. While the attached can be seen as tentative conclusions, we think it serves a useful purpose for you to see it now and for us to have the benefit of any comments this report might evoke.

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Info: AID/W Project Offices
AID/W Evaluation Officers
Workshop Attendees

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Report of AID Workshop on Rural Potable Water Supply
November 15-17, 1978

AID/W bureaus have agreed to cooperate this year in the evaluation of five areas of particular interest to the Agency: potable water, irrigation, rural roads, rural electrification, and health. Potable water is receiving attention and priority given U.S. consideration to a major commitment in this area as part of the U.N. Drinking Water Decade.

A Working Group on Rural Potable Water was formed and chaired jointly by Daniel Dworkin, PPC/E/S and James Thomson, DS/H.

Pursuant to efforts by the Office of Evaluation, a paper on issues in potable water was commissioned under the authorship of Ian Burton, a Canadian citizen who is an internationally-recognized expert in potable water. PPC/E also carried out a thorough inventory of Agency potable water efforts. Finally, through consultation with others and given our own observations, Dr. Daniel Dworkin of PPC/E produced an issues paper and agenda; all of which was discussed by representatives of each major AID/W unit and by outstanding experts in the field of potable water (participants listed in an annex of this paper).

The workshop identified a number of issues that appear important in the consideration of potable water projects in rural areas. The issues were discussed under eight separate categories:

1. Country Commitment
2. Country Goals and Plans

(3) Institutional Settings

(4) The Role of External Assistance

(5) Associated Inputs

(6) Community Involvement

(7) Technology

(8) Benefits

For each category, consensus was sought on what tend to make projects succeed or not, on what areas there is little consensus, and what recommendations the workshop could provide on improving AID's performance in potable water.

These issues were discussed against a backdrop of sufficient data to indicate that rural water supply projects have often failed and that serious problems exist in assuring that such projects do succeed. Based upon knowledge of these past efforts, the following conclusions and recommendations were made regarding the eight key issues found most relevant to the successful planning of rural potable water projects.

An ending section of this report spells out the implications of a major commitment to rural water on AID's ability to deliver that commitment. Recommendations are made on some steps AID should take.

COUNTRY COMMITMENT

Country commitment has to be sustained over a long term to provide for rural potable water supply and sanitation programs to succeed. Indicators of commitment are willingness to provide resources, appointment of highly-qualified officials, and clear bureaucratic authority.

Projects are more likely to succeed when:

—There is a substantial country commitment to both build and maintain systems.

—There is an assured source of funding adequate for financing staff and programs.

—The institution responsible for rural water programs provides a career path and has continuity of personnel.

—There is an official governmental perception of the importance of a potable rural water program.

Are less likely to succeed when:

—Funding either by the country or by the external donor is inadequate or sporadic.

—Pay scales are too low to attract and maintain a continuity of personnel.

—There is no career path within the administrative agency.

We don't know:

—How to generate host country commitment when it is lacking.

—Whether it is O.K. to start with a half-hearted program in the hopes that the government will get committed gradually.

—How to sustain commitment with changes of government.

Recommendations:

Commitment can probably be built by training adequate personnel at all levels to satisfy both public and private needs and generate support for the program. This would ensure that the future operation would not be exclusively dependent on one or two leading figures who might leave the scene.

COUNTRY GOALS AND PLANS

Successful rural water supply projects should be planned within the framework of a national or regional plan or program. The mere existence of a plan with objectives and goals, however, is not by itself sufficient to give a reasonable prospect of success. It will also depend on who makes the plan and what strength they can put into its implementation. Sometimes plans are just wishful thinking. Sometimes they represent a real commitment of money and political will.

Projects are more likely to succeed when:

—Plans are clearly related to actual conditions. It is important to know the population of the areas to be served, the number and size of villages as well as their economic base and socio-demographic characteristics (or to know that a regional or subnational structure exists for collecting and using such data). There should also be knowledge of the physical area, including the use of present sources and the availability of new sources of supply.

—Plans are realistic. Sometimes plans are made which call for water to be supplied to a much larger number of villages than can

possibly be achieved given the availability of money and trained manpower. The plan must allow time and provide for manpower training.

—The distinction between goals and plans is recognized. There is an important distinction between goals and plans. Goals ("everyone must have safe water by 1990," or "we will bring water to within 20 yards of each house within the next two years") are often set up as targets to give people something to strive towards in the knowledge that they are unlikely to be realized. Goals are often political attention-getting devices. After goals have been set up, practical planning should be prepared that specify the resources that are required to meet the goal. These plans should recognize the lead-time required for manpower development.

Projects are <u>less likely to succeed when</u>:

—Over ambitious goals are formulated and not translated into practical and realistic plans.

—Goals and plans are formulated independently of those who control the purse strings and without their concurrence and support.

—There is a lack of concrete information about villages, populations, etc.

—Plans ignore what has already been achieved and what is on the ground.

—Plans are unrealistic by virtue of lack of availability of money, manpower, or other ancillary inputs.

—Goals are allowed to substitute for plans.

We don't know:

—The best way to institute successful programs in countries where country goals and plans are absent. A key factor may be the training of manpower of several different types and levels. It is argued by some that if sufficient qualified manpower is trained, this will help to ensure that country goals and plans are well formulated and are sustained in times of neglect or lack of political will. Manpower deficiency is acute in some countries (e.g., many parts of Africa) and this is likely to continue to be a severe impediment to progress or expansion of a rural water program.

—The conflicting evidence on the role of training in instituting successful national programs can be found in Latin America and India. The success of the community water supply program in Latin America is often attributed to a long preparatory period in which engineers and others are trained. In India, where programs have been less successful, there is a relative abundance of trained engineers, but other inputs are evidently lacking.

Recommendation:

Field investigation should probably be directed at forming more precise judgments about the characteristics of useful and effective national plans and particularly the sequence or timing of a succession of inputs. Should national governments be first encouraged to develop personnel training capability where these do not exist or are inadequate before going to capital projects, or should the projects themselves serve as a training ground for local professionals and technicians?

INSTITUTIONAL SETTINGS

Institutions responsible for rural water should be fiscally sound eventually, but this should not be expected in the first years of operation. No single institutional model is appropriate for all countries. Health ministries are often responsible for rural potable water programs, but they are often weak.

Projects are more likely to succeed when:

—Project design, funding, implementation, and maintenance are in a single agency.

—Internal and external funding is assured.

—The agency can compete in the labor market for personnel.

Projects are less likely to succeed when:

—Different agencies are responsible for financing, construction, and operations and maintenance.

We don't know:

—The effect, but suspect that it is important, to provide a method of ensuring community contribution and involvement in the maintenance of the system. In some countries this might mean that money collected from the community resources to pay for system maintenance remain within the community. In early years, community contributions should be supplemented by an operation and maintenance fund set up as part of the original capital expenditure.

Recommendation:

Provision should be made for a systems for financing operation and maintenance costs for handpump systems that is understood and is acceptable to the communities served.

THE ROLE OF EXTERNAL ASSISTANCE

External assistance succeeds best when:

—The program is flexible in responding to local needs and does not impose too many requirements associated with its bureaucratic procedures.

—The program is able to provide support for the whole spectrum of water project-related activities and does not focus heavily on the equipment and construction phases to the neglect of pre-project and post-construction phases.

—There is a national plan to which AID and other donors can contribute.

External assistance makes project success more difficult when:

—A great variety of different kinds of equipment are introduced greatly complicating the purchasing, storage and delivery of spare parts to the local level.

—There is lack of any sort of coordination between the host government and the bilateral and international donors.

We don't know how:

—To provide a uniformity of equipment for rural water supply that would be acceptable to all bilateral and international donors.

Recommendation

There is a need to explore and coordinate the role of AID with other bilateral agencies and the UN-international groups at the country level.

ASSOCIATED INPUTS

Projects are more likely to succeed when:

—There is a sustained education plan that explains the use of a system and the benefits that would be derived from its correct usage.

—Water is considered as one component of a program that includes a range of other inputs, including health education and sanitation.

Projects are less likely to succeed when:

—There is no education or use component associated with the system.

We don't know:

—How to provide excreta disposal systems that are used.

Recommendations:

There should be a sustained examination of methods for excreta disposal that examines, in a number of settings, their acceptability. Education in the relationship between ingestion of water and health and the use of water for personal and household sanitation should be a part of every rural water project. In addition, where water is not piped to the house, proper methods of collection and storage should be stressed.

COMMUNITY INVOLVEMENT

General Considerations

—Communities have geographical and organizational characteristics which are significant for the design of rural water supply and sanitation systems.

—What constitutes a community in the socio-economic and organizational sense may not coincide with existing settlement patterns. Thus a nucleated village may contain several divergent socio-political communities and a highly dispersed settlement pattern may be contiguous with a single cohesive socio-political unit.

—The relevant organizational structure at the local level for rural development varies. It may be a single village or community; it may be a political structure subsuming several communities; or it may be a smaller organizational group within a settlement.

—National governments and other bodies external to the local communities may not appreciate what is the most effective local organization for rural development.

Selection criteria for villages receiving rural water supply and sanitation:

—Criteria for community selection should remain flexible.

—Selection criteria evolve within projects as demand in villages change.

—Selection criteria should be kept simple. Straightforward lists of criteria are more useful than attempts to combine criteria into a single coefficient or index to rank communities for receipt of rural water supply projects.

—Local commitment and desire for rural water supply should always be one of the criteria for selection. However, the local desire may be only for improved water rather than the entire water-sanitation-health education package.

—Human need can be a criterion, over and above cost-effectiveness. Particularly since economic or health benefit measures may not capture the value of rural water projects.

Projects are more likely to succeed when:

—Communities are fully aware of the costs and benefits of the alternative levels of service that could be provided and participate in the selection of technologies subject to existing constraints or available money, labor and skills for implementation.

—Tariff structures and payment schedules result from discussions and are acceptable to the community.

—A local users group is formulated to set management policies and determine local priorities.

—More time is available for the promotion process in each community and the links between water quality, water quantity, sanitation and health education are more fully explained and understood in the community.

—Communication with the villagers is not left to the promoter or social scientist but becomes part of the role/behavior of all others in the project.

TECHNOLOGY

Rural water supply projects are more likely to succeed when:

—The water supply organization is able to support and maintain the equipment used.

—The technology chosen represents an incremental improvement over the existing level and can offer the prospect of further step-by-step progress.

—Flexibility is maintained in selection of equipment and that trade-offs can be made between cost of maintenance and local manufacture to the best advantage of the country program in terms of cost-effectiveness.

—Diversity of equipment which makes for problems in procurement and supply of parts is limited.

Recommendations:

Local manufacture of equipment should be encouraged. Where this is not feasible, the necessary imported material should be procured locally or there should be an assurance that there is a local source for spare parts.

BENEFITS

It is generally agreed that major benefits are to be gained from improved rural water supply, but it is extremely difficult to measure or quantify such benefits. The aim of AID projects should be to provide increased quantities of water to the people in rural areas.

The following benefits are assumed to result from such an action:

—Improved health by protection from infection from ingestion of unsafe water.

—Improved health from increased availability of water for more frequent washing of persons, clothing, and household effects resulting in better home and personal hygiene.

—Other benefits that flow from better health include:

—more productive labor and ability to work harder for longer hours;

—children in school are more alert and are better able to learn; and

—better nutrition since food utilization is inhibited during diarrhea.

—Saving in labor and time if water is more conveniently supplied. This frees people to do other things with their time and thus the quality of life can be improved.

Measurement of Benefits

Effects to quantify benefits are difficult:

—Benefits tend to appear not all at once but build up and become evident over time. Longitudinal studies extending over five years or more might prove health benefits are costly and difficult to mount and keep properly staffed.

—In addition,

—a careful experimental design is needed (with control group villages) in order to isolate improvements due to water supply from improvements that have occured anyway because of other on-going changes;

—complete isolation of the communities under study is not possible; and

—benefits may be lost or only partially realized if other associated inputs are not also provided.

For these reasons, detailed and expensive efforts to do studies of benefits are generally not favored and are usually not a worthwhile investment of time and resources.

Recommendations:

A methodology should be developed for documenting benefits from rural water projects. This may be particularly necessary if large national programs are being contemplated. Water projects too often suffer from not being "competitive" with other development activities which can more easily demonstrate "hard" benefits.

Interviewing recipients is relatively inexpensive and should be considered as a method of gaining their perception of health benefits (and other benefits), especially in relation to the other inputs of latrine, health education and community involvement.

If people in a village consider that the water supply project has had considerable benefit in health and other ways, then it probably has. It would be worthwhile finding out more about how and under what circumstances village communities appreciate and perceive the benefits of improved water supply since such studies might provide guides to better planning for community involvement.

cost/efficiency analysis is considered to be a more appropriate test for investment decisions than cost/benefit analysis in water supply programs. The larger amount of benefits do not always come with the most costly improvement in a system. For example, the provision of a piped water supply to a village through multiple taps or standposts may be expensive and produce few health benefits because other disease vectors remain or intervene as water is carried from the standpipe to the point of use. The extra margin of cost of house connections may then produce multiple extra benefits for a smaller additional cost. Nevertheless, it is often better to proceed incrementally with a project and to give a village community a chance to improve in a step-by-step process than to force too large a forward leap.

THE ROLE OF AID

AID has approved an ambitious program as part of the United States contribution to the UN Water Decade. If the host countries and other donors will fulfill their commitments, AID is prepared to provide approximately $2½ billion over the decade.

Since the program will be consistent with the New Directions strategy this will mean that the Agency will often be the lender of last resort to supply water to dispersed poor rural communities.

Such programs are the most difficult to support with suitable engineering and social science guidance. AID is understaffed in this area. It is clear to those within and outside of the Agency that it will be impossible to meet our commitments with a reasonable assurance of success unless there is an increase in the AID staff.

Programs are more likely to succeed when:

—There is a clear scope of work on each project that outlines the social and economic as well as the engineering and construction tasks.

—Funds for contingencies and possible mid-project changes are incorporated in the project design.

—Monies are budgeted for TDYs for appropriate persons to assist in project implementation.

—Missions and host countries are provided with adequate technical libraries.

—The AID and other donor response is coordinated.

—Training of personnel is directly related to work experience.

—There are enrichment workshops for host country personnel in which technical, professional and administrative staff are provided the opportunity to upgrade their skills.

—Work of consultants hired by AID should be reviewed periodically.

We are unsure of:

—The relative success of projects that have been designed in different ways. For example, to what extent is success related to the involvement of AID personnel in the design process.

AID's Office of Evaluation will be undertaking field study, most often ex-post study, based upon the open issues identified above. In doing

this there will continue to be close liaison with workshop attendees, other AID/W offices, and most importantly, with field posts.

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