

PD-AAM-234  
In: 31527

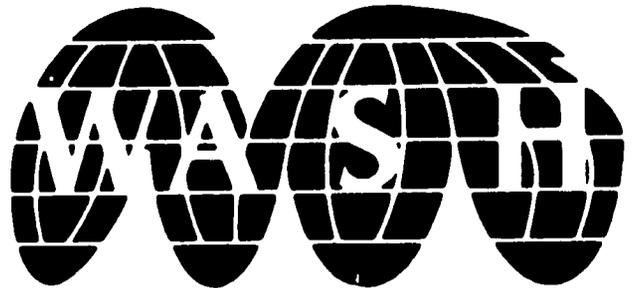
931-1176



**International Drinking Water  
Supply and Sanitation Decade  
1981 - 1990**

# **Report of Evaluation of the**

# **WATER AND SANITATION FOR HEALTH PROJECT**



**AMERICAN PUBLIC HEALTH ASSOCIATION**



United States Department of State

Washington, D.C. 20520

August 11, 1983

Mr. M. Peter McPherson  
Administrator  
Agency for International Development  
320 21st Street, N.W.  
Washington, D.C. 20523

Dear Mr. McPherson:

Over the past five months, at the request of the Bureau for Science and Technology, a six-member board of experts under my chairmanship conducted an evaluation of the Water and Sanitation for Health (WASH) Project. This Project provides sectoral technical backstopping services for AID mainly through a centrally-funded \$12.5 million 45-month contract with the consulting firm, Camp, Dresser and McKee (CDM). The contract began in August 1980 with a completion date of November 1983 but was extended through May 1984. The Project is administered by a Project Manager in AID in the Division of Water and Sanitation, Office of Health, Bureau for Science and Technology.

I am pleased to report that the Board concluded that the WASH Project is doing an extremely effective job, especially in providing quality technical assistance in a timely manner to Third World countries. It was our recommendation that WASH be continued throughout the UN International Drinking Water Supply and Sanitation Decade (1981-1990).

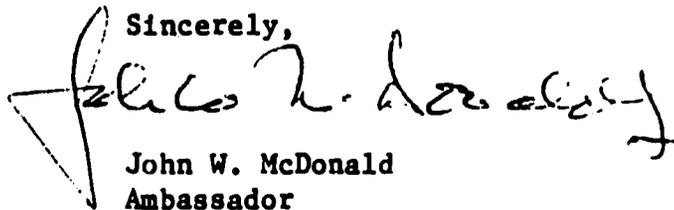
Other recommendations are listed in the Executive Summary.

I would like to call to your personal attention the recommendation (p. 45) which requests that you initiate an internal management study to see if AID is effectively structured to administer the water and sanitation programs it is now carrying out or plans to carry out over the next few years.

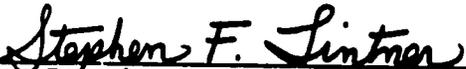
This recommendation grew out of the Board's concern over the large discrepancy between AID's investment in water and sanitation projects (\$850 million a year) and the number of direct-hire experts in that field (seven water and sanitary engineers). The phrase we used was that "AID is dangerously understaffed in this area."

I would be pleased to meet with you if you have any questions about this report.

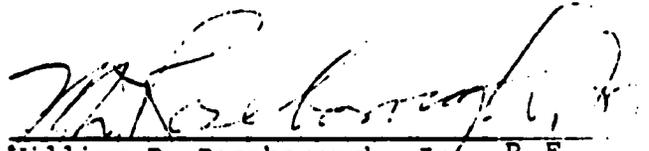
Sincerely,



John W. McDonald  
Ambassador  
U.S. Coordinator for the UN  
Drinking Water Supply and Sanitation  
Decade



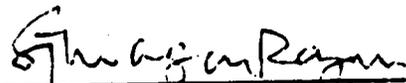
Dr. Stephen F. Lintner  
Environmental Coordinator  
Bureau for Near East  
Agency for International  
Development



William D. Roseborough, Jr. P.E.  
Senior Scientist  
Office of Forestry, Environment &  
Natural Resources  
Bureau for Science and Technology  
Agency for International Development



Kazuyoshi Kawata, Dr. P.H.  
Professor  
Department Environmental Health  
Science  
The Johns Hopkins University



Dr. Sivassailam Thiagarajan  
Director of Training  
Institute for International  
Training Research, Inc.



Dr. Gilbert F. White  
University of Colorado

Report of an Evaluation  
of the  
WATER AND SANITATION FOR HEALTH (WASH) PROJECT  
August 1983

American Public Health Association  
AID/DSPE-C-0053  
ASSGN. No. 583132

111

## CONTENTS

|  | Page |
|--|------|
| Executive Summary.....                             | vii  |
| I. Introduction.....                               | 1    |
| The WASH Concept                                   | 1    |
| Scope of Work                                      | 2    |
| WASH Accomplishments                               | 3    |
| Purpose of the Evaluation                          | 4    |
| Method Used by the Evaluation Board                | 5    |
| Board Members                                      | 5    |
| II. Management.....                                | 7    |
| Order of Technical Direction                       | 7    |
| C-Tasks  | 8    |
| Consultants  | 9    |
| Concerns of the Office of Contract Management      | 9    |
| Managerial Strengths and Weaknesses                | 10   |
| Subcontractors                                     | 11   |
| An Outside Perspective                             | 12   |
| Recommendations                                    | 12   |
| III. WASH Services.....                            | 15   |
| General Technical Assistance                       | 15   |
| Problems in Technical Assistance                   | 16   |
| WASH and the Office of Foreign Disaster Assistance | 18   |
| Technology Transfer                                | 19   |
| Training and Human Resources Development           | 20   |
| Standardized Training Format                       | 21   |
| Information  | 22   |
| Field and Technical Reports                        | 23   |
| Request for Information                            | 25   |
| Recommendations                                    | 26   |
| IV. Relationships with Other Entities.....         | 29   |
| Sharing Information and Experience                 | 30   |
| Recommendations                                    | 31   |
| V. Transferability of the "WASH Mechanism".....    | 33   |
| Critical Concepts in the WASH Mechanism            | 33   |
| Problems to Avoid                                  | 35   |
| Recommendations                                    | 36   |
| VI. The Future of WASH.....                        | 39   |
| Reorienting the WASH Project                       | 41   |
| Need for Direct Hire Personnel                     | 41   |
| Recommendations                                    | 42   |
| VII. AID and the Water Decade.....                 | 43   |
| Recommendations                                    | 45   |

W

## EXECUTIVE SUMMARY

Over the past five months, at AID's request, a six-member Board of experts conducted an evaluation of the Water and Sanitation for Health (WASH) Project. This project provides technical backstopping services for AID mainly through a centrally-funded \$12.5 million 45-month contract with the consulting firm, Camp, Dresser and McKee, Inc. (CDM). The contract began in August 1980 with a completion date of November 1983 but was extended through May 1984. The WASH Project is administered by a Project Manager in AID in the Division of Water and Sanitation, Office of Health, Bureau for Science and Technology.

Three external consultants, two AID staff, and one State Department Officer comprised the Board: Kazuyoshi Kawata, Professor of Environmental Health Engineering at the Johns Hopkins University; Sivasailam Thiagarajan, Director of Training, Institute for International Training Research, Inc.; Gilbert F. White, University of Colorado, National Academy of Sciences; Stephen F. Lintner, Environmental Coordinator, Bureau for Near East; and William D. Roseborough, Jr., Chief of the Environment, Natural Resources and Remote Sensing Division, Bureau for Science and Technology. The chairman, John W. McDonald is U.S. Coordinator for the International Drinking Water Supply and Sanitation Decade.

This report was completed after extensive research, interviewing, and field visits to seven countries. During the course of the work, the Board met on a number of occasions, discussed its findings, and eventually reached a consensus in its recommendations.

The Board concluded that the WASH Project is doing an extremely effective job, especially in providing quality technical assistance to Third World countries in a timely manner.

### Key Recommendations

The WASH Project is not simply another mechanism for providing technical assistance to AID, but is the principal instru-

ment for the United States in honoring its commitment to the UN International Drinking Water Supply and Sanitation Decade (1981 - 1990). The Project should be continued, without interruption in service, throughout the Decade.

The WASH model for providing rapid and flexible technical back-stopping services is replicable and should be considered for other sectors. Unlike more traditional modes of supplying short-term assistance, the WASH Project is capable of putting technical people in the field in days or weeks, primarily because the AID Project Manager has been delegated the authority to issue work orders to the WASH Contractor without further clearance from the AID Contracting Officer.

An interdisciplinary expert advisory board with members from both government and the private sector should be appointed by the AID Administrator to review WASH Project priorities and project activities.

The WASH project needs some general reorientation. More projects in sanitation should be supported, more emphasis should be placed on technology transfer, and long-term pre-investment assistance should become a part of WASH's activities. The current restriction on urban projects is difficult to justify and should be lifted.

AID should adopt a less directive and more collaborative approach to managing the work of the WASH Project, with collaboration extending to host country officials and AID Missions, as well as to the Contractor, especially in the development of work orders.

The report concludes with a chapter on AID and the UN Water Decade and recommends that the AID Administrator initiate an internal management study to look at what the Board feels is a dangerously low staff level in the water and sanitation sector, given that sector's \$850 million annual obligation level. The study should also review the level of Development Assistance funding for rural water supply and sanitation projects. Consideration should be given to establishing a separate line item for water and sanitation in the Development Assistance Annual Budget Submission and to creating a separate Office for Water and Sanitation in the Bureau for Science and Technology.

## I

### INTRODUCTION

On February 24, 1983, at AID's request, a board of experts in water supply and sanitation met to begin an evaluation of WASH (Water and Sanitation for Health), a project initiated by AID in 1979 to provide flexible technical assistance backstopping to AID Missions and Regional Bureaus. This report contains the highlights of project implementation and the findings and recommendations of the Evaluation Board.

#### The WASH Concept

AID Health Sector Strategy, proposed by the Office of Health in March 1978, identified the need for increased activity in technical assistance, training, technology transfer and the stimulation of local manufacture of water supply and sanitation devices in less-developed countries. The need for an increase in international donor coordination and collaboration in support of the United Nations International Drinking Water Supply and Sanitation Decade (1981-1990) was also identified.

At the UN's World Water Conference in Mar del Plata, Argentina, in 1977, it was proposed that the United Nations establish 1981-1990 as the Water Decade. The United States and other developed countries pledged to increase significantly their commitments to providing safe drinking water and sanitation for all by 1990. The United States has repeated this pledge at other international meetings, including at the UN General Assembly on November 10, 1980, when the Water Decade was launched.

The WASH Project was conceived as a new and innovative way to marshal and then rapidly deploy, top technical and human resources available in this country, in response to host country

## 2 An Evaluation of WASH

requests for AID technical assistance in the water supply and sanitation field. The technical backstopping services to be provided were designed to increase dramatically AID's ability to address the complex problems posed by unsafe drinking water and inadequate sanitation.

The WASH Project was approved in June 1979 at a life-of-project funding level of \$10 million and was to be implemented over a 40-month period: The Project was subsequently amended in April 1982, increasing the funding level to \$17 million and extending the completion date to December 31, 1986.

In August 1980, AID signed a 39-month, \$8.5 million contract with Camp, Dresser, and McKee (CDM), an international consulting firm specializing in environmental engineering services, to set up a centrally funded, broad-based, interdisciplinary, technical backstopping service. This contract called for CDM "to provide large scale information (collection, synthesis and dissemination), technology transfer, technical assistance, and training resources on an inter-regional basis to support AID in its efforts to help client countries achieve safe water supply and improved environmental sanitation." Part of the work of the Contractor was to set up and manage a Coordination and Information Center (CIC) to document project activities and to provide logistical support, management, and project evaluation for all services under the contract.

The work of the Contractor is performed under the technical direction of a Project Manager in AID's Division of Water and Sanitation, Office of Health, Bureau for Science and Technology (S&T/H/WS).

### Scope of Work

The general purpose of the WASH Project is to develop and provide technical resources to support programs to extend and improve AID's water supply and sanitation activities by providing technical assistance in the four areas mentioned above. The CDM Contract is quite specific about the scope of work.

1. The WASH information clearinghouse and retrieval center provides information searching, collection, synthesis, reproduction, and dissemination services to Missions or Bureaus

upon request. It is also a "library" where AID personnel can study "lessons learned" activity reports by AID and other donors.

2. The WASH Project provides technical expertise for transferring, adapting, and evaluating water supply and sanitation hardware such as handpumps, privies, and other low-cost appropriate technology devices. In planning technology transfer projects and programs, emphasis is on local training, manufacture, installation, and maintenance.

3. General technical assistance is available to help conceive, plan and implement water supply and sanitation projects as well as to trouble-shoot and evaluate systems already in place. Technical advisors and consultants represent many disciplines: engineering, policy planning, public health, housing, financing, vector control, etc. The fact that the WASH Project addresses rural and peri-urban water supply and sanitation problems means that the contractor must have more expertise in the public health, socio-economic, and organizational aspects of water and sanitation projects than would be normal in an urban program.

4. In its manpower development and training services, the WASH Project makes extensive use of competency-based training techniques and materials, wherein individuals are trained for specific work rather than according to a traditional academic curriculum.

The WASH mechanism is not intended to replace resources already available within AID or through Indefinite Quantity Contracts or other established mechanisms. Most important, WASH services are to be provided with expediency and a minimum of administrative detail. The WASH Project was set up so that a Mission's cabled request for assistance could be responded to very quickly -- in a matter of a few days or weeks WASH could get experts into the field.

#### WASH Accomplishments

Since its inception, the WASH Project has directly supported activities for nine AID Bureaus and 49 AID Missions and Offices, and, on AID's request, for the Peace Corps and several private voluntary organizations. WASH has assisted projects in 40 countries. The Information Center has responded

#### 4 An Evaluation of WASH

to requests for information from 66 AID-assisted countries. WASH has produced over 15 training aids for use by operational level personnel in developing countries and has conducted numerous training programs.

Work falls into several subcategories, and most assignments involve more than one of the categories. Through July 1983, 148 work orders (Orders of Technical Direction or OTDs) and 338 "C-Tasks" (tasks involving research and information retrieval) had been issued.

##### Purpose of the Evaluation

The WASH contract was to have ended November 30, 1983; however, the option to extend the contract through May 1984 has been exercised. After that it is anticipated that technical backstopping services will be continued by the extension of the WASH Project through FY1989. However, the new contract for implementation will be subject to a competitive procurement. The recommendations of this evaluation should assist those who will be involved in planning for the Project's extension.

Specifically, the evaluation has three principal goals. The first is to evaluate the performance of CDM and AID's Division of Water and Sanitation (S&T/H) in carrying out WASH Project objectives. Has the Project extended and improved AID's efforts to help developing countries achieve the goals of the Water Decade? The report will try to answer that question and make recommendations about how WASH Project and Contract management and services might be improved.

The second goal is to ascertain to what extent the WASH "mechanism" is replicable and how it might be adapted for use in other sectors such as housing, energy, environment, or rural development. WASH represents a unique method of providing sectoral backstopping for AID and it has experimented with various forms and procedures to enable AID to respond flexibly, rapidly, and effectively to needs in the field.

The third is to call attention to the UN Water Decade and suggest how the WASH Project can more effectively assist the United States to meet its Decade commitments.

### Method Used by the Evaluation Board

AID authorized the creation of the Board in January 1983. Since all of its members are busy people, the completion of this comprehensive report took longer than originally expected. The Board interviewed all senior AID personnel associated with the WASH Project, the WASH Contractor and appropriate AID staff in the Regional Bureaus. Four members of the Board visited AID Missions in seven countries and talked with AID and host country officials who had used WASH services. Discussions were also held with World Health Organization, Pan-American Health Organization, UN Development Programme, and UNICEF officials. Some ongoing projects were visited. A large sample of field and technical reports was carefully reviewed by subject-matter specialists on the Board, and key documents, such as WASH operational reports and brochures, and AID policy papers and relevant memoranda were read by all Board members. The Board conducted a telegraphic survey of all AID Missions, asking them to evaluate their own experience with WASH. On a number of occasions during the course of its work, the Board met to discuss its findings and recommendations and finally arrived at the consensus that this report represents.

### Board Members

Three external consultants, two AID staff, and one State Department Officer comprise the Evaluation Board. Brief biographical sketches follow.

The Chairman, John W. McDonald, is U.S. Coordinator for the International Drinking Water Supply and Sanitation Decade. A lawyer and diplomat, Ambassador McDonald has spent most of his career on Third World and UN affairs. From 1974 to 1978 McDonald was deputy Director General of the International Labor Organization. From 1955 to 1959 he served as Executive Secretary and Special Assistant to the Director of the International Cooperation Administration, an AID predecessor agency.

Kazuyoshi Kawata is Professor of Environmental Health Engineering at the Johns Hopkins University. Dr. Kawata has extensive experience in less developed countries, including twelve years in India. He was the environmental

## 6 An Evaluation of WASH

health member of John Hopkins's epidemiological studies in Chad and in Afghanistan and has served WHO in short-term consultant capacities in Bangladesh, Philippines, Egypt, Sudan, Jordan, and Saudi Arabia.

Stephen F. Lintner, a graduate of the Department of Geography and Environmental Engineering at the Johns Hopkins University, is the Environmental Coordinator of AID's Bureau for Near East. Dr. Lintner works closely with both the health and engineering staffs in the Bureaus and Missions and has had extensive experience with water supply and waste-water projects in Egypt, Jordan, Syria, Lebanon, Sudan, Tunisia, and the Yemen Arab Republic.

William D. Roseborough, Jr. is Chief of the Environment, Natural Resources and Remote Sensing Division in AID's Bureau for Science and Technology. He has extensive management experience in AID, in the Defense Department, in private consulting and in industry as a General Manager, Chief Operating Officer, or Chief Executive Officer of four industrial companies. Mr. Roseborough has graduate degrees in Marine and Environmental Engineering, Nuclear Physics, and Naval Architecture and is a registered professional engineer.

Sivasailam Thiagarajan has extensive experience with all phases of human resources development, particularly with training aspects. Dr. Thiagarajan has recently returned from a two-year assignment as Chief of Party for an AID Liberia project on improved efficiency of learning. Currently he is Director of Training at the Institute for International Training Research, Inc.

Gilbert F. White of the University of Colorado at Boulder is a social scientist dealing with water resources in both the United States and abroad. A member of the National Academy of Sciences, Dr. White is perhaps best known in the water and sanitation field for his pioneering studies of water supply in East Africa.

The work of the Board was most effectively coordinated by Myrna Seidman, chief of Technical Advisory Services in the American Public Health Association, International Health Program Division, under contract. Diane B. Bendahmane served ably as editor.

## II

### MANAGEMENT

The WASH Project has two components, the work done under contract with CDM and other water and sanitation activities carried out by alternative contract mechanisms. However, most of the work of the Project is done by CDM and its associates. Of the \$17 million approved for the WASH Project, \$12.5 million is for the CDM Contract. This report does not evaluate WASH Project activities carried out by alternative contract mechanisms, such as Indefinite Quantity Contracts, cable authorizations, the American Public Health Association Accelerated Delivery Systems Support, and so on, but restricts itself to assessing AID management of the CDM WASH Contract and the Contractor's internal management. (Nine contracts totalling \$590,000 were initiated in addition to the CDM work.)

WASH Project funds are drawn primarily from the budgets of the Office of Health in the Bureau for Science and Technology. The Project is administered by the Division of Water and Sanitation by a Project Manager who reports to the chief of the Division.

The WASH Project-CDM Contract is the major contract of the Water and Sanitation Division. In fact, the CDM Contract represents 80% of the Division's budget and is the way in which most of the functions of the Division are carried out. The activities of the Contractor are thus highly visible and can reflect upon the reputation of the Division.

#### Orders of Technical Direction

The Water and Sanitation Division is responsible for formulating, approving, and relaying requests for assistance to the WASH Contractor. Such requests originate with the Missions, Regional Bureaus, or the Central Bureaus of AID. They identify a water or sanitation problem and cable or write a request for assistance to the appropriate backstopping office in the Regional

## 8 An Evaluation of WASH

Bureau or to the Bureau for Science and Technology. The backstopping office then forwards the request to the WASH Project Manager in AID who reviews the request and determines whether or not it falls within the scope of the WASH Project and whether or not funds are available. If the request is approved, the WASH Project Manager consults with the WASH Contractor and a recommended service implementation plan is developed in coordination with the Mission or Bureau requesting the services. This plan becomes an Order of Technical Direction (OTD), the authorizing document that directs the Contractor to begin a task.

Once an OTD is issued, the Contractor works directly with the client Bureau or Mission. However, the WASH Project Manager in AID must approve the choice of consultants, and, during the implementation of the work, the Division of Water and Sanitation may also provide some direction and guidance -- for example, what to do in certain circumstances for political reasons.

OTDs represent a time, rather than a dollar, budget and authorize the number of person days, per diem days, international travel days, and dollars for miscellaneous field expenses. Work is tracked by the Contractor in terms of directly productive person days expended.

This system of OTDs is one of the most innovative aspects of the WASH Project. Unlike most work orders, which must be approved by three AID Offices (Program Management, Financial Management, and Contract Management), OTDs are approved by the AID WASH Project Manager and carried out promptly by the Contractor.

### C-Tasks

Not all tasks are done under OTDs. The AID WASH Project Manager can direct the Contractor to carry out smaller, less formal and usually short-term tasks called "C-Tasks." No specific scope of work is needed for most C-Tasks. Major technical studies carried out by the WASH Contractor are also done under C-Tasks rather than OTDs. These however, do require thorough discussion between AID and the Contractor and a scope of work must be developed and approved by the AID WASH Project Manager.

C-Tasks are also used by the Contractor as a management tool primarily to provide documentation and a means of keeping track of costs associated with a number of management and overhead activities. For example, orienting visitors to the WASH Project would be treated as an administrative C-Task.

The Contractor assigns a task manager to each technical C-Task and to each OTD. These managers are responsible for defining the work plan, recruiting the staff, and communicating with the Mission or Bureau. The task manager has access to anyone in the Contractor's office for assistance and is responsible for acquiring the necessary resources. A task manager may be responsible for ten to fifteen active OTDs and C-Tasks at one time. Briefings are held for AID and CDM staff at the completion of each task, a practice that is not considered useful in all cases by AID staff.

The Evaluation Board finds this task management system to be effective and innovative. In addition, the Coordination and Information Center set up by the Contractor appears to be well organized and managed.

### Consultants

Field work is normally carried out by one of the subcontractors or by one or more consultants from the Contractor's roster of approximately 700 technical experts. Of these, 132 have been pre-cleared by AID to speed up the process of implementing an OTD. To date, 56 consultants have been used; 30 have been used more than once. In practice this pool of consultants is diminishing when it should be expanding and diversifying. A larger number of pre-cleared consultants would make it possible to respond more flexibly to requests for assistance.

### Concerns of the Office of Contract Management

Until quite recently the system of management outlined above worked well. However, in August 1982, the Office of Contract Management raised some questions about the system. For approximately a month in the summer of 1983, while these questions were being considered and the differences negotiated, the Office of Contract Management stopped payments to CDM and project activities came to a virtual halt.

## 10 An Evaluation of WASH

These contract problems, serious though they were, should not have been allowed to halt the work of the Contractor. Well over a hundred OTDs had been initiated before problems regarding their management were raised. The WASH Project Office in AID and CDM's WASH Office, recognizing that they could not rapidly resolve the differences with the Office of Contract Management, should have attempted to raise the level at which the matter was handled. If necessary, it should have been elevated to the level of the Senior Assistant Administrator, Bureau for Science and Technology, and the Assistant Administrator, Bureau for Management, to have achieved rapid and firm resolution.

The problem arose because the innovative and experimental nature of the WASH Project was not reflected in writing in the Contract, and procedures to implement these innovations were not specified. The CDM Contract provided insufficient detail on what an OTD is (a subcontract or something other than a subcontract) or on how an OTD should be managed. Despite the fact that the Contractor and the chief sub-contractors are approved by AID as having adequate governmental cost accounting systems and the individual consultants are cleared by AID before they are used, the Office of Contract Management, because of a change of personnel, had concerns that the WASH Project lacked adequate cost controls. The Contract, as revised, now spells out what documentation is required between the Contractor and its subcontract associates to assure that OTD arrangements are provided at the lowest cost commensurate with the delivery of quality and rapid services.

### Managerial Strengths and Weaknesses

In general the Board found that the WASH Project and the activities of the Contractor are managed effectively and efficiently and are achieving the goals set in the Contract. The AID WASH Project Manager's dedication, technical competency, and attention to detail have received positive comments from all sources. The support provided by the Chief of the Water and Sanitation Division is regarded as enthusiastic and effective.

If there is a major managerial weakness, it can be attributed to excessive management -- a too detailed mode of supervision of the Project by the AID Project Manager. The Contractor is sometimes treated like an internal AID office, undue control being exercised over its activities even after OTDs have been

authorized. Mission personnel point out instances in which they have been urged to request certain services against their own judgment and complain that their views are ignored. The Board feels that these complaints are justified and that AID should intervene in CDM's management of OTDs only in cases where the Contractor's recommendations or actions would have significantly adverse effects upon the success of the OTD.

The Contractor is unhappy with AID's practice of authorizing fewer than the expected number of required person days to carry out an OTD. Of the 148 OTDs authorized there have been 206 amendments of which 151 involve increases in the number of person days authorized. Fifty seven per cent of the OTDs have been amended at least once in this manner. Naturally, for some OTDs it is difficult to estimate how many person days will be required before the work has actually begun, and, in some cases, such as phased projects, it is appropriate to increase authorizations. However, in many cases, fewer than the number of days needed are initially authorized. Additional days are authorized later by amendment.

It is clear to the Board that the AID WASH Project Manager is using the incremental authorization of person days for OTDs as a management control device. The Board realizes that the exact number of days cannot be estimated in some cases but fails to see the rationale for withholding person days as a way of exerting control. Although the Board commends the AID WASH Project Manager for his concern with cost conscious management, the Board feels that the practice of incremental authorization ultimately results in higher costs and more red tape for AID and the Contractor and can prevent the Contractor from developing a work plan that responds fully to Bureau and Mission requests.

### Subcontractors

CDM Associates (herein called the "Contractor") is comprised of CDM itself and three subcontractors: International Science and Technology Institute, Research Triangle Institutes, and the University of North Carolina at Chapel Hill. The Georgia Institute of Technology -- Engineering Experiment Station was added later and is not one of the Associates. Although legally they are organized as prime contractor with subcontractors, operationally they function as a consortium. The

## 12 An Evaluation of WASH

liaison officers for each of the subcontractors, for example, are routinely informed of OTDs, so that their resources can be mobilized.

Relations between CDM and Georgia Tech have been strained. There have been delays in subcontractors receiving letters of authorization from CDM. This means that the subcontractor has to incur expenditures and obligations which cannot be invoiced until the authorization is received.

Under the CDM task management system Georgia Tech has had to deal with at least three different task managers, all of whom seem to have different requirements for carrying out tasks, writing reports, etc. This situation should be improved when CDM establishes the new position of Associate Director for Technology Transfer required by the recent contract extension amendment.

CDM's propensity to contact Georgia Tech personnel in the field directly without going through appropriate channels has created personnel, scheduling, and planning problems for Georgia Tech. The Board understands that CDM has agreed to cease this practice.

The Board feels that more attention to subcontractor relationships is called for and that CDM should assign a senior staff member to iron out the difficulties and monitor the situation to prevent other problems from cropping up.

### An Outside Perspective

One of the Board's recommendations is that an advisory board should be established to assist the WASH Project. It is the Board's feeling that the Project suffers from the lack of perspective that could be provided by a larger group of experts in water and sanitation that Project personnel -- both within AID and CDM -- can go to for help in solving problems, setting priorities, and making plans for the future. The advisory board should have some knowledge of or institutional tie with the UN Water Decade to assure that the WASH Project does not lose sight of its major purpose -- to be for the United States the focal point for Decade activities.

Recommendations

Project-contractor relationship. It should be recognized that CDM is an independent contractor, not a staff extension of AID. The AID WASH Project Office should have confidence that the Contractor will carry out its work effectively once an OTD has been issued.

Incremental authorization of person days. AID should discontinue the practice of using incremental authorizations of person days as a management control technique for OTDs.

Collaboration. The scope of work for every OTD should be developed collaboratively by the host country, the Mission, the Regional Bureau, the AID WASH Project Office, and the Contractor. Choice of consultants should also be made collaboratively with special attention to Mission recommendations. The originator of every C-task should have it reviewed by one other staff member in the Office of Health, Division of Water and Sanitation.

Pre-cleared consultants. Measures should be taken by all responsible parties to broaden WASH's expert talent bank by pre-clearing substantially more consultants on the list than are now pre-cleared to enable the Contractor to increase the number of different consultants now used and to diversify the active consultant pool.

Fewer debriefings. The WASH Contractor should be more selective in holding debriefings on completion of tasks; debriefings should be set up in consultation with the Regional Bureaus on an as-needed basis.

Relationships with subcontractors. The WASH Contractor should assign the specific responsibility for handling relationships with all subcontractors to one of its current senior staff persons. A key task for this person is to ensure that all subcontractors receive timely letters of authorization and are reimbursed promptly for services rendered.

Advisory Board. A ten member interdisciplinary Expert Advisory Board should be appointed by the AID Administrator to review WASH priorities and project activities. The Board

#### **14 An Evaluation of WASH**

**should meet quarterly in Washington, D.C., and should consist of three members from the government and seven members from the private sector. Board expenses should be funded by WASH Project funds.**

### III

#### WASH SERVICES

The WASH Project provides services in four broad categories: general technical assistance, technology transfer, manpower development and training, and information support. However, specific tasks may not fall easily into a simple category. It is not uncommon for some tasks to have components of assistance that fall into different sub-sets. Nevertheless, this report will look at each service separately.

##### General Technical Assistance

WASH technical assistance is provided for planning, implementing, and maintaining water supply and sanitation systems. The water supply and sanitation components of health, nutrition, housing, population, science and technology, and urban and rural development projects are also eligible for WASH assistance. Technical assistance is multidisciplinary in character and ranges from conceptualization and planning of water and sanitation projects to setting up pilot projects in the field.

In the course of the evaluation, AID Missions were asked to respond to a number of questions on how they rated WASH services. Thirty-eight Missions responded that have used WASH services. The WASH Project received very high marks in this survey. All responding Missions rated WASH services they had used as at least "completely satisfactory," while the majority of the Missions called them "superior" or "outstanding." The majority of respondents also said that WASH services should be expanded. Similarly, host country and AID officials that the Evaluation Board interviewed in Egypt, Sudan, Jordan, Dominican Republic, Honduras, Ecuador, and Panama generally complimented the

## 16 An Evaluation of WASH

WASH Project. The Evaluation Board shares this favorable view and finds that the WASH Project is doing an extremely effective job, especially in providing quality assistance in a timely manner.

In a majority of the assignments the scopes of work were well defined, and the consultants performed useful service and prepared excellent reports. A good example is the Recommended Waste Water Treatment Guidelines Project for the Hashemite Kingdom of Jordan. The consultant, nominated by the Division of Engineering in the Near East Bureau, was well qualified professionally and was an excellent choice. His recommendations were well thought out and practical: he wanted the designers to focus on treatment systems that would be economical to operate and would require limited technical personnel for maintenance. When he returned to the United States, he touched base with the consulting engineering firm's design office. There were also follow-up meetings between the host country engineers and the consultant at his office in Ames, Iowa. This interaction was well received, and the work of the consultant had a very positive impact on the project. Another successful WASH effort was an evaluation of a rural water supply project in Honduras. The scope of work for the evaluation was developed jointly by Honduran Ministry of Health personnel and the AID Mission engineer. Two excellent consultants were named from a panel approved by the host country. Their evaluation, which was highly praised by host country officials, led to a revised and much more realistic project. Many other such examples could be given.

### Problems in Technical Assistance

The problems identified were not major. Some arise in the field when scopes of work are incomplete or inadequate. In such cases, once consultants arrive in country they may find that the Mission's idea of what they are to do differs from the terms of reference for the task. In one country, for example, the visit of a consultant was not well coordinated with the AID Mission and the host country agency initiating the request for assistance. Thus, the report that was written is technically sound but does not really address the problem for which assistance had been requested.

Sometimes problems arise over the choice of consultants. Some AID Missions feel that their recommendations are not taken seriously and that the consultants Washington chooses are sometimes not well qualified for the job at hand. It is important that users of WASH services have confidence in and can communicate with the consultants chosen.

In interviews with Board members, some AID Mission and Regional Bureau personnel criticized the WASH Contractor for using project funds to "market" WASH. Under the rubric of targets of opportunity, the WASH Contractor has sought to "publicize" WASH services. For example, a core staff member of the WASH Contractor's office attended the meeting of the World Federation of Public Health Associations in Calcutta where he showed displays of the WASH Project. The field report consisted of the travel diary, the author's impressions of conversations he had had with Third World conferees and his observations during field visits, a paper which he had presented, and miscellaneous documents collected during the assignment. Another field report, written by a WASH subcontractor's staff member, covered his attendance at the UNICEF/Pan-American Health Organization Joint Workshop on Drinking Water and Sanitation in Rural and Urban Slum Areas held in Lima. It contained a short, very personal travel diary and many pages of conference documents. These reports contain little information of value, and the Board questions the appropriateness of the WASH Contractor representing the WASH Project in this manner. The responsibility of promoting WASH rests with AID.

A more serious problem than those just mentioned is that the WASH Project, as a matter of policy, turns down requests for assistance for urban projects. The WASH brochure states that technical assistance will be provided "to help conceive, plan and implement rural and peri-urban water supply and sanitation projects." (Emphasis added.) This limitation does not appear in the contract between AID and CDM but was added by the Office of Health.

In actual practice the definition of "peri-urban" has been stretched a number of times. For example, in Cairo, WASH consultants worked on the Implementation Plan for the Unsewered Areas Demonstration Project in Greater Cairo. This area, Giza, is in the older section of the city and cannot be described as

## 18 An Evaluation of WASH

peri-urban. Certainly, it is as "peri-urban" as a much less densely populated area in Amman, for which a request for assistance on a possible water contamination problem was turned down for being "urban."

Not only is it very difficult to be consistent in defining "peri-urban," it is also unreasonable to limit WASH services in this manner. In many countries the problems of water supply and excrement disposal are particularly acute in urban areas. While rural areas should not be ignored by any means, it is often reasonable to use scarce resources for urban projects which can potentially affect a great number of people. One of the goals of the UN Water Decade is to reach as many people as rapidly as possible.

It should also be noted that AID will be involved over the next five years in assisting Egypt to upgrade the water and sewer systems in Cairo. This \$1 billion program could surely benefit from the technical backstopping services the WASH Project can provide.

### The WASH Project and the Office of Foreign Disaster Assistance

An area that deserves special commendation is the assistance given to the Office of Foreign Disaster Assistance. The WASH Contractor has assisted in three disaster situations: in Tunisia, Lebanon, and Ecuador. Rapid and effective assistance was given to Tunisia for a sewerage problem. In Lebanon the assistance had to do with assessment of damage to water, wastewater, and solid waste utilities as the result of warfare and was graded "top notch" by AID/Beirut. In this instance the Contractor was able to field rapidly an outstanding team, which took advantage of a previous water and sanitation sector master planning experience in Lebanon sponsored by the World Health Organization. The findings of the WASH team served as the basis for the current Potable Water and Environmental Sanitation Project funded at \$2.8 million.

In Ecuador the WASH Project provided emergency water treatment units for a flooded area. When the request for technical assistance was received by the AID WASH Project Manager, four water treatment units were flown immediately by charter plane to Guayaquil, Ecuador. Two others were sent air freight. Four technical personnel -- a WASH Contractor sanitary engineer and three technicians -- were on the charter plane. In

the course of the assistance four of the units were employed in the field; two were kept in reserve in Guayaquil. This is a remarkable example of rapid response time, since the first unit was installed and producing safe water 50 hours after the request was received by the Office of Health and over New Years day in addition.

### Technology Transfer

Technology transfer activities, as described in the scope of work in the CDM Contract, focus on appropriate: -- i.e., robust, locally manufacturable, low-cost -- water supply and sanitation devices, their design, manufacture, and field-testing. However, the Board found that in reality the emphasis in technology transfer for the WASH Project is on hand-pumps and associated equipment, and the few other projects carried out in this area are not impressive.

The WASH Contractor has been called upon principally to work on handpumps. This work continues efforts that began in the late 1960s when the Batelle Memorial Institute Laboratories were contracted by AID to develop a pump. Since the early prototype was developed, there have been several modifications. The Engineering Experiment Station of the Georgia Institute of Technology took over from Batelle the responsibility for the handpump technology under a subsequent AID contract. Today Georgia Tech serves as a subcontractor to the WASH Contractor.

AID-assisted handpump programs were reestablished under the WASH Project in Nicaragua, Costa Rica, Indonesia, Sri Lanka, the Philippines, Tunisia, Honduras, Dominican Republic, and Ecuador. Today the emphasis is on helping foundries in these countries to become capable of manufacturing the pumps themselves and on evaluating the performance of the pumps in the field. Machining and casting problems are being addressed by the Georgia Tech staff for the WASH Project at the foundries where subcontracts have been let.

Even with great emphasis on handpumps over the years, progress has been slow. For example, there are still design problems with the AID-type handpump. In the field, questions are being raised as to why this should be so after many years of effort and large expenditures of funds by AID on handpump designs.

## 20 An Evaluation of WASH

Apparently the process for authorizing design changes is complicated and slow. AID wants to be certain that design changes are well conceived and carefully tested. However, this caution, in the opinion of the Board, is holding up progress. Georgia Tech could solve design problems with dispatch and should be allowed to do so.

Other instances of poor coordination and planning on the part of the AID WASH Project Office have also slowed progress. Host countries are not being assisted to install pumps at strategic sites so that comparative studies with other available pumps can be made with respect to operation, maintenance, popularity among users, and life-cycle costs. This information is needed to enable planning of cost-effective and popularly acceptable water supply programs. In introducing a new plastic well screen and pump cylinder, AID let contracts for production in the host countries before the research and development were complete. In consequence, the local (in this case Ecuadorian) manufacturer had to modify the design twelve times before production could begin. WASH Project consultants spent a lot of effort on this task for a small return.

The great effort made in handpump development has not been matched in solid waste and sanitation technologies. Nor has much attention been given to other pieces of hardware such as valves and pipes. The introduction of the Colombian water-seal latrines into other countries of Latin America and some efforts in Africa on latrines stand out as exceptions.

### Training and Human Resources Development

From the inception of the WASH Project, training and human resources development were recognized as critical elements in the successful implementation of any water/sanitation activity. Recognizing that the traditional participant training in which trainees from developing countries were sent through existing university programs was inappropriate for most AID target beneficiaries, WASH set out to develop and implement competency-based training which concentrates on specific work activities and skills. Under this approach, training programs are based on a careful analysis of the skills required to implement a water or sanitation project and are evaluated by performance testing.

The Board finds the training programs designed and implemented by the WASH Contractor to be excellent. Training is broadly defined by the WASH Contractor as one of a number of human-resources development activities related to a specific project. Currently the great majority of WASH OTDs have a significant training or human resource development component. Community involvement and especially the involvement of village women is considered a critical element of training activities. The WASH Contractor staff and consultants function to support the promotion and implementation of projects in the local community. Such an integrated approach to training deserves high praise and support.

The WASH Contractor has an effective and dedicated training staff that is well qualified in the water-and-sanitation technical area and extremely knowledgeable about the needs of the target trainees in developing nations. However, activities in this area are not as varied and broad-based as they might be, although AID has provided considerable guidance to the Contractor on training activities. Most of the work of developing training materials is currently undertaken by outside training consultants. This is an effective arrangement, but it does not provide for institutional continuity.

#### Standardized Training Format

The WASH Contractor uses a standardized format for developing training packages. This format has been applied to four high-impact areas: handpumps, latrines, spring capping, and rain-water harvesting. For these areas workshop packages (supported by printed manuals and job aids) designed especially to be adapted for local conditions have been developed. Judging from the latrine-construction workshop in the Dominican Republic, which members of the Board reviewed, this approach is successful. Trainees learned the skills required and generally approved of the training methods. The success of the workshop is due not only to its original design but also to the effective adaptation of the material by the two WASH trainers. Unless such highly competent trainers are available, the use of generalized training packages may mean that some material taught is irrelevant.

The WASH Contractor could increase the effectiveness of its training workshops by exploring, where appropriate, the use of such instructional media as audiotape, filmstrips, radio,

## 22 An Evaluation of WASH

broadcast television, or computer-assisted training materials. Self-instructional modules, posters, conventional lecture presentations, and on-the-job training could also add significantly to the viability of the training effort. The current materials depend heavily upon the availability of competent trainers. In some situations, better results could be achieved through self-instructional materials.

WASH training materials are designed to train and support the trainer who handles middle-management workers, such as community health promoters. However, there is a lack of training and informational materials which could be left with the end-user. For example, in the Dominican Republic latrine-construction workshop, the trainees did not have appropriate materials (sample scripts, posters, illustrated brochures) which they could have used in training and promotional activities in the community.

WASH training workshops pay equal attention to the hard and soft skills required for the successful implementation of a water or sanitation project. The latrine construction workshop, for example, deals with "hard" skills such as selecting a site, constructing shelters, and mixing concrete and such "soft" skills as mobilizing the community and understanding local taboos. This balance is carried over into the staffing. Both a technical expert and a training and human resources development specialist design and conduct the workshops. Trainees thus learn to be aware of the human-relations factors that are a part of any technical project. This balance is consistently identified as the major strength of the WASH workshops.

### Information

According to the WASH Project brochure the WASH Information Center provides "accurate and current information on technical, socioeconomic and health aspects of rural and urban-fringe water supply and sanitation programs....(and) analyzes, synthesizes, and disseminates information to AID personnel upon request." This information clearinghouse function is one of the major tasks assigned to the Contractor, and the activities of the clearinghouse are highly regarded.

AID Mission and Washington personnel are major users of clearinghouse services, along with developing country agencies and international organizations. The clearinghouse conducts information searches and disseminates materials in response to requests, prepares exhibits for major conferences, and maintains country materials for consultant briefings and a data base for all of the water supply and environmental activities of AID. Information sharing relationships with a wide network of organizations have also been developed.

WASH's collection consists primarily of print materials, most of which are slanted toward technically literate consumers. Beyond what is already being done at national and inter-governmental levels, there appears to be a need for materials suited for non-literate and neo-literate users in the villages of the developing nations. Such materials would be of great assistance in encouraging community understanding and participation in various water and sanitation projects.

#### Field and Technical Reports

In reality, the majority of WASH publications are the Contractor's own field and technical reports. Here their output is very large -- an average of one report per week. The Board reviewed a representative sample of these reports and found them generally to be impressive and to be held in high regard by experts outside of AID. However, some problems -- all of which can be rectified fairly easily -- were identified in the course of the evaluation.

First, the reports are not uniformly accurate, reliable and up-to-date. (The same criticism can be leveled at some training materials also.) For example, several reports reviewed included discussions of the microbiological techniques used to determine the bacterial quality of water. In general, the reports show weaknesses in environmental microbiology. Confusing and sometimes incorrect terms have been used. Similar weaknesses in parasitology were noted. In one report, for example, the life cycle of Dracunculus medinensis, was incorrectly given. An accurate understanding of something as fundamental as the biology of parasites is extremely important for control programs. In a discussion of something even more important -- chlorination -- one report was not current on standard methods for chlorine residual determination. This same report also misdefined important terms in chlorination practice.

The second problem is that some reports do not appear to have been edited carefully enough. They contain typographical and syntactical errors and obvious inconsistencies. Some have apparently been written by consultants not in full command of English. These deficiencies detract from the substance of the report.

Another problem has to do with the usefulness of technical reports. (Technical reports, produced as C-tasks, often involve developmental and exploratory work preparatory to the issuance of an OTD.) For example, a report on rural community development worker training prepared for the Mandara Mountains (North Cameroon) Water Resources Project had little applicability in the socio-cultural setting of the region. The WASH Contractor might as well have provided the project in Cameroon with a good reference book in place of the technical report. A second example was a report on the choice of health status indicators to evaluate a water and sanitation project, also in North Cameroon. The first part is textbook material on vital statistics and biometry. The second is largely collateral information on the subject from other parts of the world. There is no information on such basics as hydrology, geography, or socio-cultural factors in the Mandara Mountains. No reference is made to related reports, such as one by the World Bank panel of experts concluding that it is extremely difficult to demonstrate a direct relationship between water supply and health. These two technical reports are largely academic exercises of questionable utility and the C-Tasks authorizing them probably should not have been approved.

Such inadequate reports are the exception. There is no question about the usefulness of the report on the use of tri-iodide for disinfection. A report entitled "Women, Water, and the U. N. Decade," is also useful and well-written. Another report which stands out is by an expert panel assembled to review the report of an AID-funded Food Wastage/Sanitation Cost-Benefit Methodology Project in Guatemala by the University of North Carolina and the contradicting paper entitled "Guatemala Revisited" by Dworkin and Dworkin. The expert panel's review sheds light on the failings of epidemiologic studies conducted in developing countries and on the weakness of the statistical analysis of the data. "Social and Economic Conditions for Water Supply and Sanitation Programs" is also an

excellent technical report. It reviews studies to date with a sound historical perspective and raises pertinent cautions about the predictive process.

Unlike technical reports, field reports are part of the technical assistance that is provided under an OTD. They are written by the consultant who did the field work specifically for the group who initiated the request for assistance. Frequently that group is a host country agency with which the AID Mission is working. Where consultants have coordinated their efforts with relevant host country agency personnel and have written reports that are focused on their defined problem in the language understood in the country, the outcomes have been favorable. However, some field reports seem to be addressed to no one in particular and everyone in general. They have multiple functions: to document the assignments, to serve as reference materials for the information dissemination function of the WASH Project, and to record the internal AID communications. They sometimes have references that are either extraneous or might serve a much wider constituency. Often the needs of the host country professionals for whom the field work was done are given second place.

These reports are produced in large quantities and are sent automatically to the respective Missions and Regional Bureaus, to the Health Office in AID's Bureau for Science and Technology, and on request to an extensive distribution list of interested individuals and organizations who are periodically sent a list of available reports. AID approves the distribution list.

#### Requests for Information

In addition to publishing and distributing reports, the WASH Contractor provides specific technical information to AID Mission personnel upon request. As of July 1, the Information Clearinghouse staff had responded to 1,706 requests for information. Requests are handled in a variety of ways, a large number by sending WASH reports on the topic identified. Other requests are referred to the WASH contractor employee with relevant experience and expertise, and at other times a request is forwarded to the University of North Carolina, which has a comprehensive collection of technical materials. Outside resources -- particularly the data bases to

## 26 An Evaluation of WASH

which WASH has access -- are not used effectively. Furthermore, there is no standard procedure for rapid retrieval and supply of technical information, nor are spot checks conducted to determine user satisfaction with the timeliness of the response or appropriateness of the materials sent.

Some difficulties arise when requests for information are unclear or too general. Mission personnel need assistance in formulating their technical questions as well as their scopes of work. Efforts made to improve the "input" would very likely increase the efficiency of the WASH Contractor.

One of the most popular WASH publications is a women-in-development bibliography. AID should authorize the Contractor to prepare other such bibliographies and directories, including brief abstracts of materials on topics for which information is frequently requested. The Contractor, with help from available computerized data bases, has the technical expertise and contacts with other agencies to perform these functions.

### Recommendations

Rural, peri-urban limitation. WASH Project services should be extended to include urban as well as rural and peri-urban projects. The WASH brochure should be revised to reflect this change.

Expanded technology transfer. Technology transfer activities should be more innovative and expanded to encompass technologies other than handpumps.

More emphasis on sanitation. WASH Project activities should focus more on sanitation as well as on water supply projects.

Training staff increase. The WASH Contractor should increase its capacity to provide services in training and human resources development by focussing more funds in this area.

Alternative approaches to training. The WASH Contractor should explore alternative instructional media and strategies (including non-print media) to complement the training-workshop format now used. Likewise more materials for use in local training activities at the

community level, especially for villagers in developing countries, should be prepared.

Requests for information. The WASH Contractor should establish and implement a standard procedure for rapid retrieval and supply of specific technical information, using outside resources, experts, and data bases. A system for evaluating the Contractor's response to information requests should also be established.

Attendance at international meetings. WASH Contractor personnel should not represent the U.S. government at international conferences, seminars, workshops, etc. They should not attend such meetings primarily for the purpose of publicizing the WASH Project. In addition, their attendance at professional meetings should be carefully reviewed prior to authorization by the AID Project Manager.

More control over C-Tasks. To exercise more control over the issuance of C-Tasks for technical reports, two professional staff from the Office of Health should concur before such tasks are undertaken.

Design modifications. The AID WASH Project Office and the Contractor should be more responsive to suggestions for improving the design of hardware.

Quality control. The WASH Contractor should ensure the accuracy and appropriateness of the technical content of scientific reports and training materials through a system of technical reviews by subject-matter experts. Regarding the reports specifically, the WASH Contractor should strive for brief, well-written, well-edited reports carefully focussed for their targeted audiences. Extraneous materials (such as AID memoranda and other documents) should not be included. Guidelines for the preparation of reports should be revised to reflect these changes.

Translation of reports. Reports should be translated into French or Spanish if the audience to whom they are addressed cannot read English easily. Similarly, on a case by case basis and at the request of the Mission, abstracts in other languages, such as Arabic, should be prepared.

## 28 An Evaluation of WASH

Users manual. The WASH Contractor should prepare a manual for the users of WASH services. The manual should include a collection of well-written sample scopes of work and pricing information to be used as models. It should also include a format to be used for submitting technical questions to WASH.

Bibliographies. The WASH Project should give priority to authorizing the publication of specialized directories and bibliographies on the technical, socio-economic, and health aspects of water supply and sanitation projects under C Tasks.

Abstracts. Abstracts of frequently requested materials in the WASH collection should also be authorized.

## IV

### RELATIONSHIPS WITH OTHER ENTITIES

One of the goals of the WASH Project is to reinforce, unify, and coordinate U.S. activity in support of the UN Water Decade. WASH was to provide assistance for AID projects in participating countries and for the programs of inter-governmental agencies (the UN Development Programme, the World Health Organization, the Pan-American Health Organization, the World Bank, UNICEF), other bilateral agencies, and private voluntary and non-governmental organizations. It is therefore appropriate to ask what have been the linkages between WASH and those other agencies and how effective WASH has been in helping them to achieve the goals of the Water Decade.

There is divergence of opinion on this point among interested people in AID. Some regard the WASH Project as a principal and continuing instrument of U.S. policy in furthering the Decade and as a confirmation of the sincerity of the promises made by U.S. representatives at the time the Decade was created. Others seem unaware of those commitments, and regard WASH as one of several devices to support AID activities. This difference is reflected in expectations for WASH performance.

Within AID there were virtually no precedents for WASH operations in relation to the Regional Bureaus. Because of the high rate of turnover of personnel, many of those interviewed were not fully informed as to WASH activities. While its primary function was seen to be a constructive response to requests from the Missions, there was ambiguity about how much, if any, initiative the AID WASH Project Office should take and how it should communicate with Regional Bureaus or with Offices such as the Housing Office. Nor was there a clear understanding as to the role of the WASH Contractor in dealing with entities outside of AID.

### 30 An Evaluation of WASH

The WASH Contractor has sought to keep in touch with the UN Development Programme, UNICEF, the World Health Organization, and various bilateral and non-government agencies concerned with the Decade. Information is exchanged, and WASH Contractor personnel apparently are aware of much of the related activity in countries or fields to which they are assigned.

However, WASH Contractor reports make relatively little direct reference to reports issued by other agencies interested in the advancement of the Decade. A selection of persons active in those agencies feels the WASH Project documents aim to strengthen the identity of WASH as a project and fail to recognize the past and potential contributions from other groups, in both general and specific areas.

The WASH Contractor has been active in making its published reports available to other agencies participating in the Decade. It maintains a mailing list of approximately 600 names, subdivided by types of agency, and it provides additional copies to groups such as UNICEF and CARE. Abstracts of its titles are provided to international data bases such as the International Reference Centre and the American Water Works Association's Waternet, as well as AID data services. It does not maintain its own computerized data base.

#### Sharing Information and Experience

There is ambiguity about whether or not the WASH Project should assist Missions to fashion their activities in cooperation with multi-lateral, private, and other bilateral agencies to exercise optimum impact in the country's advance toward its development goals. A number of the field reports deal strictly with the task defined by the country Mission without suggesting broader considerations or collaboration with other assistance agencies. On the other hand, some of the reports, such as the review of CARE activities in Haiti, suggest initiatives that would bring together agencies to share information and experience.

While the basic responsibility for coordination of Decade activities rests with the UN Development Programme resident representative in each country, these activities are much

influenced by the posture of major donors. AID is plainly a major donor in terms of expenditure levels as well as of number of countries reached. More positive interest by the AID Mission, supported through the WASH Project, in fostering integrated country programs would be welcomed by certain representatives of other agencies. Several of the non-governmental agencies have much to gain from the knowledge and experience of the WASH Project.

Recommendations

Keeping AID personnel informed about WASH. Because of the rate of turnover in Bureau and Mission personnel, the Bureau for Science and Technology should inform the appropriate people in AID Washington and abroad on a yearly basis of WASH Project services and how they can be accessed.

Assistance from other agencies and organizations. WASH Project personnel should be prepared to provide AID Missions with appropriate information on financial assistance from other countries that the host country might draw upon in carrying out water supply and sanitation projects.

Assistance to other organizations. The AID WASH Project office should utilize every opportunity to acquaint non-governmental, private voluntary, multilateral and bilateral organizations engaged in water supply and sanitation projects with WASH's resources and methods, since many of these organizations are carrying out projects in conjunction with the UN Water Decade.

**32 An Evaluation of WASH**

## V

### TRANSFERABILITY OF THE "WASH MECHANISM"

In designing the WASH Project, the Office of Health, Bureau for Science and Technology, reviewed the lessons learned from the provision of technical services in various projects over the previous fifteen years and developed a new mechanism that was an amalgamation of the best aspects of standard contract procedures, Indefinite Quantity Contracts, purchase orders, and university grants.

A review of lessons learned from previous efforts indicated that traditional modes of supplying responsive short-term technical assistance were inefficient, cumbersome and time-consuming. Often the consultants were not supplied in a timely fashion and frequently lacked a thorough understanding of the context of their advisory services to both AID and the host governments. It was noted that poor quality of technical services and unsatisfactory cost control were most frequently a reflection of the contractor's inadequate understanding of AID policies and procedures combined with poor appreciation for the needs and priorities in host countries. In response it was decided to adopt an approach which would both address continued needs in the sector and test new techniques in project management. In particular, the WASH Project built on the experience of such projects as the Accelerated Delivery Systems Support Project, implemented through a contract with the American Public Health Association, which provides an institutional support base for the provision of highly specialized and rapidly available technical services.

#### Critical Concepts in the WASH Mechanism

The management of the contract proved to be the most innovative aspect of the WASH mechanism. The Office of Contract Management provided clearance of the prime and principal subcon-

## 34 An Evaluation of WASH

tracts, pre-cleared much of the consultant roster, and then delegated to the project manager the authority to issue OTDs within the scope of the contract without further clearance. This delegation of authority has proven critical to the success of the WASH Project. It allows for direct technical supervision of work orders while eliminating the cumbersome and time consuming task of the Program Office review, financial management approval, and the Contract Office negotiation of each individual work order. In addition, it should be recognized that this delegation of authority has reduced the extreme administrative burden that would be placed on the Office of Contract Management if traditional techniques were used to manage the numerous and technically diverse small-scale activities encompassed routinely within the Project.

Other critical concepts used in the design of the WASH mechanism include: (1) reduction of interoffice clearances by technical, program, and contract personnel; (2) a contractor support service with in-depth knowledge of AID policies, administrative procedures and technical objectives; (3) creation of an institutional memory in the form of a Coordination and Information Center; and (4) development of an inter-regionally focused cadre of inter-disciplinary professionals.

The success of the WASH Project, from an operational management viewpoint, already has resulted in the transfer of the WASH mechanism to a number of other projects. Other sectors, most notably Environment and Natural Resources, have modified the original WASH Project design concept and have developed technical support projects which incorporate its key principles. In contrast to the WASH Project, technical services in this sector are being obtained through both Cooperative Agreements and Resources Support Service Agreements (RSSAs). In all cases the projects feature a long-term core support staff to assure continuity and provide institutional memory combined with a management system which allows the project manager, a technical expert, to issue work orders directly to the contractor. For example, the Forestry Resources Management Project centrally funded and managed by the Office of Forestry, Environment and Natural Resources, Bureau for Science and Technology, provides technical assistance through a RSSA with the Forest Service, U.S. Department of Agriculture. The project runs from FY1980 - 1987 and is approved at a funding level of \$17 million. Another example is Private Sector Initiatives in

Industrial Pollution Control, a regionally funded project managed by the Office of Project Development, Bureau for Near East. It provides short-term technical assistance in the area of industrial pollution control and industrial health. Funded at \$1.5 million for the period FY1982 - 1986, the project operates through a Cooperative Agreement with the World Environment Center, a non-profit organization.

The WASH model has also been examined for energy projects by both the Office of Energy, Bureau for Science and Technology, and the Office of Technical Resources, Bureau for Africa. The Office of Health, Bureau for Science and Technology, also proposed the use of the model in the design of the Technologies for Primary Health Care Project but was turned down by the Office of Contract Management.

#### Problems to Avoid

The Board feels that the WASH mechanism has worked quite effectively and is a good model on which to base other sectoral technical backstopping services. However, problems have arisen with WASH that should be avoided in establishing other projects based on it. As indicated earlier, the most innovative aspect of the WASH mechanism is delegation of authority to the AID Project Manager to issue work orders. The controversy between the WASH Project and the Office of Contract Management, discussed in Chapter II, called this delegation of authority into question -- threatening not only the sustainability of the WASH Project but also its potential for transferability. This difficulty -- now resolved -- arose because the WASH contract originally did not clearly explain the innovative management procedures involved.

AID has recently extended its maximum project length to ten years. For a WASH-type project, use of this longer time-frame would allow for improved project planning and development of a highly skilled technical support group which could develop an in-depth understanding of host country problems and AID policies and procedures. Services under such a project could be provided through a number of mechanisms including standard competitive procurements, Participating Agency Service Agreements and Cooperative Agreements. In projects where the required technical services are normally procured from engineering and other commercial firms, consideration should be given,

## 36 An Evaluation of WASH

for the purpose of continuity, to competitively awarded long-term contracts which could provide support for the life of the project. Such contracts could provide for an initial period of performance which could be extended, after evaluation, through options on an incremental basis through the life of the project.

The Coordination and Information Center, a key element in the WASH mechanism, will have to be taken over by AID or transferred to another contractor at the conclusion of the contract with CDM. AID unfortunately has a long history of providing inadequate attention to maintaining investments in information collections. They are frequently dispersed or destroyed. It is hoped that later phases of the WASH Project will examine the issue of the proper disposition of materials in a government owned and operated facility at the termination of the project. And future contracts should specifically identify the types of materials which are to be considered government property and should specify the process for arranging their transfer.

Finally, the services of a WASH-type project cannot and do not replace career personnel in technical positions in AID. WASH-type mechanisms can operate like extensions of AID, but still an adequate core of direct-hire staff is essential. Some of the criticisms of the WASH Project focused on the use of contract personnel to fulfill functions which are the proper responsibility of AID personnel, especially in maintaining contact with external organizations, identifying opportunities for providing technical services, and developing policy.

### Recommendations

The WASH mechanism is replicable. The WASH mechanism has proven to be effective in providing high quality, rapid technical services and has provided a model which can, with modification, be used for projects in other sectors of AID.

Care in reviewing contracts. Future contracts for WASH-type projects should be carefully reviewed to assure that they are structured to serve the purposes of the project and that management procedures are clearly explained.

Ten-year time-frame. Future WASH-type projects should examine the possible use of the recently authorized ten-year time-frame for the life of a project.

Long-term sustainability of information centers. In the case of extensions of the WASH Project or the development of similar projects, careful consideration should be given during the project design and contracting process to the long-term sustainability of AID investments in developing information centers.

Contractor's role. When instituting mechanisms modeled after WASH, AID should carefully review its manpower needs to be sure that contractor personnel are not by default fulfilling functions that should properly be fulfilled by direct-hire personnel.



## VI

### THE FUTURE OF WASH

The Wash Project was developed to provide technical assistance to AID, private voluntary and international organizations, and host countries in fulfilling their commitments to the UN International Drinking Water Supply and Sanitation Decade. It is at present the United States' principal instrument for advancing that cooperative effort.

As the preceding chapters of this report make clear, the Board feels the the WASH Project has been an effective and innovative instrument and has lived up to the expectations of its originators. Concerning the recent controversy with the Office of Contract Management on the more innovative aspects of the WASH Project, it was the Board's finding that the Project is of an innovative and experimental type unlike an Indefinite Quantity Contract. OTDs are technical advisory services provided under contract, not individual subcontracts. The Board wishes to express satisfaction that these issues were resolved in a manner reflecting the original design and intent of the Project. In the final analysis, the innovative features provided by the mechanism did not become victim to bureaucratic and technocratic disputes.

It is currently anticipated that the WASH Project's main contract will be extended for an additional five year period, with a projected annual budget of \$2.5 million provided by the Bureau for Science and Technology. Annual supplementary funding of from \$400,000 to \$600,000 is anticipated from each of the four Regional Bureaus. The extension of the project will involve the development of a new Request for Proposals for a five year contract and a new competitive procurement to provide technical services. This new Request for Proposals should be issued in ample time to permit preparation and review of responsive proposals and negotiation of a new contract so that there will be no hiatus in services after May 1984. As mentioned in the preceding chapter, AID has recently extended its

## 40 An Evaluation of WASH

maximum project length to ten years. In the opinion of the Board, the WASH Project, which is supporting the UN Decade, is an ideal candidate for the use of this longer time-frame.

In making the transition, special attention should be paid to the Information Center. Under current project plans all equipment, information, and materials developed under the project will remain government property. It is anticipated that if there is a change of contractors for the extension of the project these items would be directly transferred to the contractor who would assume management responsibilities for the Center. Following completion of the WASH Project the Office of Health believes that there will be a continuing need for the Information Center and that this function could be either managed as an independent contract, subsumed under another project, or incorporated into an AID in-house technical support operation.

### Reorienting the WASH Project

The new procurement will provide an opportunity to iron out difficulties that WASH has had and to reorient the Project to achieve a better balance among activities and among Bureaus and Missions served. The Board found that the WASH Project has paid too little attention to sanitation, health education, and women's role in water and sanitation. Technology transfer should be emphasized more.

The practice of providing services on a first-come, first-served basis has created regional imbalances and means that some resources might not be used in the best possible way. If the WASH Project is to contribute maximally toward the goals of the Water Decade, priorities should be set and sound plans should be made. The Missions and Bureaus see the WASH Project as providing a free service, because the money doesn't come out of their budgets. The AID WASH Project Office has usually dealt with requests one by one in a reactive rather than proactive way. The Advisory Board recommended by this evaluation should be able to assist the AID WASH Project Office in setting priorities and making plans.

Another kind of needed reorientation involves focusing more on long-term preinvestment assistance, as was originally envisaged. At present, most of what WASH does is to help solve short-term problems. The short duration of the CDM Contract and of its extension has been partly responsible for this "short term" mode. The WASH Project with its multidisciplinary cadre of professionals, is very well equipped to assist in the long-term planning area. The Water Decade calls for member states to adopt national policies and programs to extend coverage to all people as rapidly as possible. The WASH Project should be involved in these planning efforts.

The Board feels that the AID WASH Project Office staff should take a more proactive role in promoting WASH services and drawing various AID offices, such as the Housing Office, and appropriate outside organizations into more active work in behalf of the UN Water Decade. To date the Contractor's staff has carried out this "promotional" role -- and the WASH project has been severely criticized for this inappropriate substitution of contract staff for AID staff. However, this is not so much WASH's problem as AID's problem in allocating personnel for water and sanitation sector activities and providing adequate travel funds for existing staff.

#### Need for Direct-Hire Personnel

The promotion of the objectives of the International Drinking Water Supply and Sanitation Decade is directly linked with the critical need for adequate interdisciplinary direct-hire AID staff, especially in engineering, to properly use the contract support services funded under the project. The WASH Project was not intended to supply contract personnel to conduct AID direct-hire functions, such as development of sector policy, drafting of scopes of work for technical services or to represent AID at international meetings.

In many cases the WASH Project has come under criticism from personnel within AID, international organizations, and host governments where an inappropriate substitution of contract staff has been made for AID staff. This problem reflects both on the management of personnel within AID to support properly current and planned activities in the water and sanitation

## 42 An Evaluation of WASH

sector. This problem was highlighted when reviewing the WASH Project and Decade activities in the recent Bureau for Science and Technology report "The Status and Functions of A.I.D. Engineers" by Louis A. Cohen, issued in January 1983.

[The WASH Project] provides only minimal general assistance, technology transfer, manpower development and training, and information services. This effort does not furnish the extensive project formulation, design, review and approval, implementation, and evaluation services that are required from and should be provided by, AID direct-hire engineers under the normal program and administrative processes.....Unless AID acquires additional direct-hire expertise, it can safely be predicted that AID's effort to meet the U.S. commitment [to the Decade] will fall shamefully short and will likely result in considerable embarrassment to our government.

### Recommendations

WASH as the principal instrument for U.S. efforts for the UN Water Decade. The WASH Project should be maintained throughout the UN International Drinking Water Supply and Sanitation Decade as the principal instrument for the United States in honoring its commitments to that cooperative effort. To that end, the WASH Project and implementing contract should be extended or renewed without a break in the provision of services.

A more proactive role. The WASH AID Project Office staff should take a more proactive role in promoting WASH services and in setting priorities and making long-term plans for the WASH Project.

Pre-investment assistance. WASH Project activities should include long-term pre-investment technical assistance to AID projects.

## VII

### AID AND THE WATER DECADE

The United States government has publicly committed its support to the United Nations Drinking Water Supply and Sanitation Decade on a number of occasions over the past five years. AID, in carrying out this policy goal, has steadily increased its overall financial commitment to the Water Decade over the years (Chart 1) and can and should be proud of this commitment.

The Board is concerned, however, that AID is not structured administratively to handle effectively the water and sanitation programs it is now carrying out or plans to carry out over the next few years.

The figures the Board has received from the Office of Health, Bureau for Science and Technology\* (Chart 1) show that AID funded 227 projects with a water and sanitation component in FY1981, for a total of \$850 million. This figure then declined to 152 projects in FY1984, totaling \$550 million. The Board has been advised, however, that an additional water and sanitation program for Egypt, totaling \$1 billion over the next five years, has been agreed to in principle. This would raise the \$550 million figure up to \$850 million in the first year of that agreement.

Financially speaking, it is clear that this sector of development represents a significant part of AID's total global

---

\*The Board wishes to alert readers of this report to the fact that every AID office has its own project figures and its own definition of what is water and sanitation. It took Board members five months to get together the information contained in the three charts. It represents our best efforts.

#### 44 An Evaluation of WASH

program. However, there is no identifiable line item in AID's legislation which serves specifically to identify funds to support activities in this sector. Water and sanitation activities must compete for funding from a variety of Congressionally established accounts, especially Health. Since FY1980 (Chart 2), the water and sanitation part of the Office of Health budget has practically disappeared. In other words, AID is spending more money each year on water and sanitation, but its direct-hire experts in the Bureau for Science and Technology are having less impact on the technical decisions affecting those expenditures. In many cases technical decisions are being made by general engineering officers or by generalist project managers. WASH, of course, hardly appears as a blip on Chart 2, yet it is internationally the most visible part of AID's contributions to the Water Decade. The CDM WASH Contractor has more manpower dedicated to water and sanitation than all of AID.

Part of AID's problem is a structural one. In both the Bureau for Science and Technology and the Regional Bureaus the water and sanitation sector is handled in a variety of ways, often without clear assignments of responsibility and authority. Only the Bureau for Near East has adopted a strong interdisciplinary approach through the formal creation of a Water Resources Committee which serves to advise on all aspects of sector activities.

Normally the water and sanitation sector fares less well. AID's Water and Sanitation Division does not even rate a line in AID's telephone book. The Division is buried in the Office of Health, which is part of the Directorate for Health and Population, which is a part of the Bureau for Science and Technology, which reports to the Administrator of AID. In other words, the most knowledgeable people in AID with regard to an \$850 million-a-year program are a four-officer Division, five levels down in the bureaucracy.

The Board is extremely concerned over the inadequate number of direct-hire personnel available within AID to support a massive program in a professionally and managerially responsible manner. For example, at the present time AID has seven direct-hire personnel on its rolls who are either water or sanitary engineers; three are in Washington and four overseas. The discrepancy between the number of expert personnel in the

sector and the funds expended on water and sanitation is enormous. We believe that AID is dangerously understaffed in this area, both in engineering and in complementary technical fields.

The lack of balance, in funding terms, between AID's emphasis on rural versus urban water and sanitation projects is also worthy of note (Chart 3). While AID's technical resources are focused on rural water supply and sanitation, its funding is strongly weighted toward urban and peri-urban activities. In recent years, through Economic Support Funding in the Near East and the Housing Investment Guarantee Program in Latin America and the Caribbean, there have been massive amounts of funding for urban water and wastewater improvements. Currently, among the largest projects in the AID portfolio are the Alexandria and Cairo Sewerage Projects both currently funded in excess of \$100 million. The rapid growth of urban investments in the sector has greatly outstripped AID's available personnel and technical resources. AID has been reluctant to recognize the importance of providing technical support for its urban activities.

In contrast, with the exception of the Basic Village Services Project in Egypt, which focuses on rural water supply and drainage, there has been little growth in rural activities. The "basic needs" aspect of AID's program could be criticized if one examines this relationship between urban and rural water and sanitation projects.

The Board is especially concerned about the ability of AID to manage and technically support activities in the water and sanitation sector in the long term. AID has a significant portfolio of projects which should continue to expand in both rural and urban areas through the end of the Water and Sanitation Decade in 1990.

The Board urges AID to carry out an internal management survey to review the issues reflected in this chapter and make specific recommendations for action to the Administrator.

### Recommendations

Internal management study. The AID Administrator should initiate an internal management study to review the findings and recommendations set forth in this chapter and report back to the Administrator in a timely fashion. The report should detail realistic corrective actions and establish a timetable for their implementation.

## 46 An Evaluation of WASH

More staff in the water and sanitation sector. WASH services notwithstanding, AID should recruit more direct-hire staff with a proper mix of technical skills to address the interdisciplinary nature of the water and sanitation sector. Special emphasis should be placed on recruiting officers with professional engineering capabilities and design and management experience in the water and sanitation field.

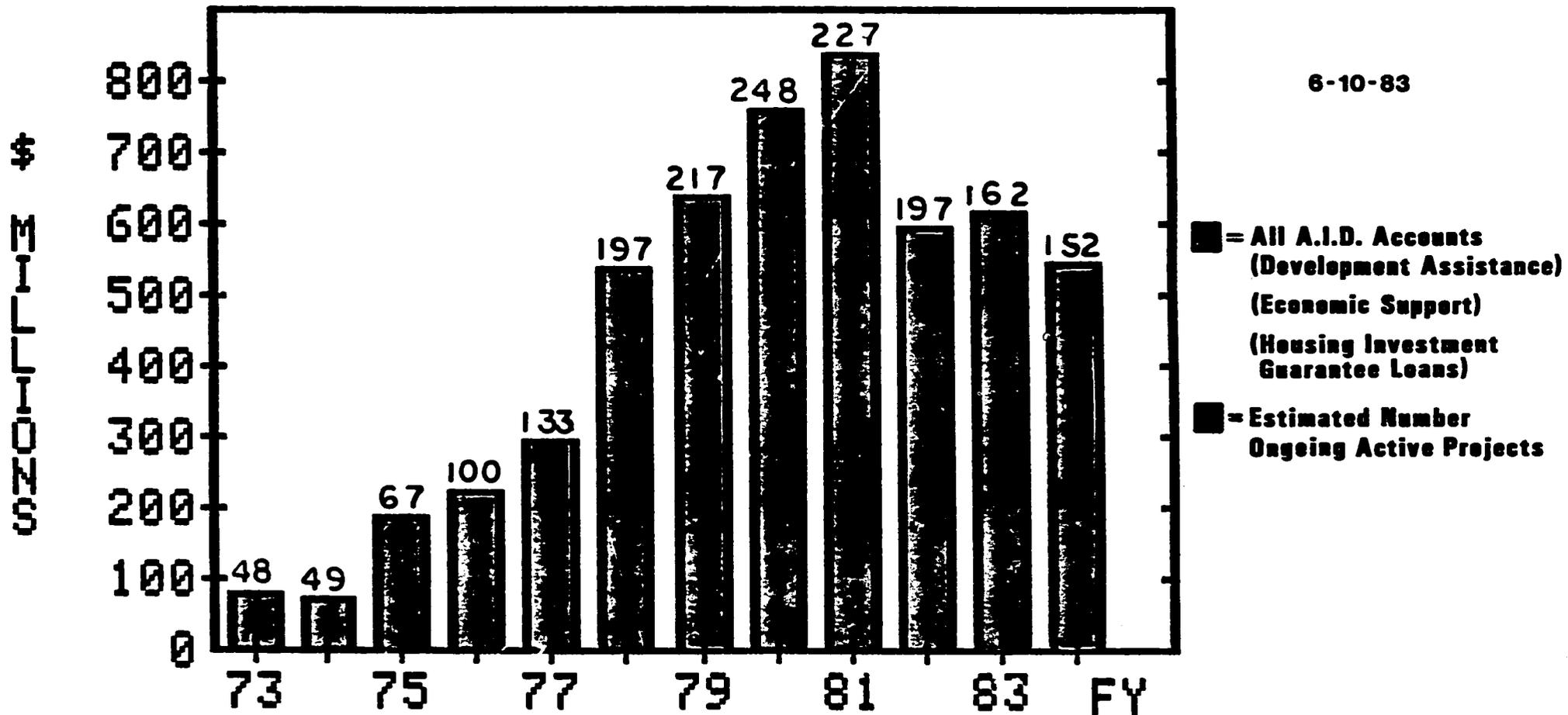
New office for Water and Sanitation. In order to strengthen the role of the Water and Sanitation Division of the Bureau for Science and Technology, AID should create a new Office for Water and Sanitation, separate from the Office of Health, reporting directly to the Director of Health and Population, Bureau for Science and Technology.

Separate line item. In order to give increased emphasis to the high priority needs in the water and sanitation sector, AID should establish a separate line item for water and sanitation in its Development Assistance Annual Budget Submission.

More funds for rural water supply. The Bureau for Science and Technology and the Regional Bureaus should give special attention to investigating opportunities for investment in rural water supply projects, and funds should be made available to support this increased activity.

Increasing public awareness. Greater attention should be given to making Congress and the public aware of the significant expenditures by AID in support of water and sanitation and in support of the UN Water Decade.

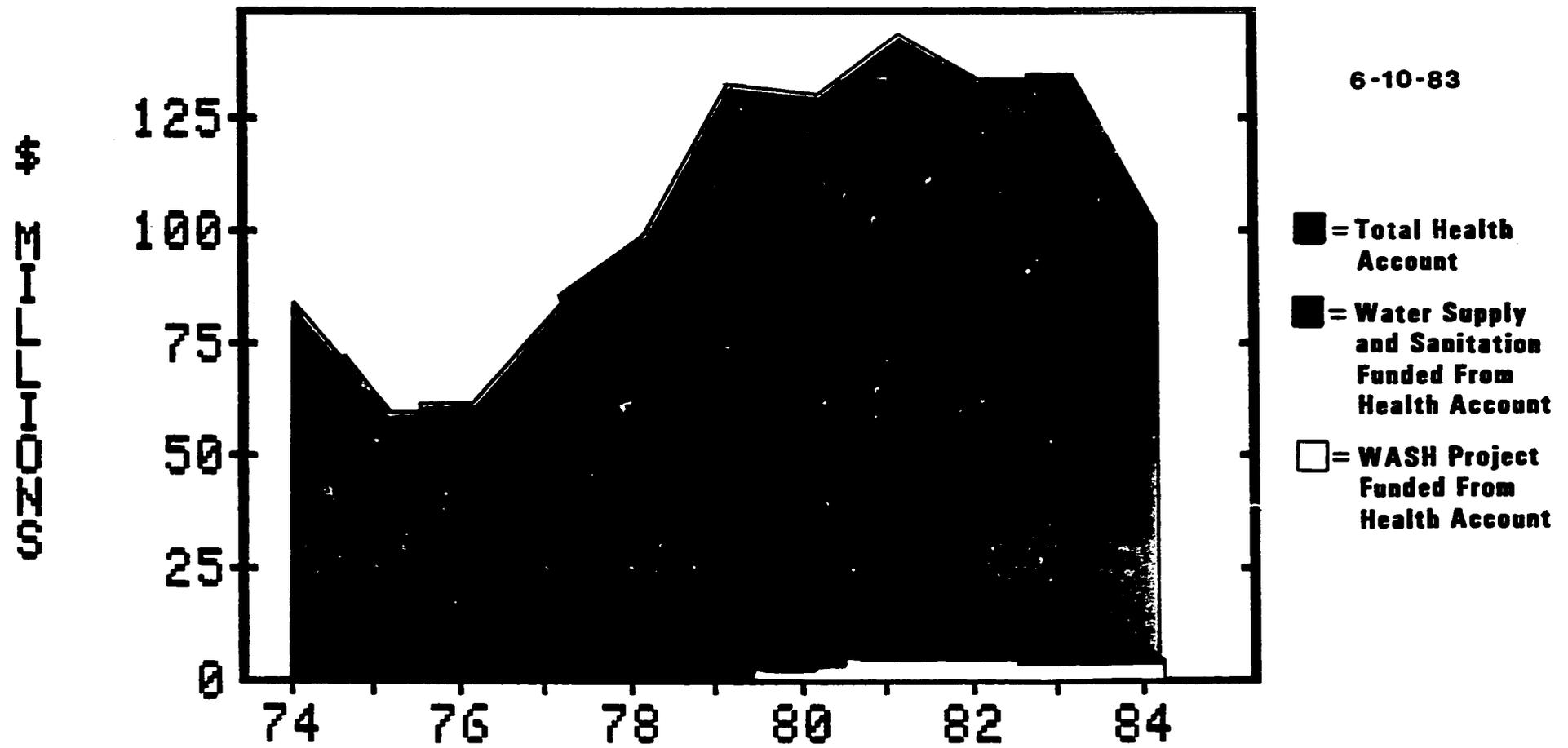
# TOTAL AID FUNDING-ALL ACCOUNTS



**WATER RESOURCES & ENV. HEALTH  
ACTIVITIES  
INCLUDING WATER & SANITATION PROJECTS**

UN

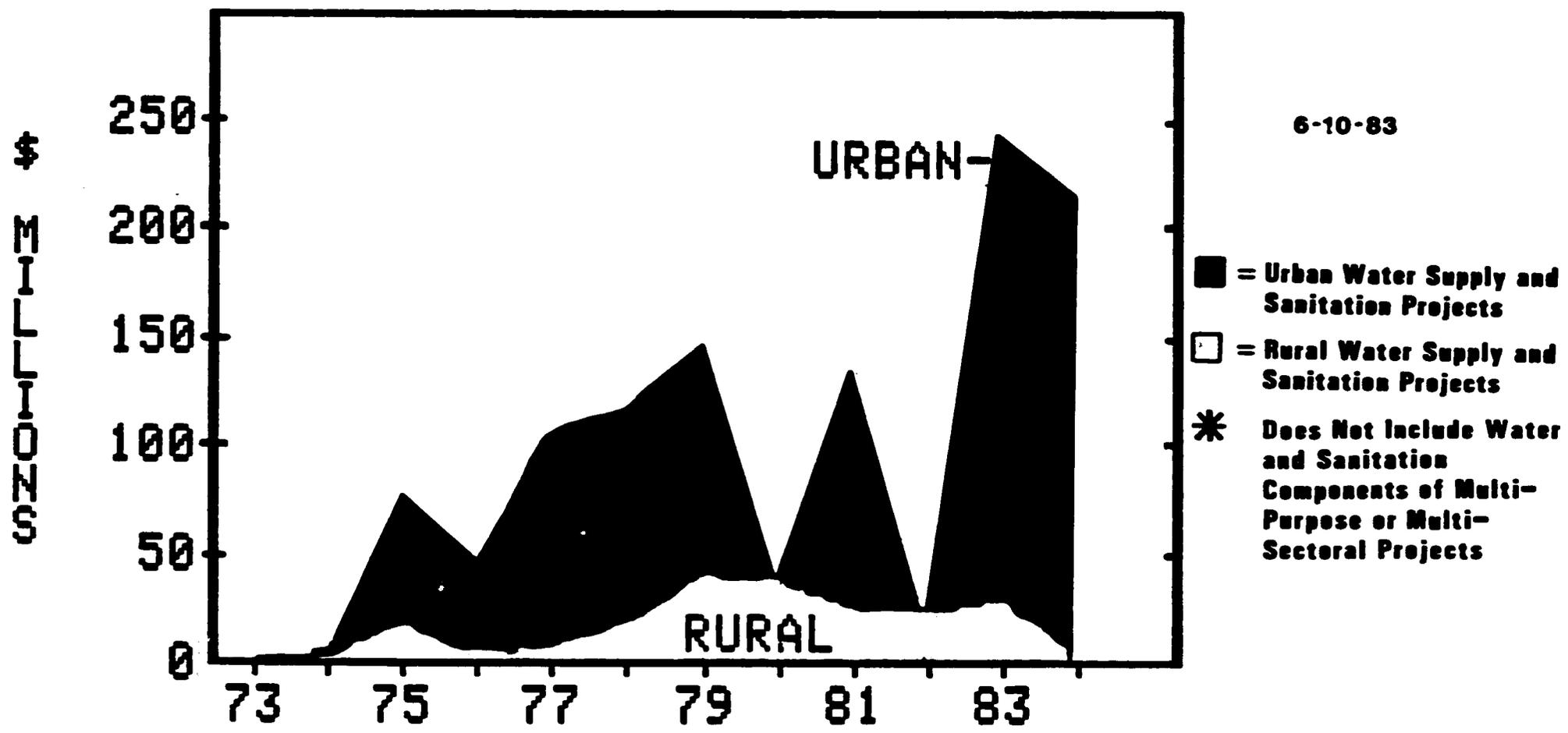
# WASH PROJECT FUNDING COMPARED WITH



TOTAL D.A. HEALTH ACCOUNT FUNDS AND  
HEALTH ACCOUNT FUNDS FOR  
WATER SUPPLY & SANITATION PROJECTS

28

# TOTAL FUNDING FOR URBAN AND RURAL



**WATER SUPPLY & SANITATION PROJECTS\***  
 (DA AND ES ACCOUNTS)

2/1