Data For Decision Making for the Health Sector Project

A Mid-Term Evaluation

Prepared by:

Laurance W. Bond, Team Leader
William E. Bertrand, Ph.D.
Robertino Mera, M.D.

Prepared for:

Health Policy Reform Division
USAID Office of Health and Nutrition
Bureau for Global Programs, Field Support and Research
United States Agency for International Development

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PREFACE

This mid-term evaluation was carried out at the request of the Office of Health and Nutrition, Bureau for Global Programs, Field Support and Research, United States Agency for International Development. The evaluation was conducted through the Health Technical Services Project of TvT Associates, Inc. and the Pragma Corporation, Project No. 936-5974.10, Contract No. HRN-5974-C-00-3001-00. The opinions expressed herein are those of the authors and do not necessarily reflect the views of TvT, Pragma or USAID.

Evaluation Team Members

William E. Bertrand, Ph.D.	Chair, Department of International Health and Development, School of Public Health and Tropical Medicine, Tulane University
Laurance W. Bond	Independent consultant and former Mission Director, Deputy Assistant Administrator of the Bureau for Program and Policy Coordination, and Director of Personnel, Agency for International Development
Robertino Mera, M.D.	Independent Consultant and Data Manager/ Epidemiologist/Biostatistician, Tulane/LSU Pediatric and Adult AIDS Clinical Trials Unit

TABLE OF CONTENTS

ACRONYMS

AIDAR	Agency for International Development Acquisition Regulation
BUCEN	United States Bureau of the Census
CAR	Cordillera Autonomous Region
CDC	Centers for Disease Control and Prevention
CELADE	Latin American Demographic Studies Institute
CIHI	Center for International Health Information
CTO	Cognizant Technical Officer
DHS	Demographic Health Surveys
DDM	Data for Decision Making Project
DOP	Directorate of Planning
EPO	Epidemiology Program Office of CDC
FSN	Foreign service national
FTE	Full-time equivalents
HC	The Harvard Consortium
HPN	Health, population, nutrition
HSPH	Harvard School of Public Health
ICI	Intercultural Communication, Incorporated
INCLEN	International Clinical Epidemiology Network
LDC	Less-developed country
LOE	Level of effort
LOP	Life of project
MOH	Ministry of Health
PASA	Participating agency services agreement
RTI	Research Triangle Incorporated
SOH	Secretariat of Health
TAG	Technical advisory group
USAID	United States Agency for International Development
USAID/W	Agency for International Development, Washington Office

DATA FOR DECISION MAKING FOR THE HEALTH SECTOR PROJECT: A MID-TERM EVALUATION

I. BACKGROUND

In September of 1991, USAID's Office of Health established the Data for Decision Making for the Health Sector (DDM) Project to increase the use of data for informed decision making. The project, as originally designed[1], included two major sub-projects, **PolicyTech** and **InfoTech**, which are the subject of this mid-term evaluation. The period under review is October 1991 through August 1994.

Project Identification Data

Implementing Agency	Harvard Consortium*	Centers for Disease Control and Prevention
Project Title	PolicyTech	InfoTech
Project Number	936-5991.1	936-5991.2
Project Dates	10/91 - 9/96	10/91 - 9/96

* Harvard Consortium includes the Harvard School of Public Health, Research Triangle Institute, and Intercultural Communication, Inc.

PolicyTech is implemented by the Harvard Consortium (HC) and InfoTech by the Epidemiology Program Office of the Centers for Disease Control and Prevention (CDC).

[1] In October 1992, the DDM Project was amended to consolidate all data collection and application activities within the Office of Health. This was recommended by a project portfolio review of the Office and endorsed by project evaluations. The amendment added the Office of Health's portion of the Population Office's Demographic and Health Surveys (DHS) Project, the Center for International Health Information (CIHI), the PASA with the Bureau for the Census (BUCEN) on Aging Studies, and the cooperative agreement with the National Academy of Sciences on Population Transition. In December of 1991, USAID/New Delhi funded the International Clinical Epidemiology Network (INCLEN) as a cooperating agency under DDM. Thus the DDM Project has become a large umbrella project with many diverse elements.

A. PROJECT PURPOSE AND GOALS

By design, the Data for Decision Making for the Health Sector Project is intended to increase the use of various types of data for policy making, sector reform, resource allocation, priority setting, technical and other types of decisions through the use of "tools."[2] Tools are intended to help decision makers in less-developed countries (LDCs) collect and analyze data, make informed policy, resource and technical choices, as well as present and disseminate data. The project's strategy has been designed to assist the decision-making process within LDCs by working from both "top down" (as implemented by HSPH) and "bottom up" (as implemented by CDC) approaches.

In short, this project is about bringing the "information revolution" to the health sector in developing countries. Project success will build support for the development of a data-based decision culture in countries with direct project interventions. Proof of that success will show that the use of information products can change policy, affect the allocation of resources, and have an impact on the overall development and achievements in the health sector.

B. OBJECTIVES OF THIS MID-TERM EVALUATION

The purpose of this mid-term evaluation of the DDM project is to conduct the first external review of the project in order to:

- examine the sub-project outputs to date (September 1991 to August 1994) and assess progress towards goal achievement;[3]
- assess the potential for the tools, methodologies and approaches that are under development to impact on data-based decision making in participating countries; and
- critically assess the impact of tools, methodologies, and approaches that are being applied in participating countries to increase the use of health data in decision making.

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[2]The project goal at the purpose level, as stated in the design logical framework for the DDM Project, is "to develop, refine and demonstrate practical approaches to increase informed decision making for the health sector." See Annex V, Evaluation Scope of Work.

[3]Specified project outputs in the Design Logical Framework include: 1) tools/methodologies identified, developed, adapted and/or tested; 2) six to eight countries prepared to perform data-based decision making; 3) epidemiologic and demographic transition (emerging health issues) analyzed and results disseminated.

C. EVALUATION METHODOLOGY

A three-person evaluation team, comprised of a Team Leader/Management Specialist, an Epidemiologist/Health Information Specialist, and a Management Information/Policy Specialist, used the following methods of data collection for this evaluation: 1) review of secondary data (reports and other project-related documentation) (Annex II); 2) site visits (Bolivia, Egypt and the Philippines) (Annex IV); 3) interviews with implementor staff, USAID/Washington and Mission staff, host country officials (both government and private sector) and available in-country project implementation staff (Annex III); and 4) a critical review of tools and methodologies developed under the project to date (Annex V). USAID provided the evaluation team with a scope of work with which to evaluate DDM's achievements (Annex I).

In its review of the sub-projects, the team focused on the following key questions:

How have the sub-project activities stimulated people to actually use data?

Are the tools, methodologies, training materials and other reports developed under the sub-projects helping to meet project goals?

Is the project design comprehensive and flexible enough to meet the articulated project purpose and goals?

Is the leadership, vision, management and implementation offered by the implementors supporting project goals? (Reference Annex VI for a detailed discussion on management of the sub-projects.)

II. PROJECT ACHIEVEMENTS

A. DESIGN, IMPACT, TIMELINE, FUNDING, SCOPE, AND COLLABORATION

The evaluation team has concluded that the DDM Project, as designed and implemented, has tremendous potential to make an impact in countries where there is interest in, and the climate is conducive to, health sector reform. In general the sub-projects are meeting DDM project goals. More specifically, the sub-projects are on schedule to meet the anticipated level of outputs outlined in the design logical framework.

While there is great potential for DDM Project impact during the life of the project, with definite indications that an impact is already being made (particularly in Bolivia), the current implementation period of less than three years does not allow for appropriate measurement of this impact. In fact, the evaluation team has concluded that the project's time horizon is probably too short and that it will take more than the five-year limit of the CDC PASA and the Harvard Consortium Cooperative Agreement to measure impact. USAID needs to be prepared to extend these agreements beyond September 1996, assuming progress is still as positive in two years as it is today.

While the evaluation team does not feel that the project needs redesigning, it is worth noting that the design should be revisited in two years when the work in Bolivia, Egypt and the Philippines can be further assessed. What seems to be of primary importance today is the flexibility of the current project design to respond to specific and timely issues of interest to USAID, e.g., privatization of health care, cost efficiency/effectiveness, child survival, HIV/AIDS, etc.

The current scope of activities has fully absorbed the staff of both sub-projects. The HC and CDC have reached the limits of their human resources capacity and will find it difficult to take on additional work under DDM. The evaluation team believes the implementors should consolidate the work they are doing in their present countries before additional countries are added. If more countries are desired by USAID, the following actions will be necessary:

- Additional funding resources will be required.
- CDC will need to solve its full-time equivalent (FTE) dilemma.
- Harvard will be required to hire additional people (and amend the cooperative agreement) or USAID will be required to bring in additional institutions. The team would recommend the latter if assistance can be found for the CTO to take on the additional management burden.

The main criticism of the project is the lack of communication between the Harvard Consortium and the CDC. While the original DDM project design envisioned HC and CDC jointly implementing activities in three to five emphasis countries, it quickly became evident that mission interests, needs, and funding did not always allow for both "top down" and "bottom up" approaches being offered by the two implementors. Missions have therefore not looked at the DDM project as a whole, but instead have chosen only those elements (sub-projects) that fit and are responsive to specific problems in a particular country. As of this writing there are joint activities only in Bolivia, with little communication between HC and CDC. Consequently, these institutions, USAID, and the countries are not benefitting from the full impact of their combined work. While the evaluation team understands that missions cannot be directed to buy into both sub-projects, it does believe that the implementors must communicate and collaborate with one another regarding the project inputs, outputs, and common goals. The convening of a Technical Advisory Group meeting might present one option for beginning to work toward a long-term solution to this problem.

B. COUNTRY EXPERIENCE

In Bolivia the project is providing support to the government's effort to decentralize governmental administration and the economy. The project established a direct link to these efforts and has had an impact on promoting policy reforms through the packaging of data in a special presentation format (using a standard "off the shelf" graphics software program). This computer-generated slide show was presented at the Donors' Consultative Group Meeting held in Washington, DC in December 1993, and was so well received that the President of the Republic and senior officials of his administration have since used it to explain and justify policy reforms being introduced in the country. The project is also providing a context for more direct involvement of the private sector in health, from training to the delivery of health services. Forty-one national program managers, regional health officers and epidemiologists, and district health officers have been trained to use data for improving their public health programs. Due to project efforts, there is now a network of trained mid-level decision makers at different levels of the health system that have the capacity to promote and implement policy reforms in Bolivia. (Reference Annex IV for a detailed discussion regarding the site visits.)

In Egypt, the project is developing a context for supporting government efforts to control health sector costs, and is also helping to create a climate conducive to shifting more of the delivery of health services from the public to the private sector. This is consistent with the USAID program in Egypt, specifically in the health sector with the Cost Recovery for Health Project, and cost effectiveness in health care financing. The project is strengthening the institutional base for sector reform and providing training to enhance the analytical capabilities of Egyptians. This is all within the context of broader economic reforms the USAID mission is promoting in concert with other donors.

The Philippines will, in time, see similar influences from the project, especially in promoting decentralization of health. The pilot efforts are targeted to the regional and provincial levels of government. The tools being developed are intended to provide provincial and regional officials the means to access the information to make decisions affecting their programs, as well as to manage programs at the local level.

C. QUALITY AND EFFICACY OF TOOLS

In order to review and evaluate the quality and efficacy of tools that assist decision making, it was necessary for the team to reach consensus on what constitutes a "tool." The evaluation team appropriated the definition of a tool as given in a letter to the Harvard Consortium's Julia Walsh by Project Cognizant Technical Officer Dr. J. D. Sheppard. According to this definition, ". . . a tool is an instrument, process, or procedure that can be used repeatedly by any trained person to carry out some recurrent task." The team found this definition to be useful and appropriate and one that should be utilized throughout the Project. Using this definition, the team classified the tools presented to them by the Harvard Consortium and CDC into four categories:

Category I: Already existing tools with software or established protocols being supplied.

Category II: Tools in a pilot, report or conceptual form.

Category III: Generic concepts or ideas that have yet to be fully developed into tools.

Category IV: Tools encountered while in the field, but not included on either the Harvard or CDC list of tools.

The team concluded that the focus on tool development is an appropriate and important means to bringing the power of the information revolution to the health sector. Further, the team concluded that evaluating the quality of tools should be an ongoing process and that client and user involvement should be incorporated at all stages of tool development. This could be achieved by having systematic field review protocols for tool selection and critique and the establishment of a technical advisory committee as a separate and objective mechanism for judging tool quality. The team reached consensus on the following:

- only with some exceptions of extraordinary circumstance, the project should not focus on developing new software tools;

- emphasis should be on the application of software that exists in the marketplace; and
- criteria should be established by which the impact of a tool can be measured.

At this time, tool development is proceeding at a pace anticipated in the project design. The most successful tool used to date, however, is one based on a commercial software product. The evaluation team concludes that more of this should be done. Those within USAID need to work with their legal advisors on the question of copyrights and intellectual property rights, but there should be no insurmountable problems using more products from the marketplace. As the evaluation team understands, any product created using a commercially-available program belongs to the creators of the product. The software program is the tool for developing the product. Related to this issue are the property rights to tools and products developed under the project. With the CDC this should be no problem as it is a US government agency and its products belong to the public domain. However, there can be a question with Harvard and its partners. USAID needs to seek counsel on this question and be clear with all parties concerned.

III. CONCLUSIONS AND RECOMMENDATIONS

A. GENERAL PROJECT ASSESSMENT

1. Findings

- The DDM Project is only two-and-a-half years into project implementation; in countries such as Egypt and the Philippines the implementation period is less than one year. It is too soon to say that decision making has been permanently or dramatically impacted.

- Of the tools identified and presented to the evaluation team, about ten have been applied at this time. The evaluation team was able to observe demonstrations of only four (see III.C, Tools for Decision-Making, and Annex V: A Discussion of Tools and Methodologies Developed Under the DDM Project).

- Training under the project is a readily identifiable success (especially in Bolivia). CDC has done most of the training (in areas it has had considerable experience), though the Harvard Consortium is following suit. CDC has trained 45 people in Cameroon and 41 in Bolivia. Training efforts in the Philippines (CDC) and Egypt (Harvard) are just getting off the ground.

- Communications and publications of the project vary depending on the institution. Harvard has published useful and interesting documents with the *DDM Bluebooks* series (generally academic). CDC has been more directed at specific project activities and reports than studies and research.

- The project has had, and should continue to have, impact in health policy reform efforts, and be able to address issues relevant to USAID's strategic objectives in health.

- CDC is unable to expand its portfolio of project activities due to FTE limitations; the current range of activities has stressed CDC's absorptive capacity.

- In order for Harvard to take on new activities, additional staff will need to be hired, as they too have reached absorptive capacity; additional funding (both core and buy-in) will therefore be necessary to take on any additional project activities.

- Communication and sharing of information and experiences between Harvard and CDC is negligible at best.

2. Recommendations

- Because the project has not had a materially long implementation period, revising the general project design at this time is not warranted.

- Extensions of the CDC PASA and the Harvard Cooperative Agreement beyond their current end date of September, 1996 will most likely be required. USAID may need to consider extending the Life of Project (LOP) beyond 1999 if project objectives are to be met (i.e., refining existing technologies, installing and sustaining their use). Or, if incorporating DDM project objectives under a new umbrella project, the design should be looked at anew in two years to build into the design lessons learned from the existing DDM project.

- The evaluation team believes that expansion of the project to additional countries should be deferred while the experiences gained in Bolivia, Egypt, the Philippines, and other countries are consolidated, particularly in view of the FTE and funding limitations mentioned above.

- If expansion is deemed necessary, USAID should consider additional implementing institutions and funding.

- It is the evaluation team's belief that an emphasis should be placed on the use of marketplace tools such as commercial spreadsheets and graphic presentation software tools, as the most successful tool used to date was based on a commercial program (Harvard Graphics in Bolivia).

- USAID and the recipient countries will never achieve full project impact without explicit communication between the two implementing institutions (CDC and Harvard). Therefore, USAID must find ways to ensure this communication.

- It is not necessary to have both CDC and Harvard operating in the same country to have the "top down/bottom up" impact. Both are capable, and in fact are doing both in different countries (Harvard in Egypt, CDC in the Philippines).

B. PROJECT MANAGEMENT

(See Annex VI for a detailed discussion of project management.)

1. Centers for Disease Control and Prevention (CDC)

a. Findings

- Programmatically the CDC has provided appropriate levels of support to the project.
- The Epidemiology Program Office (EPO) is committed to the project and its success. Within the larger CDC, however, the project is a small program in a small office.
- The Project Director, Assistant Director, and technical staff are all well qualified for the tasks of the project.
- The CDC commitment to DDM (and international activities generally) is coming to a decision crossroads as CDC goes through its "reinventing government" and "downsizing" exercises.
- CDC has had surprising problems providing administrative support for contracting of goods and services overseas, and making payments to overseas vendors.

b. Recommendations

- CDC program offices (EPO and IHPO) need to take the lead in establishing the priority of international activities for the Centers.
- The EPO and the Procurement and Grants Office need to seek guidance from the CDC General Counsel on using USAID acquisition regulations (AIDARs) when using foreign assistance appropriated funds.
- CDC and the USAID Office of Health and Nutrition should work out a means for the USAID Procurement and Financial Management Office to provide advice and assistance to CDC to solve its overseas procurement and international financial transactions problems.

2. Harvard Consortium (HC)

a. Findings

- The DDM Project is the Harvard School of Public Health's first implementation of a major USAID project in many years.
- Harvard and its partners are providing appropriate staff resources to project tasks. After some early questions, the management structure is clear and appropriate.
- Although Harvard has presented an impressive array of tools in their technical application, they are not well known in the USAID world. Harvard has developed and modified its application of tools to respond to specific requests.
- The Harvard name has brought forth requests for DDM/PolicyTech, which have resulted in several studies by Harvard published for DDM.
- Harvard has looked to have a program focus on health sector reform, and to work in countries where there is a policy reform effort going on.
- Because Harvard dominates as the lead institution in the consortium, the HC has not used some of its partner institutions as outlined in its technical application, especially Intercultural Communication, Inc.

b. Recommendations

- The HC should consider in its annual workplan a more meaningful role for its partners in the project, especially ICI.
- The HC is well placed to take the lead and develop an information dissemination system for the project, with cross communication between all project elements. USAID needs to encourage Harvard to develop this information dissemination scheme.

3. United States Agency for International Development (USAID)

a. Findings

- The Cognizant Technical Officer (CTO) is stretched thin with the management of the DDM Project (and its six contractors) and other duties and responsibilities.

- There is apparent confusion about how buy-ins and add-ons are handled, and what constitutes which with respect to the PASA and Cooperative Agreement.

- Both implementing entities are pleased with the management and support of the CTO.

- USAID mission management came across as generally thin in Bolivia, probably because the project manager was absent from post and the backup officers knew little about the project. However, in both the Philippines and in Egypt, there were individuals quite well acquainted with DDM activities. In the Philippines, the HPN officer was knowledgeable about the project, its goals, objectives and activities to date, and in Egypt, although the direct-hire project manager was absent from post, the Foreign Service National project officer knew the project and was well-supported by the supervising Associate Mission Director and the Deputy Mission Director.

b. Recommendations

- USAID needs to push the Harvard Consortium and the Centers for Disease Control to communicate with one another.

- The project should not be expanded unless the CTO is provided with additional assistance to cover a project that has six contracting entities for six elements and is, in essence, six projects.

- Specific guidance needs to be developed with the Contracts Office about how to handle buy-ins and/or add-ons to avoid past confusion.

4. <u>Country Management</u>

a. Findings

- The DDM Project is visible and reasonably well-placed in the three countries observed. Bolivia has the best-developed management structure for the project, as it has had the longest history there. In Egypt it is placed in a potentially important office (Directorate for Planning) with clear lines of communication. The DDM coordinator in the Philippines is an Assistant Secretary of Health.

- It is too early to tell what impact the project will have on decision making in these countries.

b. Recommendations

- Governments, USAID missions, and the implementing institutions need to bring local institutions more fully into the project to institutionalize project objectives and sustain a "data culture." These can be academic institutions (local universities), private organizations (consulting firms or service delivery organizations), and other institutions concerned with health policy and reform in the countries (foundations and associations).

C. TOOLS FOR DECISION MAKING

1. General

a. Findings

- From the tools identified and presented to the evaluation team by Harvard and CDC for review, a schema for categorizing the tools was developed as follows: 1) Existing Tools; 2) Tools in a Pilot, Report or Conceptual Form; 3) Generic Concepts or Ideas in Search of Tools; 4) Tools Encountered in the Field, but not presented to the team by either Harvard or CDC on their respective tool lists. Moreover, the evaluation team identified four uses for the tools: 1) Data Analysis; 2) Policy Options; 3) Resource Allocation or Implementation; and 4) Presentation. (For a detailed discussion of tools see #2 below, Specific Tools, and Annex 5.)

- The Project does not have a systematic format for defining and reviewing tools, nor an information system reporting on the status of tools in a country with a means for sharing information with all parties concerned.

- Commercially available programs can be and are being used in the project as tools to meet project objectives on use of data.

- Tools that are being applied in the countries visited show potential for impacting policy reforms, priority setting, and resource allocation. The Bolivia graphics presentation is an instance where this has happened.

b. Recommendations

- Project implementors need to more fully incorporate clients and users of tools in all stages of tool development.

- The DDM Project should place added emphasis on the application of tools that are available in the marketplace.

- Tools prototyped and organized by the project need to have a clear plan for development and maintenance.

2. Specific Tools

Existing tools and tools in a pilot, report, or conceptual form (Categories I, II and IV) are discussed here. A detailed discussion relating to all tool categories, schematized by the team, is found as Annex 5. Each tool has been assigned a number(s) at the end of each descriptive paragraph relating to its use in: data analysis (1); policy decisions (2); resource allocation or implementation decisions (3); and presentation (4).

a. Category I: Already Existing Tools

i. **Executive Health Information System** (Harvard Consortium—Research Triangle Institute)

Description: A microcomputer-based software interface in prototype form, this tool is intended for use at the policy formulation and management levels. When finished, it will allow the integration, in a relatively seamless fashion, of multiple data sets and formats, to provide senior decisions makers greater insight into how their data can best be accessed to make better policy and implementation decisions. (1, 2, 3, 4)

Findings and Recommendations:

- An excellent idea using state-of-the-art computer software (Visual Basic and Objected oriented programming), EHIS is modular, with the capacity to access databases already established (like DBF files from dBase) and to generate reports, screens, and ad-hoc queries. The tool is easy to implement and sustainable with little effort.

- DDM should encourage and continue to finance this activity in Bolivia as well as introducing it to other countries.

- Careful guidelines should be developed for operations research on what is used in the EHIS and how it is utilized.

- Consideration should be given to integrating the EHIS with the CDC Work Station concept (see viii, page 22) in order to provide data tools which have

content as well as analytical functionality. These two activities should be coordinated at the software and content level.

ii. **Population Projection Models** (Harvard Consortium—Research Triangle Institute)

Description: Based on an existing demographic projection model, this tool is designed to take existing census information and easily generate population projections along several parameters. It is used for planning and policy making, and can also be used for teaching. (1, 2)

Findings and Recommendations:

- Developed by RTI, this is a useful tool. The DDM project should present this essentially demographic tool in the context of several others that could be useful to MOH decision makers and technocrats. BUCEN projection models should be referenced as well as the database and projection model work done by CELADE and the UNESCO groups. The advantages of the UN software is that is comes with training materials, translations, and a large installed database.

- A technical analysis of available census projection software should be included which illustrates the strengths and weaknesses of each package. Consideration should be given to small area projection problems which are a particular issue in district-level health planning.

- Better training materials should be developed in appropriate languages. Such material should include references to using demographic data in health decision making and the importance of denominator concepts and practices.

iii. *Epi Info* and *Epi Map* (CDC)

Description: *Epi Info* is a public-domain complete microcomputer system for word processing, database management, and epidemiologic statistics. The tool, developed and supported by CDC, is relatively easy to use and is under continual development, independent of USAID funding. Forty-thousand copies of *Epi Info* Version 5 have been distributed through official channels to 117 countries and is available in Spanish, French, and Arabic. Version 6 of *Epi Info* contains many new features such as configurable pull-down menus and a hypertext system, new commands for programming data entry and analysis, ability to sort and relate very large files, a program to analyze data from complex sample surveys, a new epidemiologic calculator, and a batch processing program for nutritional anthropometry.

Epi Map is a thematic mapping subset of *Epi Info* useful for the display of data. The data may be counts, rates, or other numeric values. *Epi Map* offers a number of tools for enhancing a completed map. (1, 2, 3, 4)

Findings and Recommendations:

- A well-established and much-utilized data entry and preliminary analysis package sponsored by CDC, *Epi Info* needs little work. While CDC is providing *Epi Info* software and training in its use to each participating DDM country, the more general lack of modular and computer-based training materials in appropriate languages for *Epi Info* is striking given the widespread use of the program. DDM should either develop some or investigate their existence among the many thousands of users.

- DDM should compare and develop an analysis of other data entry and analysis programs which are similar to *Epi Info* in order to assist technocrats in the selection of appropriate software for national use.

- A formal operations research activity should be initiated by DDM to investigate which features of *Epi Info* are most utilized in order to set priorities for training materials development.

iv. Projecting Resource Needs and Tracking System (Harvard Consortium)

Description: Designed as a spreadsheet-based program and used by the Harvard Consortium in Egypt to allow implementors and policy makers to quickly model resource needs, this template has major potential. By quickly making evident the implications of resource allocation decisions, the tool can avoid many potential errors at a policy formulation stage and track shortfalls and estimation problems at the implementation level. (1, 2, 3)

Findings and Recommendations:

- This Quattro Pro series of templates is an appropriate use of commercially-available spreadsheet software. It is needs-driven and individuals can be easily trained in its use. An information audit should be executed before and after the use of this tool in order to assess changes in the decision-making process based upon its use.

- A standardized training protocol should be prepared and administered to all potential users of the tool in Egypt.

- Care should be taken to assure that the tool is developed with counterparts in a collaborative and participative fashion to assure that the process will be sustainable.

v. **Graphical Display Method** (Harvard Consortium) (Not presented to the evaluation team by the Harvard Consortium as a tool, but encountered in the field. Identified by the team as a fourth category of tools.)

Description: Using commercial (*Harvard Graphics*) presentation software and highly sophisticated and technical support at all levels, this tool has been assembled in an effective presentation for senior policy makers in Bolivia. It would also be highly useful as a teaching and educational device for the educated lay and technical public. (2, 3, 4)

Findings and Recommendations:

- The GDM is based upon a commercially-available quality product (*Harvard Graphics* for Windows) which can be updated as data changes. The tool is well used and popular with the government of Bolivia. It is in continuing use in order to justify major reforms as part of the national decentralization program.

- The tool is easily learned and highly appropriate in policy forums. Use of this tool should be expanded to other countries.

- The Project should package and prepare a training course based on this tool alone for other countries. It should also formally define this activity as part of tool development.

- Effort should be directed toward having a similar presentation engine available to all country implementing personnel as well as USAID managers. Training to assure that this tool can be used by all Project implementors should also be undertaken. This is an important part of the "data culture."

- Other presentation packages which may be useful should be reviewed for consistency and cost performance.

vi. **Indicator Development (Philippines)** (CDC) (Not presented to evaluation team by CDC as tool, but encountered in the field. Identified by the team as a fourth category of tools.)

Description: A methodology for the development of appropriate and targeted national health program indicators is of the utmost importance in generating and collecting appropriate data for decision making. This most basic of decision support and data collection tools has a good start in the Philippines and could provide the base for a much broader treatment. (1, 2, 3)

Findings and Recommendations:

- Methodology and importance of national indicator selection is of the utmost importance in a data-oriented decision model. The client-driven nature of indicator selection is also important. This should be classified as a tool and a protocol for appropriate indicator development should be generated complete with training materials.

- A careful evaluation methodology should be established for review of indicators and their use.

- Indicator selection and use should be integrated and coordinated with other tools such as burden of disease analysis and priority setting.

b. **Category II: Tools Which Exist in a Pilot, Report, or Conceptual Form**

i. **Priority Setting** (Harvard Consortium)

Description: A highly useful concept, not as yet in completed computer-assisted form, which assists policy makers and senior implementors in setting priorities and allocating resources. (2, 3)

Findings and Recommendations:

- This is potentially an extremely important concept when developed in combination with burden of disease analysis and decision support tools. A working teaching computer-based model which assists MOH personnel in setting priorities should be developed and tested as part of DDM activities.

ii. **Burden of Disease Analysis** (Harvard Consortium)

Description: Harvard Consortium has developed a protocol for calculating and utilizing disability adjusted years of life lost to various morbidities and mortalities. Extremely important in that it allows a direct connection between national level economic and policy making and the health sector. Not yet in useable form for any but high level policy, this concept and method has widespread acceptance and enormous potential. (1, 2, 3)

Findings and Recommendations:

- This extremely important methodology developed by the World Bank with some Harvard assistance should be turned into a computer-assisted tool that can be utilized by country-level decision makers as soon as possible. Although some work appears to be underway on this issue, greater resources and emphasis should be put toward having a usable tool at the district and region levels.

iii. **National Health Accounts**

Description: A useful methodology and protocol for establishing priorities and tracking macro-level resource utilization, this is another area which is being further developed by the Harvard Consortium. Currently useful primarily to policy makers, it has potential for a broad range of possible applications. (2, 3)

Findings and Recommendations:

- This is a useful concept with good potential for full tool status, and should be combined with burden of disease and priority-setting approaches in order to assist country decision makers to set priorities and match same with their current resource expenditures. Should be turned into a tool with this concept in mind.

iv. **Mapping the Decision Process** (Harvard Consortium)

Description: A fairly complex methodology in the process of being turned into a computer-based decision aid tool by Harvard Consortium, Decision Process Mapping is directed at top policy-making levels. When executed properly it shows the decision maker the potential barriers to intervention implementation and, hopefully, a path to avoid them. (2, 3, 4)

Findings and Recommendations:

- This is a useful and interesting method being applied in this instance to LDC health problems. Software development is in place and appears to be of high quality using the latest technology. The process should continue and be reinforced as needed to turn this method into a usable tool in the country setting.

- A review of other methods similar to Mapping the Decision Process, like Force Field Analysis (see vii, page 22), seems in order.

- Educational materials need to be developed here that are specific to needs analysis and information audits in given country settings. The right priorities need to be established from a technical standpoint, as part of the process of mapping is determining which decisions are feasible within the political process.

v. **Dynamic Data Displays** (Harvard Consortium)

Description: This tool is a low-tech presentation strategy which focuses on clarity and precision of research results communication. In the form reviewed, this method needs considerable effort to reach tool status. It is potentially useful at all stages of the data use cycle with particular emphasis on the policy level. (3, 4)

Findings and Recommendations:

- Greater effort should be expended on this concept. It should be turned into a tool and/or a training protocol. The Project suffers from the lack of effective presentation material which can be utilized by decision makers.

vi. **Mortality Analysis** (Harvard Consortium)

Description: A method which concentrates on reviewing death certificates as a way of getting more precise estimates of mortality in societies where statistics are poor, this method has good potential. To be used by technocrats in the generation of data for policy making, this tool is in the pre-policy stage. (1, 2)

Findings and Recommendations:

- This is an interesting and useful method being turned into a software tool, and this work should continue. Although specific to mortality analysis issues, some effort should be made to tie the method to larger health policy and planning questions.

  Relationship to, and the possibilities of use in, burden of disease analysis would also be of interest and potential use by planners.

- Training materials should be developed for use in USAID settings.

vii. Force Field Analysis

Description: Force Field Analysis has significant similarities to Decision Mapping. It is intended to analyze the different political and interest group "forces" which may come to play in a given situation.

Findings and Recommendations:

- Although not developed by CDC as a DDM tool using DDM resources, it has been used to train business managers worldwide and has been used specifically by CDC in Bolivia in their Management for International Public Health (MIPH) Course (2).

- See comments on Decision Mapping. These two similar problem-solving tools should be looked at with an eye toward possible integration.

viii. Computer Work Station

Description: The Public Health Work Station uses a mixture of complementary software packages (*Epi Info*, *Epi Map*, *Harvard Graphics* and *WordPerfect*) running under the DOS operating system in a stand-alone computer. Each program is linked through the use of directly compatible file formats or of outputs that are directly usable by the other programs (integration defined as copy-paste operation and object linking and embedding). The Work Station functions as a physical integrator of diverse data sources and supplies tools for data analysis and presentation. The concept of the CDC version of the Work Station is interesting, but its application has not to date been fully integrated into an implementation or policy framework. The Philippines DOH is reviewing the Work Station and deciding what role it will play in its overall information systems. (1, 2, 3, 4)

ANNEXES

ANNEX I
Scope of Work

II. Goal and Purpose of the Evaluation

The goal of the mid-term evaluation is to help improve the project, and in the process, verify progress made towards achieving the goals and objectives of the project, and assess the quality of the work.

The purpose of the mid-term evaluation is to conduct the first external review of the InfoTech and PolicyTech projects to:

a) examine sub-project outputs to date, assess progress towards goal achievement;

b) assess the potential for tools, methodologies, and approaches that are under development to impact on data-based decision making in participating countries;

c) critically assess the impact of tools, methodologies, and approaches that are being applied in participating countries to increase use of health data in decision making.

Project Identification Data

Implementing Agent	Harvard Consortium	Centers for Disease Control
Project Title	PolicyTech	InfoTech
Project Number	936-5991.1	936-5991.2
Project Dates	9/91 - 9/96	9/91 - 9/96

The period under review is 9/30/91 - present.

III. Detailed Scope of Work

In 1991, the DDM Project was originally designed such that the Harvard Consortium (HC) and the Centers for Disease Control (CDC) would implement the project jointly in from three to five emphasis countries. The concept had been that interested countries and USAID missions would identify one or two of their major health policy and/or public health program issues around which technical assistance from the implementing partners would be structured. In August 1992, for added project flexibility, USAID decided to no longer require the CDC and HC to implement the project jointly in the same country.

1. Complementary Roles of CDC and HC

CDC's interagency agreement (PASA) with USAID/R&D/H outlines activities that will lead to: a) improved access to valid and quality epidemiologic, and other needed data for health decisions; b) problem articulation and identification of information needs by public health program managers or other decision makers as appropriate; c) improved analysis and presentation of technical information by technical staff to decision makers; and d) improved communication of public health information that meets information needs to decision makers at different levels in the health sector. This approach has been described by USAID/R&D/H as a "bottom-up" approach.

The Harvard Consortium's cooperative agreement with USAID/R&D/H outlines activities that will lead to a) increased use of data for decision makers in senior and mid-level positions in the health sector, b) increased use of different tools and approaches for appropriate analysis and effective presentation of information to decision makers. This approach was described by USAID/R&D/H as a "top down" approach.

2. Project Review

a. Verification Methods

The evaluation procedure will include the following approaches and methodologies to document and assess achievement of project goals and objectives, outputs and EOPS conditions:

- Review of reports, manuals, and other documents prepared by project staff and consultants. See Annex C for an illustrative list of project documents.
- Review of country-level evaluation reports.
- Key informant interviews with project staff, consultants, USAID/W, USAID Mission staff, and key in-country decision makers

- Pre- and post-tests (especially for workshops and seminars) and/or surveys to establish in-country decision making procedures and changes which may have resulted from project activities.

- Site visits to Bolivia, Philippines and Egypt.

b. Evaluation Questions

i. Project Accomplishments and Progress Towards EOPS (see Logframe in Annex A)

- Assess the quality of and quantify the decision-making improvement plans developed in developing countries.

- Assess the quality of and quantify the decision-making tools developed and applied to country situations.

- Assess the quality of and quantify the mechanisms operating to advise on evolving epidemiologic/demographic trends and related issues and data requirements.

- Assess the quality of and quantify the workshops, seminars, expert-level meetings, international conferences and training courses on data-based decision-making.

- Assess and quantify developing country decision-makers trained in decision-making tools in the U.S. and third countries.

- Assess the quality of and quantify the newsletters and/or other communications mechanisms in place.

- Assess the quality of and quantify the scientific publications on data for decision-making.

- Assess the quality of and quantify the computer models developed for the decision-making tools.

ii. Project Management

a). Administrative

- Describe the administrative set up at each institution and explain how the administrative arrangement either support or impede project progress.

- Are the current management structures and support adequate for reaching project goals and objectives. If not, how have they impeded progress and what actions have been taken to correct the problems?

b). Financial

- Are financial arrangements between AID and the implementors satisfactory to permit the operations to continue without interruption?

- How does the Aid funding cycle affect core and in country project operations?

- Are the financial reporting requirement of AID and the implementors a problem. Are delays encountered because of voucher processing or financial reporting?

c). Staffing

- Are there sufficient professional and support staff to meet the demands of the project.

- Are the staff positions, in terms of necessary qualifications and tasks to be performed, appropriate to accomplish project activities (both core and add-ons)?

- Assess the current staff's technical and managerial capability to carry out the work of the project.

d). Management of Sub-Agreements

- Review sub-agreements of the Harvard Consortium and the their achievement. Describe and assess the management of sub-agreements by Harvard.

e). USAID Management

- Does the Office of Health provide sufficient support to the project so that it can meet its objectives?

f). Responsiveness to Missions

- What has been the level of mission demand (number of requests, actual funding) for DDM assistance?

- How well (timeliness and quality of performance) have the projects responded to mission requests for technical assistance?

g). **Relationship of the Implementors**

- Assess the relationship of the two implementors(Harvard consortium and CDC) with each other, other DDM partners, and other complimenting USAID projects.

- How have these relationships impacted on achieving project goals and objectives?

- Have efforts to achieve synergy of DDM components been successful? Give examples.

c. Evaluation Recommendations

The evaluation recommendations will include but not be limited to the following:

- organization
- staffing
- project redesign
- improving quality of tools and services
- management
- relationship to DDM Umbrella, USAID missions, other Bureaus/offices and projects

ANNEX II
List of Documents Consulted

Trip Reports

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ANNEX III
List of Individuals Consulted

Agency for International Development/Washington

Dr. James D. Shepperd
DDM Cognizant Technical Officer (CTO)
Global Bureau, Office of Health and Nutrition, Health Policy and Sector Reform Division (G/PHN/HN/HPSR)

Mr. Robert Wrin
Acting Director, G/PHN/HN

Mr. Robert Clay
Acting Deputy Director, G/PHN/HN

Ms. Connie Carrino
Acting Division Chief, G/PHN/HN/HPSR

Ms. Celeste Carr
G/PHN/HN/HPSR

Mr. Bob Emrey
G/PHN/HN/HPSR

Ms. Subhi Mehdi
Bureau for Africa, Health and Human Research and Analysis in Africa Project
AFR/ARTS

Harvard University School of Public Health

Dr. Lincoln Chen, Chairman, Department of Population and International Health (DOP)

Dr. Peter Berman, Director, DDM; Associate Professor of International Health Economics, DOP

Dr. Julia Walsh, Director for Research, DDM; Lecturer, DOP; and Assistant Clinical Professor, HMS

Dr. Michael Reich, Vice Chairman and Associate Professor of International Health Policy, DOP

Dr. Michel Gayenne, Researcher (West Africa Death Certificate Survey)

Ms. Maria Madison, Research Assistant (West Africa Death Certificate Survey)

Mr. Christopher Hale, Deputy Director for Management, DDM

Ms. Kristen Purdy, Program Manager, DDM

Ms. Christina Oltmer, Staff Assistant, DDM

Mr. Gerry Hursch-Cesar, Intercultural Communication, Inc.

Centers for Disease Control and Prevention

Dr. Marguerite Pappaioanou, DDM Project Director, International Branch (IB), Division of Field Epidemiology (DFE), Epidemiology Program Office (EPO)

Dr. Douglas Klauke, Chief, IB/DFE/EPO

Mr. John Drescher, Deputy Chief, IB/DFE/EPO

Dr. Joe Davis, Associate Director for International Health, International Health Program Office (IHPO)

Ms. Barbara Holloway, Acting Director, EPO

Dr. Richard Goodman, Assistant Director, EPO; Acting Director, DFE

Dr. Michael Malison, Chief, Sustainable Management Development Activity, IHPO

Dr. Richard Dicker, Chief, Epidemiology Training Activity, Division of Training, EPO

Dr. Robert Quick, Medical Epidemiologist, National Center for Infectious Diseases (NCID)

Mr. Wayne Brown, Consultant on Applied Management

Ms. Ana Navin, Editor, *Morbidity and Mortality Weekly Report*, Office of the Director, EPO

Dr. Brad Perkins, Medical Epidemiologist, NCID

Dr. Robert Hahn, Division of Surveillance and Epidemiology, EPO

Ms. Hanis Videtto, Assistant Director for Program Operations, EPO

Ms. Roberta Pegueros, Administrative Officer, EPO

Ms. Cindy Whitehead, Assistant Administrative Officer, EPO

Mr. John Williams, Director, Procurement and Grants Office (PGO)

Ms. Frances Riley, Chief, Accounts Payable Branch, Financial Management Office

Ms. Susan Cleveland, Chief, Services Section, Contracts and Purchases Branch, PGO

Mr. Mel Ralston, Assistant Director for Program Operations, EPO

Bolivia

Mr. Monasterios, Secretary of Health, Secretariat of Health Ministry of Human Resources Development (SOH)

Mr. Willie Soane, Undersecretary of Health, SOH

Mr. Cardona, Director of Human Resources, SOH

Dr. Alvaro Munoz-Reyes, Executive Director, Community and Child Health Project (CCH)

Mr. Andres Yale, Director, Administration and Finance, CCH

Mr. Antonio Gomez Vargas, DDM Coordinator and Director, Investigation Monitoring and Evaluation Unit, CCH

Mr. Erick Villarroel, Chief, Computer System, CCH

Dr. Javier Torres Goitia, Director, Proyecto Integrado de Servicios de Salud (PROISS)

Dr. Fernando Lavadenz, Data Analyst, PROISS

Dr. Jack Antelo, Former National Director Ministry of Health (1989-1993), now with PROSALUD

Dr. Carlos Cuellar, Director, PROSALUD (Santa Cruz, Bolivia)

Mr. Zulema Bautista Perez, National Chief of Zoonoses, SOH (DDM participant)

Mr. Rosario Quiroga Morales, National PAI Chief, SOH (DDM participant)

Ms. Jacqueline Reyes de Lanza, National Diarrheal Disease Chief, SOH (DDM participant)

Mr. Alfredo Magne, Epidemiologic Control/Cholera, SOH (DDM participant)

Mr. Alejandro Sanchez Bustamante, National Cold Chain Director, SOH (DDM participant)

Mr. Johnny Molinedo, National EPI Chief, SOH (DDM participant)

Dr. Fernando Gil Mendia, DDM participant no longer with government

Dr. Margarita Patton de Gil, DDM participant no longer with government

Dr. Tito Villaroel Roman, DDM participant no longer with government

Mr. Horst Grebe Lopez, Executive Director, Fundacion Milenio

Dr. Oleh Wolowyna, Senior Population and Health Policy Specialist, Research Triangle Institute

Ms. Sigrid Anderson, Health/Population Office, USAID/Bolivia

Mr. Earl Lawrence, Health/Population Office, USAID/Bolivia

Mr. Rafael Indaburu, Program Office, USAID/Bolivia

Egypt

Dr. Moushira el-Shafa'i, Undersecretary of Family Planning and Director, Department of Planning (DOP), Ministry of Health (MOH)

Dr. Ali Swelam, DDM Coordinator, DOP/MOH

Dr. Mahmoud Abdel Latif, Director, Health Information Unit, DOP/MOH

Dr. 'Akef' Abd el-Hafiz 'Amr, Director of Health Affairs, Beni Suef Governorate

Dr. Mohammed Eid, Director of Planning, Beni Suef Governorate

Dr. Badr el-Masry, Director of Health Affairs, Suez Governorate

Dr. Youssaf Wahib, Suez Canal University

Dr. Esmat Ezzat, Suez Canal University

Dr. Hisham Maklonf, Director, Cairo Demographic Center

Dr. Fatma Zanati, Coordinator, Health Care Providers Survey, Cairo Demographic Center

Dr. Ferial Abdel Kader Ahmed, Coordinator, Household Health Care Use and Expenditure Survey, Cairo Demographic Center

Dr. Hamdy el-Sayed, President, Egyptian Medical Syndicate

Dr. Nanda Kumar, DDM Resident Advisor (Harvard)

Dr. Duncan Miller, Deputy Director, USAID/Egypt

Ms. Joy Riggs-Perla, Associate Director for Human Resources, USAID/Egypt

Dr. Sameh el-Gayar, Program Officer, USAID/Egypt

The Philippines

Dr. Manuel Dayrit, Assistant Secretary of Health, Department of Health (DOH), and DDM Coordinator

Ms. Lourdes Alegre, DDM/FETP Administrator/Accountant, DOH

Dr. Wilfredo Varona, Program Officer, UNICEF

Dr. Tessa Tan-Torres, International Clinical Epidemiology Network (INCLEN)

Dr. Mario Festin, INCLEN

Dr. Jovencio Ordona, Regional Director, Cordillera Administrative Region

Dr. Nemia Lapastora, Philippine Counterpart on Indicator Development

Mr. Herdie Hizon, Philippine Counterpart on Computer Workstation

Ms. Florence Caput, Sentinel Nurse, CAR

Ms. Myrna Cabotage, City Health Officer, CAR

Ms. Elliot Churchill, responsible for Communications Tools, CDC

Dr. Enriqur Tayag, responsible for Communications Tools, Philippines DOH

Ms. Patricia Moser, Project Officer, USAID/Philippines, Health Programs

ANNEX IV
Discussion of Site Visits

BOLIVIA

InfoTech

InfoTech/CDC activities in Bolivia, which officially began a two-year agreement with USAID/Bolivia in September 1992, grew out of the Child and Community Health Project. In June 1990, 22 program managers from the Bolivian Secretariat of Health (SOH) were sponsored to attend a five-week course in basic epidemiology given by Emory University and the CDC in Atlanta. The following year, the SOH requested through USAID/Bolivia that additional training in applied epidemiology, biostatistics, management, and communication skills be offered to physicians who carry decision-making responsibilities as disease prevention and control managers.

The USAID mission responded to the SOH request by asking the CDC to provide short-term technical assistance for the training. CDC offered training and technical assistance through the DDM Project managed by the Epidemiology Program Office. Local administrative and logistical support was to be provided by the USAID-funded CCH Project. Additional training and supervisory support was obtained from the faculty of the NUR University, which is based in Santa Cruz, Bolivia.

In September 1992 the DDM/Bolivia project started as a two-year proposition with forty participants. The program consisted of formal training and supervised practice in applied epidemiology, management, and communications. Its goals were "to improve the decision making of health program directors at national and regional levels through the use of valid data; to improve the ability of program directors to effectively use data to influence decision making at successively higher levels; and to improve the epidemiology, management and communication capabilities of key public health decision makers in Bolivia."

There were four two-week training workshops over the two years of the project. Each of the first three workshops was followed by a supervised practical application of the knowledge and skills acquired to a public health problem of importance in the trainees' areas of responsibility. The first course was conducted August 24 - September 4, 1992, in LaPaz, covering applied epidemiology and biostatistics. The second workshop was carried out in Santa Cruz, March 15 - 26, 1993, focusing on applied management. The third workshop was on epidemiology and communication in public health. It was held in Cochabamba on September 20 - October 1, 1993. The final workshop of the Bolivia DDM project, which consisted of two segments, took place in La Paz on March 14 -25, 1994.

The DDM training project was designed for 40 SOH participants. The selection of the participants was done jointly by the SOH Director General of Health, the CCH/DDM coordinator and the USAID-funded CDC Technical Advisor for AIDS and Child Survival (TAACS) in Bolivia. The selection criteria heavily favored SOH managers who were involved in epidemiological surveillance and disease control activities, and who were in a position to

influence policy and strategy decisions. In addition, 14 positions were reserved for people who had attended the 1990 course in Atlanta, eight positions were given to CCH project personnel (including four district health officers and four regional coordinators), and four positions were open to PAHO EPI/Polio National Advisors who were assigned to the SOH. A total of 38 of the 40 participants completed all four parts of the training.

These practicums required each participant to identify a problem, obtain data to characterize that problem epidemiologically, identify a range of options and evaluate each one, select an appropriate intervention and develop specific intervention objectives, prepare a plan for achieving these objectives, identify and specify the resources and budget needed to implement the plan, and develop an evaluation plan with specific outcome indicators.

The fourth workshop consisted of two major segments. The first was a one-week training session to prepare oral presentations, including the use of *Harvard Graphics* to develop supporting visual aids. The second segment was a national conference at which the participants presented a proposal on which each had been working since the first workshop. Following the conference, the participant trainees were offered the opportunity to participate in meetings with donor organizations and with senior staff of the National Secretariat of Health to discuss specific support which these organizations could provide to the participants' projects.

The DDM InfoTech project has had a noticeable and positive impact on the decision-making behavior of those who were able to participate in the workshops. This assessment is based on interviews with participants and their immediate supervisors, and a review of the participants' recent work products. The DDM course has awakened in the participants a need and desire to learn more, not only for personal growth, but to build on the progress they have witnessed in their own work. They exhibit an enthusiasm and a willingness to work in teams and share experiences, which the participants attribute to their newly-acquired abilities, prestige, and self-confidence.

It is also possible to point to an impact of the DDM/Bolivia participants' projects and initiatives on the decision making process within the Secretariat of Health. Most of the participants interviewed reported that they regularly encouraged their subordinates to undertake basic analyses of data in order to improve the reliability of the data being reported by them. This was done primarily for monitoring EPI coverage, to analyze National Health Information System Data through the areas and districts, and for epidemiologic surveillance. Participants also reported analyzing data provided by other agencies, particularly regarding AIDS and rabies, and responding to requests for assistance from the heads of their regional programs.

The participants were able to identify specific changes in the way they carried out their activities, which they attributed to the training they received under DDM. They reported that the DDM training has given them a broadened perspective and conceptualization of their work. A second area of reported change is that the participants have learned how to better manage, plan, and prioritize their activities. There has been a noticeable increase in the use of computers by

participants, but the initial curiosity and enthusiasm has waned among those who cannot access a computer on a daily basis. The training also has created a solidarity among the participants, and one of the outcomes of this is improved communications between the regional, district, and national levels. Most of the credit for these changes is attributed to the DDM training as well. According to several participants the DDM training has united them and given them prestige and the ability to accept and reject criticism.

Several participants, particularly at the central levels, have given classes on request to present DDM concepts and analytical techniques. Participants have been consulted by their colleagues to critique presentations and reports, and have been invited to attend meetings where data is to be discussed and analyzed. One participant believes that SOH officials are now more cautious in their pronouncements because participants are apt to pursue detail and explanations.

The DDM training program has not been the only activity in Bolivia to train Secretariat of Health personnel in epidemiology and management. Other courses have been given through projects supported by the World Bank and the Inter-American Development Bank, by the SOH Human Resources Development Department (SOH/HRDD), and the public health departments of public (Cochabamba) and private (NUR) universities. The focus of these other programs is primarily on management and planning, for district and some regional personnel, with some training in epidemiology. The DDM training, on the other hand, focuses on a more practical approach through short course workshops and follow-up support for specific projects. The SOH/HRDD has complemented DDM in its training of regional statistics technicians in the use of computers and database management, including the processing of National Health Information System data. Another example of how the DDM training has affected activities external but related to the SOH is the establishment of the Bolivia Society of Epidemiology, which was one of the outcomes of the second DDM workshop course.

The effectiveness of the DDM workshops in Bolivia has been not only due to the presentation of basic epidemiology, biostatistics, and management concepts and techniques, but also to the training process itself. There are three methodological aspects which have distinguished the DDM courses from other, less successful training programs in Bolivia. First, the participants do not take leave from their official duties, but continue in their positions. Second, the course materials, and especially the inter-workshop projects, are directly applicable to and have often become part of the participants' regular activities. Third, and perhaps most important, there has been on-site supervision and technical assistance from the CDC, NUR University, and the CCH project staff between the semi-annual two-week workshops.

PolicyTech

The DDM PolicyTech sub-activity began implementation in Bolivia in August, 1993. This part of the Project grew partially out of a visit to Bolivia by Harvard University economic policy reform guru Jeffrey Sachs, who was accompanied by Harvard's DDM Project Director.

The talks during this visit indicated the government's desire to implement reforms in the social sector. The government especially wanted to implement a new and more "advanced" health policy with the credibility that Sachs and the Harvard name brought, so it was only a matter of time before the government would request assistance to help implement the new policies. The government created a new Super Ministry of HRDD, which joined the Education and Health Ministries. In 1993 this new Ministry requested assistance from USAID in preparing for an upcoming Donors' Consultative Group Meeting. The USAID mission in Bolivia turned to the DDM/Harvard PolicyTech Project to provide the assistance. The Research Triangle Institute (RTI), a member of the Harvard Consortium, was prepared to work with the Ministry, offering the help of the Senior Demographer/Principal Investigator for the DDM Project.

RTI put together a team that made three visits to Bolivia to discuss with the Ministry what kinds of information was needed and how best to present it. This team was able to take the data gathered and package a government presentation in a computer-generated slide show. The presentation was made at the Donors' Consultative Group meeting in Washington, DC, in December 1993. It was so well received and given such high praise that the President of the Republic and senior officials of his administration used it to explain and justify policy reforms they were introducing and implementing.

Since that success PolicyTech has been concentrating on developing data tools that will help the Ministry and Secretariat of Health establish an Executive Health Information System (EHIS). This system, being developed by RTI, will provide senior officials with the capability to pull up data on a computer that will enable them to make decisions based on up-to-date information. Another program being developed is a policy mapping capability, based on the work of Professor Michael Reich of the Harvard School of Public Health. It will help the Ministry implement its part of the decentralization of government under the Popular Participation Law.

Recommendations

The DDM Project has had real successes and made significant progress in Bolivia. There are still, however, issues which must be addressed if the skills and technologies introduced by the project are to be sustained. The first of these is institutionalizing the training in Bolivia. The project needs to use and work through the universities in Bolivia. Some work has been done with and through the NUR University in Santa Cruz, and the same needs to be done with the National University in La Paz and the Cochabamba School of Public Health. Training of trainers is not enough: Faculty in these institutions need to be prepared to take over training. This will allow the development of additional DDM courses in Bolivia which will educate trainers, including managers and nurses. A critical mass of professionals will then be in place to maintain the process under SOH guidance. Further training should be given to past participants in training techniques and methods, supervision, and follow-up skills. Additionally, a mechanism needs to be established so that participants may maintain continual contact with CDC. Such contacts might include mailings, periodic conferences, and technical assistance via e-mail.

Unfortunately, not all participants have been able to have daily access to computers. As a consequence, the computer skills learned during the training workshops have deteriorated. The government and university administrators need to find a way to guarantee participants adequate access to computers on the job.

Finally, it must be noted that both American institutions responsible for project implementation in Bolivia (CDC and the Harvard Consortium) are not communicating with each other. The DDM Project is not realizing its full benefit and impact because of this lack of communication. It is incumbent upon USAID, both the mission in La Paz and USAID/W, to bring these two together. It is not necessary to become co-implementors, but there must be cross communication in order for the DDM Project to succeed.

EGYPT

In December 1992, USAID/Egypt invited the Data for Decision Making Project/Harvard Consortium to send a team of experts to Egypt. They were asked to assess possible inputs for identifying needs for data, its analysis, and communication of key health policy related findings. Additionally, they were asked to determine the opportunities for strengthening the government's institutional capacity for policy analysis. Following a review of the findings of the assessment team, the Ministry of Health and USAID/Egypt asked the Harvard Consortium to prepare a proposal for a program to address the lack of substantive preconditions for health sector reform.

The Harvard Consortium proposal outlined a program to strengthen the institutional capacity of the Directorate of Planning through the creation of an Information Unit. This Information Unit would serve as the base for data gathering and analysis activities which Harvard would undertake on behalf of the Ministry of Health. These activities are meant to complement and enhance MOH efforts to strengthen the health sector reform effort being supported by the Cost Recovery for Health Project. Working with the Directorate of Planning, the Harvard Consortium proposed over three years to: create databases for the public and private sectors; design, equip and, through training, make operational a budget-tracking system for public sector expenditures; design and implement national household health care use and health care provider surveys; examine and analyze decision-making processes in the health sector; and provide or arrange for training in analytic techniques such as cost-effectiveness and analysis for setting priorities.

The proposal was approved with funding effective July 15, 1993. The funding is provided by the Cost Recovery for Health Project. Because of this, there are many people attached to the DDM/Egypt project who feel it is handicapped. As an example, they point to the delay within the Ministry of Health for approving of the Project Implementation Letter so the DDM project could proceed with implementation. This did not happen until February 1, 1994, a full seven months after funding was approved. The resident technical advisor did not arrive in Egypt until the end of May, further delaying implementation of the project.

The resident technical advisor is working with the recently-created health information unit within the Directorate of Planning. The unit is directed by a physician with several data entry clerks for support staff. The resident technical advisor is providing the health economics expertise to the unit. Since implementation of the DDM Project in Egypt began in February 1994, the unit has been equipped with six computers, printers, and initial software. There is a need for air-conditioners, but this procurement action is caught up in an MOH bureaucratic tangle over technical specifications.

Initial substantive work of the health information unit will be coordinated with the three data-gathering activities being done as part of the DDM Project. The first is a budget tracking exercise, which initially is being carried out in two governorates: Suez and Beni Suef. The budget tracking exercise is closely tied to a national health accounts survey, which is to provide

data on the sources and uses of public and private health expenditures. The survey covers salaries for personnel, expenditures for drugs, investment in capital projects, and equipment. At the time of this evaluation, much of the data-gathering had been completed in the two initial governorates. Once this data is gathered, it will be possible to begin developing the user-friendly, computerized budget tracking system.

Closely related to these surveys are cost-effectiveness studies of health interventions as well as household expenses being conducted at the governorate level. The first of these studies is on childhood immunizations and the second is on renal dialysis, both of which are being conducted in the Suez Governorate by the Clinical Epidemiology Unit (CEU) of the Suez Canal University (SCU). As the SCU is directly linked to the MOH as a community-based medical school and hospital, these studies may serve as prototypes for the Ministry. The governorates want more definitive cost information on curative and preventive medical practices by disease. The Governorate Health Services Directors want this data to help them better plan budgets according to "sectors" and functions (medicines, services, personnel, etc.).

The third major activity being implemented in Egypt is two surveys: 1) Household Health Expenditures, and 2) Health Care Providers. The Household Health Expenditures survey is being conducted to provide a basis for estimates of where households spend their health Egyptian Pound. Among other factors, this survey will look at levels of treatment use, spending for different age levels divided by gender, and levels of spending for each by socio-economic group. The data gathered will give an indication of the impact of health care costs on families.

The Health Care Providers survey will provide a basis for estimating the level, nature, and source of health care provision. All levels of practitioners are expected to be captured in the survey, including physicians, nurse practitioners, and traditional healers.

The Harvard/DDM Project has contracted with the Cairo Demographic Center to conduct these surveys. The questionnaires for the surveys have been designed as of the time of this evaluation, with pretests slated for July and August 1994. Main field work, during which half of the sample will be contacted, is to be done in October, November, and December 1994. The remaining contacts are slated for the summer of 1995. The Cairo Demographic Center is basically doing only the data-gathering, with some analysis. The work will be periodically reviewed by Harvard/DDM personnel. In collaboration with the Directorate of Planning (DOP), a computerized database will then be developed, incorporating both the household and provider survey data, which will make it possible to link the results of both surveys by area. Analysis will be done by the DOP and Harvard in Cairo.

Assessment

The DDM project in Egypt is just beginning full implementation, but preliminary assessments are already being made. For the Ministry of Health, Directorate of Planning, it is a propitious time for the project to begin in earnest. Until now the Directorate of Planning has had

little functional responsibility for health policy planning; instead, its main function has been to plan for and monitor capital investment projects such as hospital construction. While it has ostensible responsibility for the preparation of the Ministry's five-year plans and should govern health policy and budget expenditures, it has not had the database and information inputs necessary to do real planning. The Ministry is looking for technical support to strengthen its planning capabilities through the provision of data on which to base planning. The DDM Project is providing that assistance.

The DDM Project is trying to develop a system for aiding high-level ministry officials in making data-based decisions. Changes in the way decisions are made are being brought to a culture where everything was done manually and decisions were based on personal perceptions and relationships instead of a reality developed from analysis. The "new approach" is readily accepted by some at different levels, but one part of project success will be how others are educated on all aspects of the project and the tools it is bringing to the decision-making process. Parts of the project are readily understandable, such as budget tracking. Others, such as cost effectiveness analysis for priority setting and mapping the decision-making process, are more problematic.

A major concern is how project progress and techniques introduced will be sustained. How this sustainability will be met and assured has not been addressed by the Harvard Consortium, USAID/Egypt, or the Government of Egypt. The Harvard Consortium (the Harvard School of Public Health and Research Triangle Institute) is introducing new technology and analytical methodologies. However, they are not being developed in Egypt, with Egyptians. Once developed in the US, they are brought to the host country, who is asked to adopt and use these technologies and methodologies. As a case in point, the software for the budget tracking is being developed by RTI, but the development does not include working with Egyptians except during the testing phase. Egyptians hope for closer collaboration on the part of the providers of technical assistance in the future. There is a need for continuous follow-up, which will hopefully be provided by the resident advisor.

The Government of Egypt, Ministry of Health, Directorate of Planning also needs to address these sustainability issues. The DOP is not realistic when it comes to recruiting and retaining data analysts and management information specialists. The DOP and the project will be training people to have the skills necessary to meet the requirements of the new mechanisms and technologies being introduced. At the present time there is not a civil service pay category for management information specialist, though the Directorate will be requesting a budget line item for data analysis specialists in the next budget request. What the Directorate does not anticipate is trained employees moving from the public to the private sector, where salaries are higher. Because the government cannot compete with the private sector salary structures, it will need a continuous stream of people in a replacement pipeline.

Because sustainability is such an important issue within USAID, the mission in Egypt should be able to offer advice and guidance on sustainability issues.

Recommendations

The project needs to establish a local identification in Egypt (it is currently a USAID project providing technical assistance). Local institutions need to be brought in to do analytical work (as the Cairo Demographic Center is capable of doing), provide training (as the Suez Canal University could do), and the MOH/DOP should be encouraged to look to these local institutions as well.

USAID/Egypt needs to work closely with the Harvard Consortium to see that objectives and expected outcomes are clear. If training is a major key to project success, then they must insist on a project training plan or program that shows how the training supports the studies, technical assistance and tools being introduced and vice-versa. As part of its effort to encourage sector reform, USAID needs to work with the MOH/DOP to encourage acceptance and use of local institutions. There is a unique opportunity here to link the Suez Canal University with the MOH in a way that has not been done before. The SCU can be used to meet analytical requirements, data and information systems training, and as a proving ground to test and refine tools for improving decision making. If not SCU, then other institutions can be brought into the equation. Also, USAID should amend the Cost Recovery for Health Project Implementation letter to ease the management structure of the DDM Project, so that project level decisions can be made in the Directorate of Planning.

THE PHILIPPINES

In June 1992, the Government of the Philippines Department of Health (DOH) invited an assessment team from the Data for Decision Making Project to explore how the DDM Project might assist the DOH in strengthening its capability to collect, process, analyze, and use data effectively to set health policies and manage public health programs. Particular emphasis was to be paid to building a stronger capacity in the context of the devolution of health services. Both the CDC and the Harvard Consortium submitted proposals for the assessment and an assistance program. The CDC proposal was accepted, and in August, 1993 the DOH submitted the proposal to the USAID mission to fund the project under DDM.

As presented and funded, the DDM Project in the Philippines has three major components: 1) the development and use of a set of consensus health indicators to be used for monitoring and evaluating program performance and progress towards DOH mid-decade goals; 2) the development and use of a tool to assist in decision making called Rapid Appraisal for Priority Setting and Informed Decision Making (RAPID); and 3) capacity building at the national and sub-national levels on the use of the health indicators for informed decision making.

The Philippines DDM Project also has set for itself three major objectives. It looks to establish the means to provide timely information to decision makers at the central, regional, provincial, and municipal levels of the public health system through the use of the public health. Included here are key non-governmental agencies and international institutions that have important relationships with the DOH (for example, UNICEF). The project looks to build the applied epidemiology and management capacity of staff of Regional Epidemiology Units, and to provide improved program management, support and technical assistance to key local government unit health officials, mayors, and governors. Finally, the project looks to demonstrate the use of information at different levels of the health system.

A workplan was developed to cover the period from October 1993 to May 1995. This plan would be implemented by the Department of Health through the CDC Field Epidemiology Training Program over the 18-month period. The CDC provides the technical assistance through the DDM Project with additional support provided from USAID. Because of the limited time and resources, project efforts are focused on Region V and the Cordillera Autonomous Region (CAR). At least two provinces and municipalities per region are covered under the project.

The University of the Philippines Clinical Epidemiology Unit (UP-CEU) was invited to submit a plan for the design and conduct an evaluation of the Philippines DDM Project. The objectives of the evaluation are: 1) to assess baseline data regarding policy decision making at the central and regional levels; 2) to conduct an assessment of data availability and accessibility in the CAR; 3) to evaluate the processes involved in collecting data, producing information and communicating that information; and 4) to evaluate the sustainability and the expansion of the DDM intervention to other areas of the country.

The main premise of the DDM Project is that public health can be improved by an informed health policy and correct program implementation, based on timely and effective communication of needs-based information leading to appropriate management of health problems. This premise for health policy formulation and implementation should be evaluated against other forces influencing decision making. The success of the DDM Project in the Philippines will depend not just on the DDM interventions, but also on the enhancement of positive forces influencing rational decision making and the effective neutralization of negative forces.

According to an assessment by the International Clinical Epidemiology Network (INCLEN), decisions at all levels of the Department of Health are not based on any systematic consideration of information. With one exception, governors and majors of both Region V and CAR do not make health policy decisions based on the presentation and analysis of data or information. While there is a Field Health Service Information System (FHSIS) and a Health and Management Information System (HAMIS), neither provides adequate and accurate data for decision making. The data is often entered too late to be useful and there is no feedback from central offices to regional offices.

Twenty consensus health indicators have been developed by the DOH, with the assistance of UNICEF. At this time, these indicators meet the needs of general DOH priorities and specific local needs. However, only four indicators were chosen as part of the computer workstation development for pre-testing. The subset of four indicators does not have readily-available data, though the operational definition of the subset seems to be specific and concrete enough to facilitate collection, interpretation and dissemination of data.

The computer workstation being developed under the DDM is what will make the project successful. It is the workstation that will give the decision maker access to the information to make sound decisions. So far, the work station has been installed in seven sites: two Regional Offices (Region V and Cordillera Autonomous Region); two Chartered Cities (Bagio City and Legaspi City); and three Provincial Offices (Camarines Sur, Albay, and Benguet). The only software installed as of July 1994 is *Epi Info* and *Epi Map*.

Recommendations

Indicators

Additional indicators need to be added to the system once the Department of Health finalizes the set of national consensus health indicators. Any indicator that does not have a source of information can use the formats used by FHSIS to gather data. Every indicator should be tied to a specific intervention in order to test or reconfirm its validity. At the regional level, FHSIS should provide a concrete way of producing timely and accurate data to be keyed for selected indicators.

Using RAPID and Information

RAPID needs to be linked to the information systems that are already operating in the country. Since it uses data from FHSIS and HAMIS, it should be linked to them to get the data faster and more accurately than manual transfers. The computer workstation will work better if they have readily available data from FHSIS, and with a better interface.

The Computer Workstation

At the moment, none of the Philippines' counterparts have experience with the new version of *Epi Info*, and there is no local programmer that can replicate the knowledge of the CDC computer consultants. Formal training in *Epi Info* is needed for at least three persons in each region. The FHSIS information system should be reworked and strengthened in the regions. A modification in the data flow needs to be made for the computer workstation to use the data coming from FHSIS and other information systems. The CDC and DOH should look into the use of a commercial software package for the interface and for data entry purposes. One could then look to *Epi Info* to generate reports, and *Epi Map*, maps.

ANNEX V
A Discussion of Tools and Methodologies Developed Under the DDM Project

A Discussion of Tools and Methodologies Developed under the DDM Project

Table of Contents

Figures

I. Scope of Deliverable

A framework or matrix for this analysis will be developed that answers the following questions relating to the Tools/Methodologies developed under the DDM Project:

- What are they?
- What is their status?
- What is their quality?
- What is their applicability to policy reform, priority setting, resource allocation, and technical decisions in developing countries?
- Can they easily be adopted for use by LDC health workers?

Further, the report will:

- Examine the training requirements necessary to make these tools useable by LDC health workers. This analysis will require an assessment of the training methods used to date in Bolivia, Egypt, and the Philippines. Have they been effective in helping program managers and health workers use data routinely in their decision-making at the policy and programmatic levels?

- Identify the cross-cutting issues between various types of decision making (policy, program, and technical) as related to the Project's goals and objectives.

Other important questions that will need to be answered include the following:

- What would it take to create a data culture among health executives and managers in LDCs based on Project experience to date?

- Will the current Project approaches create this data culture? If not, what are the recommendations for achieving this goal?

II. Framework for Analysis of Tools and Methods

The framework for the analysis of any data or analytical tool refers directly to the tool's ability to do a given job. Information technology is judged by its utility in providing cost-effective alternatives for making and then evaluating the utility of resource allocations. Therefore, our first question to the DDM Project was, "What is the model by which information tools are judged, and how do the products and other activities generated by this Project relate to this model?" In effect, what is the causal link hypothesized between tools, new technology, and improving USAID's role in health around the world?

Two representations of a "data model" were provided to the team. The first of these was an original decision information model, which was included in the year one action plan and other Project documents. It is represented in Figure A (following page).

The first model is a general decision and evaluation management schema applied to health. While appropriate, it is too generic to use as anything other than a broad framework within which to locate data oriented tools.

The second model, Figure B (page AV - 5) is more appropriate to our problem in that it appears to be a version of the decision tree derived from the DDM Project logical framework (Log Frame). In the Project Log Frame, most outcomes are measured or presented as tools. This model gives us much greater detail as to the intended outcomes of the Project and how information tools relate to these outcomes. It organizes information according to explicit functional and policy objectives. Therefore, the specific objectives under each of the Project components organize a way to categorize tool development and to ask which tool fits which objective.

Our first classification answers the question of how tools are related to the different Project objectives. The branches of the objective tree for the Project establish that which is to be accomplished. The objective list has an implicit priority established with the highest priority directly related to fiscal or human resources which are allocated in the most appropriate manner. Thus, we order the objectives in the following way:

1. Understand budget flows
2. Develop fiscal policies for sustainability
3. Optimize private/public mix

Understanding, developing, and optimizing only make sense if there is an end result which is objective and accepted by all as a goal. These objectives are stated as:

4. Analyze changing disease burden
5. Identify and order interventions (set priorities)
6. Assess and project needs

Figure A

DDM Policy Models

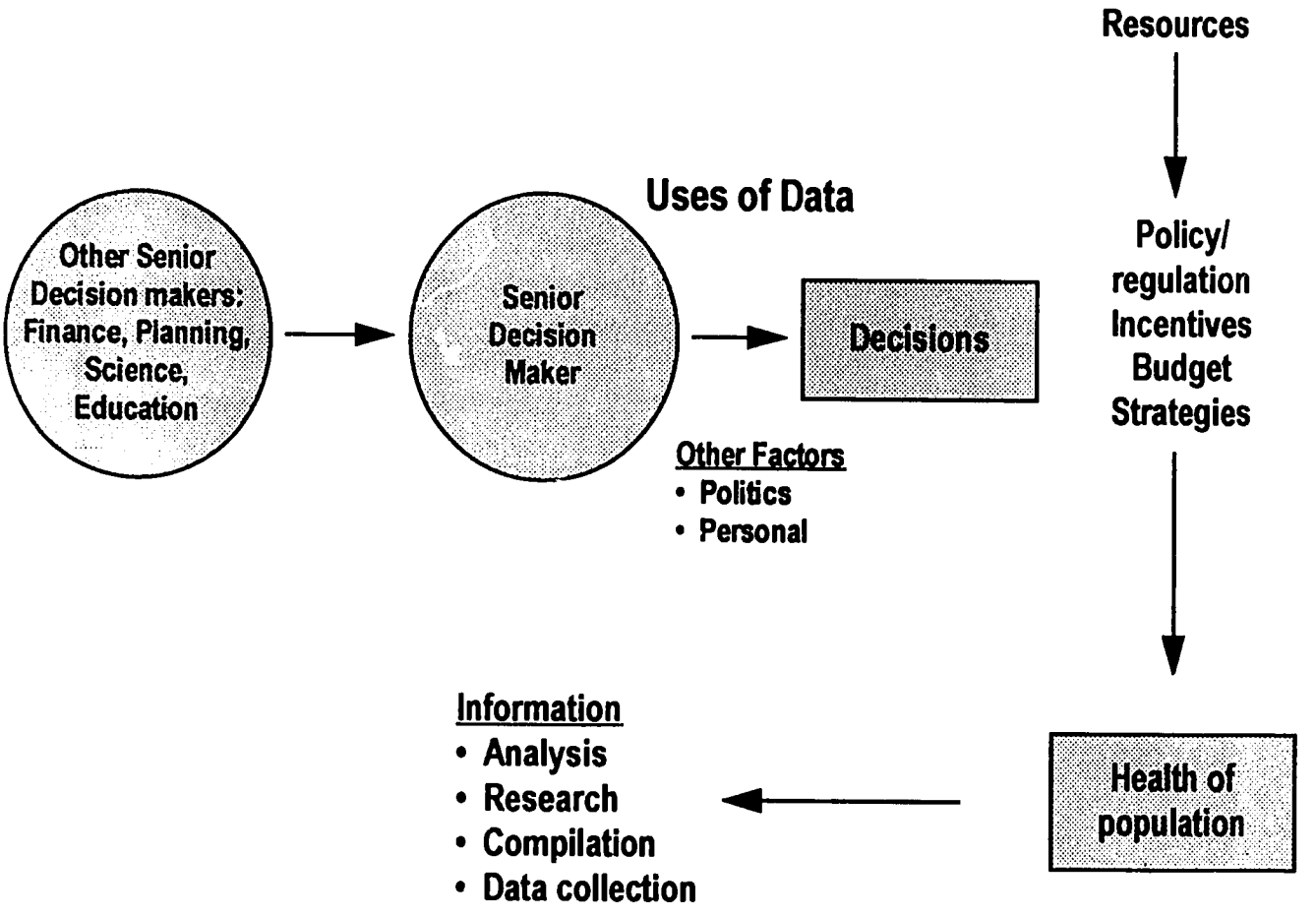
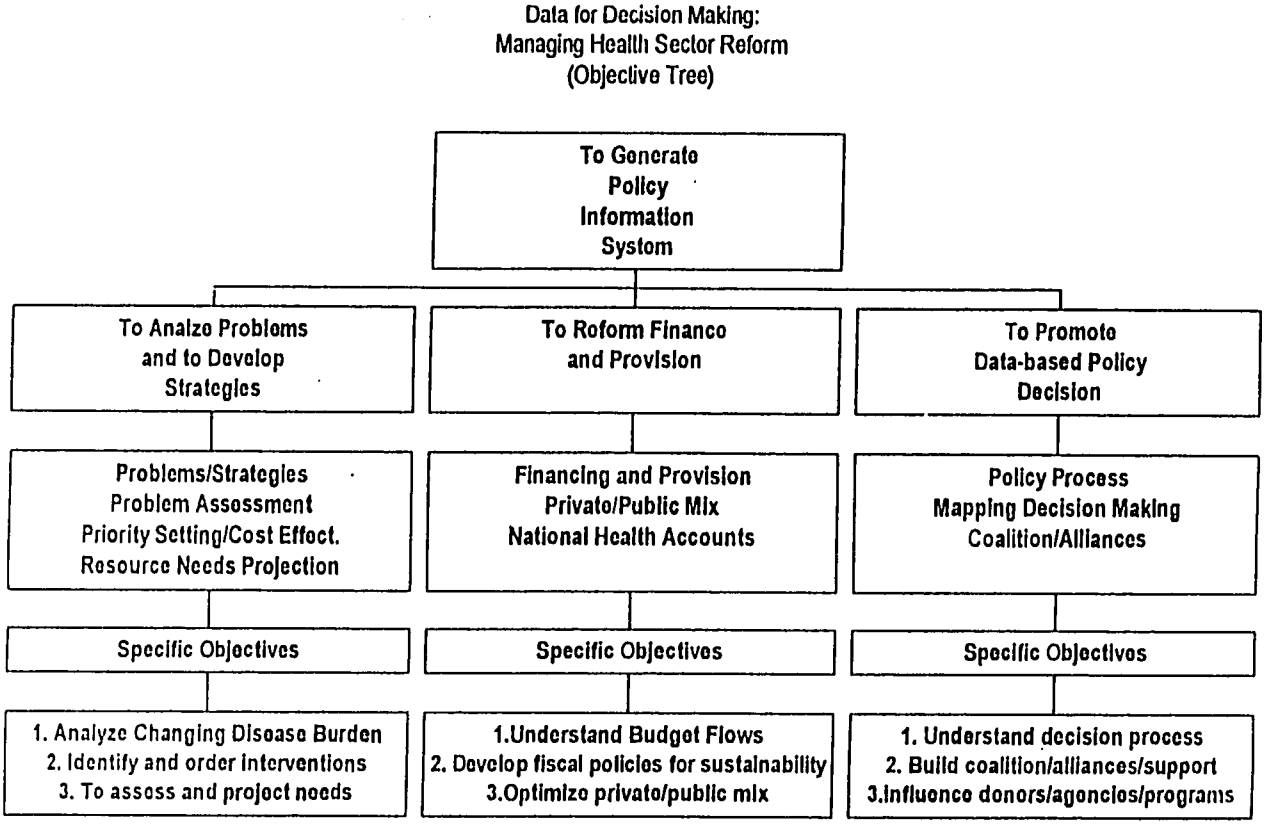


Figure B


Data for Decision Making:
Managing Health Sector Reform
(Objective Tree)
To Generate Policy Information Systom
To Analze Problems and to Develop Strategies
To Reform Finance and Provision
To Promote Data-based Policy Decision
Problems/Strategies
Problem Assessment
Priority Setting/Cost Effect.
Resource Needs Projection
Financing and Provision
Privato/Public Mix
National Health Accounts
Policy Process
Mapping Decision Making
Coalition/Alliances
Specific Objectives
Specific Objectives
Specific Objectives
1. Analyze Changing Disease Burden
2. Identify and order interventions
3. To assess and project needs
1.Understand Budget Flows
2. Develop fiscal policies for sustainability
3.Optimize private/public mix
1. Understand decision process
2. Build coalition/alliances/support
3.Influence donors/agencies/programs

Finally, once the proper direction has been empirically established, we might begin to consider the overall policy environment within which competing demands for resources are organized and where "health" needs to be well defended. In order to do this we need to:

7. Understand the decision process (actors, events, etc.)
8. Build coalitions, alliances, and support
9. Influence donors, agencies, and programs

We should note that this is not a linear relationship. For example, by influencing donor agencies, which provide a significant portion of financing for the governments involved, we would expect a direct affect on finance-related issues noted in the first set of objectives.

One can argue that in an ideal world, analyzing the disease burden would logically precede the issue of resource allocation to alleviate that burden. In practice, however, we believe that the parameters are so well established for both disease and budgets in most of our target nations that financial issues and their allocation should first be understood. Typically, in developing countries the majority of budgetary allocation is in personnel (60-70%), drugs, and transportation. Most personnel work in tertiary rather than preventive care. It would be a rare event to find a developing country situation where this was not the case. In a real time environment, the information tools for doing both should be available simultaneously in this environment. Therefore it is difficult to organize an absolute ranking of objectives.

III. Understanding Tools

A. Definition of Tools

A tool is a device or an implement used to accomplish something. USAID clarified its position regarding the definition of a tool in a letter from J. Sheppard to J. Walsh in October of 1992:

> "....a tool is an instrument, process, or procedure,
> that can be used repeatedly by any trained person,
> to carry out some recurrent task."

As a systematic approach to the definition of tools, we find this definition useful, appropriate, and one that should be utilized throughout the Project.

For our analysis, tools had to fulfill several tests. These tests have become the elements of our framework for tool analysis. They are:

1. The tool must exist in physical form, either as a document or a piece of software.

2. The tool must relate to one of the Project objectives in a direct manner (as noted above).

3. There must be evidence, first by pre-test and then after implementation, of the tool's utility.

4. The tool must be viable and sustainable.

5. The tool must be of acceptable technical quality.

6. The tool must be distributed widely and maintained locally.

The above issues then represent a simple ranking of how tools can be judged using technical criteria, the first of which is that the tool exists and the second of which is that it relates to one of the Project objectives.

Reviewing J. Sheppard's definition of a tool as an instrument, process, or procedure that can be used repeatedly by any trained person to carry out some recurrent task, we conclude that there should be:

1. Documentation of the existence of the tool.

2. An evaluation or at a minimum an evaluation schema by which the impact of a tool has been or can be measured.

3. A packet of established training materials so that individuals can be trained in the use of the tool.

A further qualification in a project financed by USAID is that the Project should have some, if not all, of the responsibility for adding value, or being completely responsible for, the development of a tool. That a good tool exists is not the question for this evaluation but rather, "Did USAID wisely spend its resources in the development of a useful and cost-effective tool?"

B. Evaluation of Tool Quality

Evaluating the quality of tools should be an ongoing part of a project-specific information system. At least once a year each tool should be reviewed with the following issues in mind:

1. How many tools are used?
2. Has a key decision maker audit been included?
3. Are there alternative projects which have contributed to tool development?
4. What is the relative contribution of DDM to the final product?

We add to these issues a framework for evaluating the tools. Questions for evaluating the quality of tools include:

- In what form do the tools exist?
  - Report
  - Software Tool
  - Training
  - Other (work station)

- How many have been distributed?
  - Who has used them?
  - What information products have been produced as a result of the tools?
  - Are these products used for better decisions and resource allocations?
  - Can the tool be used without continual assistance?
  - Is tool use and maintenance considered in human resource development and maintenance?

These questions serve to focus on what the tools are doing and how they are meant to provide guidance and direction to USAID and host country personnel.

We also suggest that within each country and at the central level (i.e., Washington), a specific protocol be established that includes an additional set of questions relevant to the local environment and to understanding the impact of the project.

C. Classification of Existing Tools

The tools that have been presented to the evaluation team by the Harvard Consortium and CDC for review follow.

From Harvard:

i. Indicators of Staffing Needs (Hall)
ii Executive Health Information System
iii. Population Projection Models (DemProj)
iv. Projecting Resource Needs and Tracking System
v. Priority Setting
vi. Burden of Disease Analysis
vii. National Health Accounts
viii. Mapping the Decision Process
ix. Dynamic Data Displays
x. Mortality Analysis (Death Certificate)
xi. Private/Public Mix
xii. Expert Advisory Groups
xiii. Research Communication
xiv. Geographic Information Systems

From CDC:

i. *Epi Info*
ii. *Epi Map*
iii. Computer Work Station
iv. Force Field Analysis (not developed by DDM but used by DDM in its Management for International Public Health (MIPH) course)

The first distinction that we would make between these tools is whether or not they are functional (that is, exist in a working form) or whether they exist in a report or conceptual paper form. Therefore, we have defined Category One tools as those already existing with established software and tested protocols. The second category consists of those tools that

exist in a pilot, report, or conceptual working format, with evaluated results. A third category includes elements listed as tools but which are either too generic to have specific meaning or exist already in a usable format without DDM support. There also exists a fourth category that involves tools that we encountered while in the field but which were not on lists given to us by Harvard or CDC.

Using these categories, the tools are classified as follows:

Category One

i. Indicators of Staffing Needs (Hall)
ii. Executive Health Information System
iii. Population Projection Models (DemProj)
iv. *Epi Info*
v. *Epi Map*
vi. Projecting Resource Needs and Tracking System

Category Two

i. Priority Setting (generic)
ii. Burden of Disease Analysis (World Bank and others)
iii. National Health Accounts
iv. Mapping the Decision Process
v. Dynamic Data Displays (evaluation team has not actually seen this)
vi. Mortality Analysis (Death Certificate) (started under DDM, but now a separate activity)
vii. Computer Work Station
viii. Force Field Analysis

Category Three

i. Geographic Information Systems (existed already and generic)
ii. Expert Advisory Groups (generic)
iii. Research Communication (generic)
iv. Private/Public Mix

Category Four

i. Graphical display creation and presentation methodology used by the Harvard Consortium in Bolivia
ii. Indicator development methodology used by CDC in the Philippines

What is apparent is that the project lacks a systematic format for defining and reviewing tools. Likewise, a modified information system, which would review specific tools and report as to their status by country on a routine basis, would greatly facilitate management and tracking of work accomplished.

The above issues provide us with the basis for organizing and understanding tools according to the following matrices.

Tools Matrix Category 1: Already Existing Tools

Tools	Documented	Impact Known	Training Materials Available	DDM Project Attribution
Indicators of Staffing Needs (Hall)	yes, with software	high potential	yes	partial (?%)
Executive HIS	partial	model exists	no	partial (?%)
Population Projection Models	yes, with software	model exists	yes	partial (?%)
Epi Info and *Epi Map*	yes, with software	high	yes, but need improvement	partial (?%)
Projecting Resource Needs and Tracking System	yes, with Quattro Pro spreadsheets	model exists	some	partial (?%)

Note: State of the art programming is difficult to judge without a much more extensive review of the structure and form of code; however, the software products seem adequate. The use of spreadsheet software for accounting purposes is not usually recommended, because of the ease of changing values for audit trail purposes. A coordinated project such as DDM should have a set of software standards, developed after a study of field use and availability of hardware and software. Issues such as maintenance and support of software should be included. Royalty and intellectual property issues should also be considered as part of such a review.

With regard to this first group of existing tools, there are some general comments that are pertinent. First, all of these tools existed in some form prior to CDC/Harvard involvement with the DDM Project. In and of itself this is not bad if USAID can be assured that a rational review process with appropriate criteria was utilized to select these particular tools for further refinement and testing. There appears to be evidence that neither the contractors nor USAID have undertaken this level of quality control review. In almost every case, there are alternative "tools" available in the market, many of which would have potential value to users in the developing world. Some are even being generated by the developing countries USAID is trying to assist (Bolivia). The lack of a listing of criteria by which these tools should be judged and ultimately selected for implementation, and a methodology for doing so, seriously

weakens the entire project. The above framework presents a minimal approach to this problem. USAID should design and engage professional review mechanisms to assure that standards and performance are appropriate and that value is being received for investment. At present this does not seem to be the case.

Tools Matrix Category 2: In a Pilot, Report or Conceptual Form

Tools	Documented	Impact Known	Training Materials Available	DDM Project Attribution
Priority Setting	no	no	no	?
Burden of Disease Analysis	yes	partial	no	partial
National Health Accounts	yes	partial	partial	partial
Mapping the Decision Process	partial	partial	software being developed	yes
Dynamic Data Displays	no (2 page description)	no	no	partial
Mortality Analysis	yes	partial	partial	yes
Computer Work Station	no	no	no	yes
Force Field Analysis	partial	partial	no	partial (?)

While the same comments that apply for category one also apply for category two tools, there are some additional points. Some of the tools that are proposed here have potential for being major contributions to the project. Using the burden of disease concept to assist in priority setting and mapping and understanding the decision processes is a useful and appropriate application of information technology to decision making and health improvement in the environment where USAID works. A work station that would put all of these tools together and instruct a user in how to work with them would be another excellent idea. What is lacking, however, is a cross-cutting policy framework or model that can be utilized to set priorities within the project. Without a coherent vision of the project from USAID, the contractors will follow their own interests and prior work. The applicability of these tools to resource allocation issues, which are the policy reforms we seek, can only be subjectively assessed. If the potential is high, the tools must be finished, training in their use must be undertaken and above all, careful operational research must be undertaken before we can rationally assess any more than their potential as tools to impact on policy reform.

Tools Matrix Category 3: Generic Concepts or Ideas

Tools	Documented	Impact Known	Training Materials Available	DDM Project Attribution
Geographic Info. System	yes	partial	yes	none
Expert Advisory Groups	yes	no	no	none
Research Communication	yes	no	no	none
Private/Public Mix	yes	no	no	none

Quality and relationship to policy are completely moot issues with the above tools, since they are either generic or simply don't exist in a form which can be related to the objectives and accomplishments of this project.

To the above list we have added the fourth category, consisting of two tools which have shown promise, but are not classified as such by the contractors nor apparently USAID.

Tools Matrix Category 4: Not Currently Classified as Tools

Tools	Documented	Impact Known	Training Materials Available	DDM Project Attribution
Presentation Graphics	no	partial	partial	partial
Indicator Development	no	partial	partial	yes

In both of these cases we judged the policy implications high and the quality to be good. The Project did not choose to pursue training and development around these tool areas or even identify them as such. We believe that this is an oversight that should be rectified.

D. General Observations about Tools

The following is a summary of our findings regarding tools and the DDM Project.

i. Few tools which exist at this point in Project history are in a complete form and can be attributed to Project resources.

ii. The Project does not have a systematic format for defining and reviewing tools nor an information system which reports on status of tools at the central and country-specific level.

iii. The Project does not appear to have undertaken a needs- or client-based analysis for deciding which tools should be developed and against which efficacy of the tools can be judged.

iv. Many concepts, ideas, and research findings which are listed as tools should not be.

v. There is overlap in tool development and conceptualization which appears unplanned, i.e., Work Station concept and Executive Health Information System; Force Field Analysis and Mapping the Decision Process.

vi. There appear to be no professional standards being applied systematically by the Project to software that is developed with Project resources.

vii. There is no evaluation system in place to judge the utility and efficacy of tools as they are implemented in-country.

viii. There is no systematic training plan that is tied to tool development. This leads to the fact that training material is not standardized, is often only available in written form, and there is no systematic plan for distribution of same.

ix. There appears to be little communication between the CDC, the Harvard Consortium, and USAID regarding the selection and use of tools. CDC and Harvard appear to be using separate criteria for tool development. The criteria for the generation of new tools is particularly important and seems to be lacking at all levels.

E. General Recommendations about Tools

From these general observations, we suggest the following.

i. Project implementors and USAID need to more fully incorporate clients and users of tools in all stages of tool development. This could be done by having systematic field review protocols for tool selection and review and a technical advisory committee for in-house review. USAID should have a clear statement of where each tool fits into the objective tree analysis and how its impact is conceptualized. USAID should have a separate and objective mechanism to judge tool quality.

ii. DDM should focus on, and select for implementation, software tools in the marketplace. Professional software development is an expensive and difficult task. Tools such as the data presentation and the EIS in Bolivia are important for their content but use commercial packages for their implementation.

iii. DDM should establish internal criteria and a structure for the review of commercial and other software as it applies to specific problems important to health decision makers. These reviews should be of a technical nature with careful consideration given to implementation problems.

iv. Tools developed or supported by the project need to have a clear plan for maintenance and support over time.

v. A training plan should exist for each tool that is developed and proved successful, which should include types of dissemination strategies, training tools, and the availability of documentation in multiple languages.

vi. A clear definition of what USAID expects as a functional tool for a Project entitled Data for Decision Making should emerge. USAID needs greater clarity as to what they expect this Project to accomplish. A working model relating tools to new strategic areas should be developed and applied systematically if appropriate.

vii. An internal Project information system, following the model being developed by Harvard, should be in place which gives periodic reports on all stages of tool development and conceptualization.

F. Specific Recommendations Relating to Tools

i. Indicators of Staffing Needs (Hall)

- In a written review of personnel and staffing needs data requirements, the work of Hall is cited as state-of-the-art. Hall's human resource tool kit is an excellent example of a data culture inspired tool which includes bibliographical and analytical software. It should be reviewed, critically examined, and made an integral part of DDM strategy.

- Greater emphasis should be placed upon human resource development given its importance in most developing countries resource allocation schema.

- Links between burden of disease analysis and personnel and staffing patterns should be explored for appropriate decision making.

ii. Executive Health Information System

- This is an excellent idea implemented with state-of-the-art computer software. Greater focus should be on choice of content data bases and a mechanism for feedback which examines how the data is being utilized, i.e., count use pattern and record for further revisions. DDM should encourage and continue to finance this activity in Bolivia, as well as introduce it to other countries.

- Careful guidelines should be developed for operations research on what is used in the EHIS and how it is utilized.

- Consideration should be given to integrating the EHIS with the CDC Work Station concept in order to provide data tools which have content as well as analytical functionality. These two activities should be coordinated at the software and content level.

iii. Population Projection Models

- A useful tool developed by RTI. The DDM Project should present this essentially demographic tool in the context of several others that could be useful to MOH decision makers and technocrats. BUCEN projection models should be referenced, as well as the database and projection model work done by CELADE and the UNESCO groups. The advantages of the UN software is that it comes with training materials, translations, and a large installed data base.

- A technical analysis of available census projection software, which illustrates the strengths and weaknesses of each package, should be included. Consideration should be given to small area projection problems which are a particular issue in district-level health planning.

- Better training materials should be developed in appropriate languages. Such material should include references to using demographic data in health decision making and the importance of denominator concepts and practices.

iv. *Epi Info* and *Epi Map*

- A well-established and much utilized data entry and preliminary analysis package sponsored by CDC, *Epi Info* needs little work. The lack of modular and computer based training materials in appropriate languages is striking given the widespread use of the program. DDM should either develop some or investigate their existence among the many thousands of users.

- DDM should compare and develop an analysis of other data entry/analysis programs which are similar to *Epi Info* in order to assist technocrats in the selection of appropriate software for national use.

- A formal operations research activity should be initiated by DDM to investigate which features of *Epi Info* are most utilized in order to set priorities for training materials development.

v. Projecting Resource Needs and Tracking System

- This Quattro Pro series of templates is an appropriate use of commercially-available spreadsheet software. It is needs driven and individuals can be easily trained in its use. An information audit should be executed before and after the use of this tool in order to assess changes in the decision-making process based upon its use.

- A standardized training protocol should be prepared and administered to all potential users of the tool in Egypt.

- Care should be taken to assure that the tool is developed with counterparts in a collaborative and participatory fashion to assure that the process will be sustainable.

vi. Priority Setting

- This is potentially an extremely important concept when developed in combination with burden of disease analysis and decision support tools. A working, teaching, computer-based model, which assisted MOH personnel in setting priorities, should be developed and tested as part of DDM activities.

vii. Burden of Disease Analysis

- This extremely important methodology, developed by the World Bank with some Harvard assistance, should be turned into a computer-assisted tool that can be utilized by country-level decision makers as soon as possible. Although some work appears to be underway on this issue, greater resources and emphasis should be put toward having a usable tool at the district and regional levels.

viii. National Health Accounts

- A useful concept with good potential for full tool status, it should be combined with burden of disease and priority-setting approaches in order to assist country decision makers to set priorities and match same with their current resource expenditures. It should be turned into a tool with this concept in mind.

ix. Mapping the Decision Process

- This is a useful and interesting method being applied in this instance to LDC health problems. Software development is in place and appears to be of high quality using the latest technology. The process should continue and be reinforced as needed to turn this method into a usable tool in the country setting.

- A review of other methods which are similar, including Force Field Analysis, seems appropriate.

- Educational material that is specific to needs analysis and information audits in given country settings needs to be developed. The right priorities need to be established from a technical standpoint as part of the process of mapping which decisions are feasible within the political process.

x. Dynamic Data Displays

- Greater effort should be expended on this concept. It should be turned into a tool and/or a training protocol. The Project suffers from the lack of effective presentation material that can be utilized for decision makers.

xi. Mortality Analysis (Death Certificate)

- An interesting and useful method turned into a software tool. This work should continue. Although specific to mortality analysis issues, some effort should be made to tie the method to larger health policy and planning questions. The relationship to, and the possibilities of use in, burden of disease analysis, would also be of interest and potential use by planners.

- Training materials should be developed for use in USAID settings.

xii. Computer Work Station

- Work stations, as physical integrators of diverse data sources and analytical tools, are a logical next step in data for decisions. The concept of the CDC version of same is interesting, but its application has so far not been well integrated into an implementation or policy framework.

xiii. Graphical Display Method

- This is a presentation based upon a commercially-available quality product (*Harvard Graphics*) which can be updated as data changes. The tool is well used and popular with the Government of Bolivia. It is in continued use in order to justify major reforms as part of the national decentralization program. The tool is easily trained and highly appropriate in policy forums. Use of this tool should be expanded to other countries.

- The Project should package and prepare a training course based on this tool alone for other countries. It should also formally define this activity as part of tool development.

- Effort should be directed toward having a similar presentation engine available to all country implementing personnel as well as USAID managers. Training to assure that this tool can be used by all Project implementors should also be undertaken. This is an important part of the "data culture."

15

- Other presentation packages which may be appropriate should be reviewed for consistency and cost performance.

xiv. Indicator Development (Philippines)

- Methodology and importance of indicator selection is of the utmost importance in a data-oriented decision model. The client-driven nature is also important. This should be classified as a tool and a protocol for appropriate indicator development should be generated complete with training materials.

- A careful evaluation methodology should be established for review of indicators and their use.

- Indicator selection and use should be integrated and coordinated with other tools, such as burden of disease analysis and priority setting.

xv. Geographic Information Systems

xvi. Expert Advisory Groups

xvii. Research Communication

xviii. Private/Public Mix

Numbers xv through xviii above are interesting and usable concepts, related to data for decision making and need to be assessed as to their relevance to Project objectives. If they are judged to be of importance, they should be turned into tools. While each has good tool potential, each should be assessed vis-a-vis country- and Washington-level needs. Until they are presented as tools, with specific products and activities in mind, they should be removed from the list of tools.

G. Tool Summary

The focus on tool development and organization in the original Project documentation is appropriate in that the power of the information revolution and its application to health and development is best expressed in products. Information-related tools are the best and obvious outcome of such products, which will have value to others. The most important tool, in terms of its impact in the field, has been without question the computer generated slide show used by senior MOH officials in Bolivia. This is not listed as a tool by the Project implementors. A protocol or training module which focused on these elements would be of major benefit to in-

country and mission staff. We would therefore encourage the Project to place added emphasis not just on tools that are generated by Harvard or CDC but on the application of tools that exist in the marketplace.

It is a truism in the computer industry that government and university entities are poor implementors and sustainers of software products. With some exceptions we do not feel that this Project should focus on developing any new software tools. It is adequate to prototype and organize tools which, if adopted by USAID or the U.S. Government, should have a clear strategy and plan for development and maintenance.

Finally, we need to re-emphasize the need to incorporate client and user involvement in all stages of tool development. This seems to be happening in some cases, but in others, it is clearly the Project selling ideas to the field. This is not bad if the ideas are tested and known to be an improvement over the current situation. However, it does create problems if that testing and review process is not being applied. A user-oriented approach to selecting and testing tools is always to be encouraged in this kind of environment. We would strongly suggest a systematic protocol for USAID managing and reviewing these products on a routine basis (once each 6 months). Such a review would be incorporated into the Project direction and become part of a management information system that the Project should utilize.

IV. Training for a Data Culture[1]

The training programs that have been undertaken by the Project fall into several categories.

i. Presentations

- Although not explicit in the scope of work of the RFP, the Project has been used to supply expertise for putting together briefing papers for USAID employees (Russia poverty analysis) and for hosting and presenting technical issues in the health field to senior USAID and other managers. This is a form of advocacy and training that should be encouraged in the future.

- Documents reviewed regarding this type of activity are of good quality. Our only suggestion would be that some forum should be identified to get this material out to a wider audience. In visits to Bolivia, local Project staffers had not seen many of the reports that had been generated.

ii. Seminars and Meetings

- Several meetings and seminars have been held under this Project. This is also a form of educational activity. Although the published proceedings of the first major meeting have yet to emerge, we share with Harvard the feeling that it will be a significant contribution to the field. For operational purposes, we find the process of academic-type conferences with published proceedings far too slow and limited in outreach impact. We would suggest a more "information technology" approach, using some form of electronic publishing, to get key material out to users as quickly as possible. Proceedings or monographs could come at a later point if the health and development community had some channel for immediate access to the results of what appear to be rather expensive encounters.

- In our review of the participants of these seminars, it was not immediately evident that there was broad participation of all client populations. A large element of academic and government participation from non-DDM countries conveys the impression that the meetings may have had more academic than applied objectives. While this is not bad, there should be some mechanism in place to assure participation of target country trainees.

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[1] The official response to the training section by the Epidemiology Program Office of the Centers for Disease Control is included after this section and precedes Section V. Generating a Data Culture.

iii. Formal Training

- The only readily identifiable formal training that has taken place under the Project has been the Bolivian training undertaken by CDC. The first portion of this training was organized through Emory University, which organized short course training. Although this training was perceived by the students as being of good quality, it was prohibitively expensive for a relatively short training session (US$25-30,000, as estimated by Bolivia MOH officials).

- The second set of courses offered by CDC in Bolivia were well evaluated in formal and informal ways (see Appendix 3). The Ministry of Health calculated that this three-course set cost around US$12,500 per person. Although it was not clear where this calculation came from, it appears to be reality-based. Bolivia's point was that the numbers of people who needed training were large and this cost figure was high. There was also some concern that the local public health training infrastructure used by the Ministry within the University system of the Country, had not been utilized. CDC traditionally does not work with local universities, often for good reason.

- The need to lower the cost and increase the coverage of training is obvious. This becomes even clearer when we examine the numerical results of the well-done evaluations executed by CDC. While the courses were well received, the difference in the pre- and post-test scores on many questions were non-significant. While for the purposes of this analysis it is inappropriate to go further into the cost per percent change approach, it would be useful in the future to modify evaluations of training performance to consider this issue. CDC has an excellent base for developing a sophisticated training evaluation tool and should utilize it to the fullest extent.

Given the fact that many of the completed and listed information tools have been in existence for some time, it is lamentable that the Project has not generated more training materials. Without a trained user population, there can be no dissemination of the "data culture," or utilization of concepts, methods, or tools produced. While training may have been held up for any number of reasons, the production of materials and their testing should be a first priority. Materials should also be targeted to the field. The explosion in personnel needed as part of the worldwide decentralization process in the health sector will greatly increase the demand for training materials of an appropriate and useful variety. What training the Project has done seems of good quality, although cost may be an issue. The Project needs to do much more training if it is to have any impact.

As is to be expected, when the major products of the Project (tools) are poorly defined and without a clear sense of direction, training for the use of those tools also lacks definition and form. Training should be subsequent to priority setting and needs assessment. Only in Bolivia, where a coherent training program at several levels exists, does this process seem to be taking place. The MOH has evaluated DDM-sponsored training and found it to be of good quality but too expensive and without the needed organizational linkages to make it sustainable.

While the Project is expected to create a "data culture," there is little evidence of such a culture existing within the Project itself. Training would be appropriate at all levels of Project implementation to introduce the elements of such a culture. We therefore recommend that:

- A training needs assessment should be undertaken at Project management, implementation, country, region, and district levels to assess current levels of knowledge and to assist in setting priorities regarding what skills and competencies should be utilized with relation to tool development. CDC has done part of this, with their evaluation of the in-country course in Bolivia. This methodology should be built upon and applied to each level of Project activity.

- Elements of the information revolution and "data culture" definition should be described and all Project implementors and management be trained in that definition.

Official Response from Epidemiology Program Office, International Branch, Division of Field Epidemiology, Centers for Disease Control and Prevention

CDC Response to Formal Training, Point #1: "The only identifiable training that has taken place under the project has been the Bolivian training undertaken by CDC."

This statement is incorrect. Identifiable training has also occurred in the Cameroon, Mexico, and the Philippines—training that was described in detail in the draft Project Report and during interviews with the evaluation team. In the DDM/CDC Mexico Project alone, the Directorate of General Epidemiology has developed a two-week Data for Decision Making curriculum and by December 5, 1994, will have trained approximately 300 public health professionals in nine states. Likewise in Cameroon, the Ministry of Public Health in the Far North Province has used materials developed from the DDM Project there to train over 100 health professionals in the Province on epidemic preparedness and response in meningitis and cholera.

The team then writes, referring to the Bolivia training, that "the first portion of this training was organized through Emory University. . . it was prohibitively expensive for a relatively short period of time (US $25-30,000 as estimated by MOH Bolivia officials)." The training was not part of the DDM Project--the training that the team refers to here was provided by CDC to 22 Bolivian health officials in 1990, at the request of the MOH and USAID/La Paz, before the DDM Project Paper was even written. CDC recommends that this bullet be deleted from the report.

CDC Response to Formal Training, Point #2. The training described in this bullet was the training provided by DDM/CDC; the $12,500 per person cost cited is consistent with CDC's estimates. It would have been helpful if the report had provided comparison costs from the experience of other projects or programs. The cited figure of $12,500, however, would include the larger start-up costs of developing course materials and having CDC consultants provide a large portion of the instruction. During subsequent phases of training provided by DDM/Bolivia staff these costs should be much lower. Training materials now are available, and the funding required for DDM/CDC consultants will be phased out over the next year.

CDC Response to Formal Training, Point #3. Although the team cites numerical results of pre- and post-test scores, DDM/CDC believes that it is more important to focus on evaluating behavior changes that affect the use of data over time by participants. DDM/CDC suggests that it is important to look at the cost of training relative to the impact seen on the data-use behavior practiced by participants.

CDC Response to last paragraph, AV-24: The team writes that ". . . it is lamentable that the Project has not generated more training materials," and "The Project needs to do much more training if it is to have any impact." Again, this observation can only relate to observations by the team in Bolivia and the Philippines as part of the DDM/CDC evaluation which excluded Cameroon and Mexico. Each of these latter two projects has led to the production of a large

body of training material and to the training of several hundred in-country health staff. The team also failed to mention the communications training module (MOD:COMM) developed under DDM/Philippines and to enumerate the training of trainers from over 16 countries, enrolled to date in the MIPH course. Although the teaching modules were not ready for classroom use at the time of the evaluation, the team was presented a copy of "Mod Comm: A Communication Module," and with material from the Introduction to the Public Health Surveillance course, and Economic Evaluation and Decision Making for International Public Health Decisions.

CDC Response to first paragraph, page AV-25: The team writes "The MOH has evaluated DDM-sponsored training and found it to be of good quality but too expensive and without the needed organizational linkages to make it sustainable." Recent discussions in Bolivia with the MOH have led to implementation of the second phase DDM/CDC activities by the Community and Child Health Project. During this phase, the CCH (with input from the MOH) is hiring a core group of trainers. As stated in the plan for the second phase of DDM/CDC in Bolivia (dated March 1994 and shared with the evaluation team), this core group of trainers will carry out training-needs assessments and begin to develop appropriate curricula for training courses in DDM at local levels of the health system.

V. Generating a Data Culture

The creation of a data culture among health executives and managers in LDCs is one of the objectives of the DDM Project. This process does not happen overnight. Perhaps the most notable example of how the Project has addressed this problem is in Bolivia. Based upon a combination of bottom-up (CDC training) and top down (Secretary of Health and donor presentations) approaches, all levels of the MOH and the USAID mission are both sensitive to and utilize data in making resource allocation decisions on a routine basis. Arguments center around not whether data should be used but rather how to get the needed skills in data use to as many people as possible. The availability of the following elements, all present in Bolivia, seems crucial to this process:

- Reasonable sources of primary and secondary data.
- Strong support for and training in useful tools for data manipulation at middle and senior levels of the MOH (USAID, World Bank, and related projects).
- Strong senior level MOH and higher involvement in creating a supportive environment for the use of data.

The Bolivia case indicates that the original philosophy of the DDM Project, as stipulated in the Project documentation, was correct. The need to coordinate and merge the middle and the top management in Ministries of Health is obvious. In Bolivia this process was facilitated by a single person with over a decade of working with data in the MOH in Bolivia. Recent events in Bolivia have expanded the potential for Project impact to the local level. This creates a new and wider demand for training of much higher numbers of data sensitive health workers to fuel the resource allocation and decision-making activity at the some 300 municipalities that will be involved.

It is in this context of the obvious importance of coordinating the top, middle, and lower levels of tool testing, development, and use that we lament the decision of the DDM implementors to separate the two parts of the Project. We believe that close coordination and collaboration is vital to success in this arena. In the case of Bolivia, we see the results of such collaboration at the individual level. The Project has been fortunate to have one of its senior technical consultants as the interface for many of its activities. His presence and constant effort has done much to inject the data culture that we hope will result from this Project into health decision making. He has done this by using resources from multiple projects and funders to create and demonstrate tools. We believe that this sharing of information is good and should be encouraged. At the country level it is particularly important. All resources and technical expertise possible should be utilized by the Project.

This is in opposition to the so called "divorce" between CDC and Harvard, which creates duplication and needless separation of efforts. The Computer Work Station and the Executive

Health Information System of CDC and Harvard are complementary concepts and tools. Force Field Analysis and Political Mapping fall into the same category. If within the Project sharing and utilizing common data resources and methods and tools to manipulate them is not part of the culture, it is unlikely that this will spread outside the project.

One of the basic tenants of the information revolution and its correspondent data culture is the sharing of data to empower users. Harvard and CDC show few signs of having utilized information technology and or planning tools in their own management. By having the administrators of the Project develop and promote their own "data culture," a more favorable atmosphere for spreading this data culture to others will be generated. Suggestions for having the implementing entities do this include the following:

- Establish a professional technical review panel, which reviews and applies professional TQM criteria to all computer hardware and software issues and products as they emerge. Enforce contractors to hold to these standards.

- Establish internet nodes with all documents from both entities available for electronic downloading through both USAID nets and more global nets. Provide a protocol for encouraging this use.

- Create an electronic bulletin board such that Harvard, CDC, and USAID would have routine and timely access to administrative information and updated progress on tool development and use.

- Review and/or establish technical training such that, at a minimum, the implementors of Project activity are aware of data and or decision tools which have been developed by CDC/Harvard, or a host of other potential producers.

While there are other steps that could be taken, the above are obvious and relatively inexpensive. Both CDC and Harvard have the technical capability to undertake these initiatives within their own institutional frameworks and current staffing patterns.

There is relatively little to suggest that the Project is doing anything more than society in general to foster a data culture. Their dissemination strategies are poor or non-existent, they have little in the way of internal information systems, and training has been addressed in only an ad hoc way Harvard is beginning to put together some elements of an internal information system and expresses a desire to improve dissemination. Fortunately, society at large, including developing countries, is moving along the information highway. For example, in Bolivia both the USAID and World Bank projects were quite on their own much more data driven and information system capable than either of the implementing entities. Thus, while we believe that the Project should be more involved in all aspects of information use and generation from within and without, it is probable that the "data culture" will exist and flourish no matter what happens.

VI. Data and Policy

The cross-cutting issues which should drive the Project are straightforward and fit completely with the original Project purpose. Better decisions regarding the allocation of resources for health will be made if more and better data is available in a timely manner to decision makers. Information tools are the mechanism by which we operationalize the products of the information revolution and its application to health and development. Every tool or protocol that we define as a tool, therefore, needs to be related in some way to those objectives. This should happen at the Project management level, tool selection and testing level, and country implementation level.

The applicability and effectiveness of data tools or methods in promoting better health in developing countries under different conditions and circumstances should drive all other aspects of our policy dialogue. The Project currently has no framework or system in place to do more than subjectively assess this issue. We believe that an important improvement would be to put such a system in place.

VII. Conclusions and Recommendations Regarding Tools and Methodologies Developed under the DDM Project

- The original design of the Project appears to have been sound and appropriate. Data tools developed and made available to practitioners in the field have a desired and positive effect on decision making. Bolivia provides the best example of this. The Project has departed, as a manner of policy, from this basic design of coordinating top down and bottom up approaches. The Project should re-examine management decisions to separate out these elements and reintegrate them into the design. This is the most crucial and obvious element of policy change at the USAID level. This can be done by negotiating a rejoining of Harvard and CDC activities, or by letting each contractor undertake all levels of integration in different countries.

- A lack of coordination, as noted above, has created an environment whereby highly varied technical criteria are being utilized to judge tool development. This should be corrected. USAID should acquire the expertise to support Project management on technical criteria.

- There is inadequate experience by Project implementation staff in dealing with USAID priorities. While this experience is being rapidly developed by implementing staff, it is at considerable cost to the Project. Both CDC and Harvard have long experience in dealing with USAID activities; however, that experience is not reflected in the entities executing the Project. While there is no question as to the professional competency or intentions of implementors, their LDC experience at a policy implementation and change level, with the exception of RTI in Bolivia, in large part explains the slowness of implementation. Systematic approaches to needs assessment and both USAID and host country involvement in priority setting for tool selection, needs to be addressed by Project management.

- USAID management is severely understaffed. A highly-varied Project with major technical issues requires constant review. While the USAID CTO has managed the administrative details of the Project well, there is no counterbalance to two powerful technical contractors. USAID should review and examine Project administration and provide more technical backstopping. A technical advisory group would be a useful addition to Project management.

- While both CDC and Harvard are huge resources for data-oriented activities, the executing entities at both institutions may be overburdened in the near future. In both contexts what this will lead to is the use of USAID resources to finance activities that are already underway. While this is not necessarily bad, it requires

96

careful oversight and management on the part of USAID to assure that it is also in the best interest of the Agency and consistent with the Project design.

It is clear that Project resources are being utilized for meetings and briefings vital to USAID policy change. While this is important, it has little to do with data tools and decision making. If the Project is to be utilized for this end, it should be amended and appropriately adjusted.

VIII. Overall Summary of the DDM Project

The DDM Project is a major activity within USAID, which in concept combines the direction and extraordinary potential of the information revolution with USAID's mission in health. It is a major and exciting initiative. Implementation of the Project has been slow and although showing potential, primarily followed the prior agendas of the two prime contractors (the Harvard Consortium and CDC). The result of the first two years has been a reflection of each of these organizations' current activities as they have been applied to DDM-sponsored activities. While this is not necessarily negative, we believe that a more coherent stipulation of the original vision and practice of the Project, focusing on shared solution development and experimentation, will add immeasurably to Project direction. USAID needs to be more proactive in stating problems and judging solutions on a timely basis. In concept, the Project is excellent; in practice it is currently somewhat mediocre, but demonstrating real promise. A sense of experimentation and rapid operations research will help it greatly. The potential and excitement of the revolution in information technology needs to be aggressively applied to Project activities.

by

Dr. William Bertrand

Annex 5 is the opinion of Dr. William Bertrand and does not necessarily reflect the opinion of the team, USAID, TvT Associates, or the Pragma Corporation.

ANNEX VI
A Discussion of DDM Project Management

A. USAID Management

In the management of USAID projects, the cognizant technical officer (CTO) has come to play an increasingly important role. The CTO is the USAID monitor pushing the contractor, PASA agency, or cooperating agreement institution to perform at the level expected when the agreement or contract was signed. At the same time, the CTO is the project advocate within USAID. This often means speaking on behalf of the contractor/agreement institution. The role of CTO has a built-in conflict trying to balance these two roles of oversight officer and technical guide.

The Data for Decision Making Project is no exception to the necessity of having a strong cognizant technical officer. This has become especially true as the project has been expanded beyond its original two subprojects (covered by this evaluation) and is now an umbrella project with six sub-project components. Each of these subprojects is being implemented by a contractor, US government agency, or cooperating institution. Each has three or more functional areas being addressed in the project implementation. This means that the CTO has an extraordinary management burden with the oversight and monitoring of six contractors and institutions. In addition, the CTO has to try to maintain a credible technical liaison with these same contractors and institutions.

As CTO, an individual has to deal with the conflicting tensions of the project manager (which requires frequent and detailed attention to financial and other oversight requirements, as well as identification of constraints imposed by contract/PASA/cooperative agreement provisions) and technical guide, trying to help the project to meet its goals and objectives. To date, this conflict has not impeded project progress, nor been of concern to the implementing institutions for the DDM sub-project elements for InfoTech and PolicyTech.

The only concern was expressed by the Harvard Consortium over an apparent confusion by the contracts/cooperating agreements office or the contracts/agreement officer. In amending the cooperative agreement to add buy-ins from USAID missions, the amendments have added the funds to the core funding (the agreements officer decided the mission was asking for a service, not a program). In another instance the funding was given to CDC, not Harvard (because the mission had assigned a wrong funding citation), resulting in Harvard having to absorb $140,000 in expenditures. Also, a proposal for the Harvard sub-project of DDM to carry out an activity for the Africa Bureau's Health Human Resources Analysis for Africa Project (HHRAA) came up as a core activity instead of an add-on. With financing limitations for core activities, these kinds of misunderstandings and errors can have negative implications for the project. USAID needs to be clear how buy-ins and add-ons are to be handled and have specific instructions and guidance for the missions as to which are core funds and which are not.

Generally, both the Harvard Consortium and CDC/EPO expressed that they were pleased with the cooperation received from USAID. They were especially pleased with the technical and management support provided by the USAID CTO.

B. Management by the Centers for Disease Control and Prevention

Management of the DDM Project by CDC needs to be functionally separated. First there is the technical program management, which is centered around the Epidemiology Program Office. The second function is support management, which includes financial management and procurement activities. At the same time it must be understood that the CDC is a domestic agency with a domestic constituency. While DDM is important to USAID, in the CDC's scheme, it is a small program in a small office.

Programmatically CDC brings much and uses much of its experience to the benefit of the DDM project. It can take a tool developed for domestic use, such as the *Epi Info* software, and apply it in an international context. Additionally, it has drawn significantly on personnel skills that are primarily being applied domestically to address specific problems or training situations under the DDM. For the EPO this pays dividends as well. Its staff gets an experience they otherwise would not have. This benefit has enriched all parts of the EPO by providing an opportunity for professional growth through an international experience.

The CDC, within the context of the EPO, has provided the necessary technical support to the project. For fiscal year 1994, EPO allocated 21 persons providing 252 person days to the project, in addition to the project director and assistant director, who are 100 percent dedicated to the project. Five other people provide 2.75 FTE dedicated to the project. These are both increases from fiscal year 1993 and reflect the increased levels of DDM activity. These levels of effort are also indicative of CDC's program level of commitment to the project.

There is a problem, however, on the horizon. The CDC, like other federal government agencies, is going through the pains of down-sizing as part of the "reinventing government" exercise. As a consequence, no increased level of effort can be expected for the DDM Project, at least for the near term. While the current level of FTE and other support is adequate for the current DDM programs (activities in five countries), the CDC would be constrained to take on additional activities. At some point the CDC will be required to make some serious decisions as to where international activities (including the DDM Project) fit in the overall level of priorities. With those decisions, FTE and other resource commitments can be made, and the DDM Project will either be allowed to expand or by necessity be reduced.

For the immediate past and the present, the perception is that the DDM/CDC Project is going well. It has made significant training contributions: In Cameroon, 40 to 45 health officers were trained to investigate epidemics; in Bolivia 41 people were trained in four workshops in applied epidemiology, management, communications, and presentations and visual aids. Progress is beginning in Peru, the Philippines and Honduras as activities gear up. The success of the CDC within the DDM Project can be attributed to the approach taken. It is first of all a problem-driven approach that requires direct experience and forces trainees to think about problems. Secondly, there is an integration of training with what the trainees are doing in their

vork, which makes it relevant. There is a supervised in-service application of the training, which urther strengthens its relevancy. Not to be ignored is the training of trainers which is necessary f the program is to be sustainable. This approach taken by CDC should lead to improved access) training and data up and down the health services ladder.

All of this is not to say that there are not significant problems. These difficulties center round the fact that the CDC is a domestic agency operating in an international context. This ieans that administrative and management support is governed by domestic rules and :gulations for procurement and financial transactions. The evaluation team wonders how and 'hy this problem has not surfaced before, as the CDC has been involved in international and 'SAID-funded activities for years.

The problems the CDC has are concerned mainly with the procurement of goods and :rvices overseas. As a domestic agency, the CDC procurement office follows the Federal cquisition Regulations (FARs) for all procurement actions. To date no one has considered cploring the possibility that the USAID Acquisition Regulations (AIDARs) might be more)propriate. Neither the program offices nor the procurement and grants offices have sought a ling from their general council's office, nor have they sought assistance from the USAID ffice of Procurement on how to do overseas procurement of goods and contracts for services. s a consequence project progress can be impeded because the procurement or contract action kes an inordinately long time.

There are similar problems with the international financial management aspects of the DC's work. Because they have not yet worked out an overseas payment method, there are fficulties paying vendors and contractors once the goods and services are delivered. The nancial Management Office has had limited experience in international transactions and needs sistance and guidance on everything from funds transfers to foreign exchange rates.

Again, the evaluation team finds it somewhat incredible that the CDC is having these)blems after years of running overseas programs. The team also has to wonder why no one thin the CDC has stepped forward to try and find solutions, or at least seek the technical help solve the problems.

commendations

To the extent that USAID is willing and able, it should offer assistance to the CDC in ernational procurement and financial management. The Program offices and the Procurement l Grants Office of CDC should seek a ruling about CDC using the USAID Acquisition gulations for procurement paid with foreign assistance appropriated funds. If necessary, they)uld get the ruling from the general counsel servicing the CDC with consultations from the neral Counsel's Office of USAID. It still all boils down to how important international ivities are to CDC's priorities. The Program Offices (IHPO, EPO, etc.), along with the

Procurement and Grants Office, needs to seek the necessary authority and make the case for the resources to solve these problems.

C. Management by the Harvard Consortium

The Harvard Consortium (Harvard School of Public Health, Department of Population and International Health, Research Triangle Institute, Intercultural Communications Inc.) had a slower start in the DDM Project than did the Centers for Disease Control and Prevention. To a large extent this was due to USAID missions' familiarity with CDC and the training programs the CDC had to offer. This was clearly the case in Bolivia, where the mission asked for an epidemiology training program and nothing more.

This was also the Harvard School of Public Health's first foray into seeking a major USAID program in years. While the Research Triangle Institute (RTI) was known, it was lost behind the Harvard name, as was Intercultural Communication, Inc. (ICI) which was not known to USAID missions.

CDC also started ahead of the Harvard Consortium in that it had some known "products" it could "sell" to USAID missions. Among these were such tested tools as the FETP and *Epi Info*. Though the Harvard Consortium had presented an impressive array of tools in their technical application, they were not necessarily well-known applications in the wider world of USAID missions. The Consortium had, in essence, to further develop what it would use in response to specific requests.

The DDM Project is situated as an individual unit within the Department of Population and International Health (DOP). The Project Director reports directly to the Department Chair. This was not the case early on in the Project and is a change as of January of 1994. The Project has a Deputy Director for management who is responsible for financial and contract matters. and a Program Manager, who provides logistical support to all elements of the Project activities. The rest of the staff provide the technical/professional inputs and clinical and other support. Included here is the Resident Advisor in Egypt and full- and part-time research associates and research assistants.

Because it can draw on the Harvard School of Public Health, the Harvard Consortium has provided an can provide necessary technical expertise to specific project elements. Members of the Harvard team believe they can take on more elements with additional funding. This is no doubt true as they can add additional staff as required. USAID, however, may be best advised to move slowly on this to observe progress and success with what is already being undertaken.

Early success for the Harvard Consortium can be attributed as much to luck and fortuitous timing as a specific strategy for marketing the product. For example, in Bolivia the senior demographic Health and Population Specialist from RTI was able to draw on his long

experience in Bolivia to pull together a presentation piece for the government. It proved to be a key to Bolivia's successful consultive group meeting in December 1993. Since then, the President of the Republic and Cabinet Ministers have used the presentation graphics to emphasize points they wish to make while explaining policy. This is an excellent example of data being packaged and presented to support policy decisions, and the Harvard Consortium and the DDM Project can take pride in its development and use.

Given time and the Harvard name, requests for the PolicyTech side of the DDM Project have come in. It can be asked however, how it was "marketed" and /or explained to overseas USAID missions. When the USAID representative in Nigeria requested DDM assistance for a health project evaluation, Harvard was prepared and quickly responded. The Contracts Office of USAID questioned the legitimacy of the request as a buy-in, saying it was more a service than a project activity.

Then there was/is the West Africa Death Certificate study, which began as a research activity through a DDM buy-in. For a variety of reasons this is now a separate, direct grant from the REDSO Office in Abidjan, Cote d'Ivoire. While this study is proving to be useful, and may even provide a methodology that will be a useful tool in the future, it can be asked if a multi-country study on recorded causes of death is what was envisioned as a central activity for the DDM Project.

For most of the first two and one-half years of the cooperative agreement with Harvard Consortium, the main products were a series of studies and papers. To the Harvard School of Public Health (the lead institution in the Consortium), it was proving to be project with a strong conceptual basis, but without a substantive subject matter base. The HSPH looked for a theme from which the DDM/PolicyTech could be implemented. Building on the work the school had done through the International Commission for Public Health, it looked to build a program around a Health Sector Reform theme. The focus would be on countries where there was a policy reform effort going on. Bolivia presented an immediate and excellent fit for this emphasis. The government was already moving rapidly toward major sector reform, with a decentralization of the country's health system. Then the request and opportunity came in from the USAID mission in Egypt. Here was a large multi-dimensional country program. Several aspects of the work Harvard was already researching and studying fit the needs of the Egypt program as expressed by the USAID mission and the Ministry of Health, Department of Planning.

The cooperative agreement between Harvard and USAID had been precisely that: cooperative. USAID had been flexible in working with Harvard in terms of the project design and implementation with a changed focus when necessary. Nevertheless, even with this cooperation and with the success in Bolivia and the studies, USAID is not getting all it should be getting from the Harvard Consortium cooperative agreement. One part of the Consortium, Intercultural Communications, Inc., is invisible to the project to date. In the technical application, ICI was promised to provide high quality work in communication and programming

design and analysis under a specialization, "research communication." To date, there has been no utilization of ICI as outlined in the technical application.

Recommendations

The evaluation team believes that the project needs a much more aggressive and systematic information dissemination system. There should also be cross communication between all elements of the project. It seems the Harvard Consortium has the capability for this built in through ICI. The evaluation team believes that a more visible and meaningful role for ICI can be formed in these recognized needs areas of cross communication and information dissemination.

The other partner in the Consortium, Research Triangle Institute, has achieved a more meaningful role, and also achieved the most spectacular result from the project to date. But, it can also be asked if the RTI has been used to its best advantage and full extent in the project. RTI will be continuing to work in Bolivia with the development of an Executives' Information System, and in playing a role in the project in Egypt. However, with its experience in the development of information system programs, or the modification of existing programs, it can be asked if there is not more of a role for RTI generally.

These are the issues the Harvard School of Public Health must consider as lead institution of the Consortium. If it is going to have partners, it needs to find ways those partners can contribute significantly to project success.