

FF _____
VA _____
Project file

PD-AAS-260

ISN 42478

Midterm Evaluation of the Primary Health

Care Operations Research Project (PRICOR)

936-5920

Contractor: Center for Human Services

August 1984

for the Office of Health

U.S. Agency for International Development

000186

AID Technical Officer: Dr. Donald Ferguson

Evaluation Team: Dr. Abraham Horwitz - Team Leader

Dr. James Heiby

Dr. Sandra Huffman

Dr. Wayne Stinson

Table of Contents

	<u>Page</u>
Executive Summary.	1
Recommendations.	111
Chapter 1 Introduction.	1
Chapter 2 Process Used in Midterm Evaluation.	2
Chapter 3 The PRICOR Operations Research Methodology.	5
Chapter 4 Country Studies	16
A) The Review Process for Concept Papers and Full Proposals	16
B) Review of Funded Projects	19
C) Project Monitoring.	25
D) Time Required for Country Studies	29
E) Costs of Developing and Monitoring Country Studies.	30
Chapter 5 Dissemination of Results.	32
Chapter 6 Methods Papers.	42
Chapter 7 Contracting Process	45
Chapter 8 Advisory Committee, Microcomputers, Internship Program and Literature Repository.	47
A) Advisory Committee.	47
B) Internship Program.	47
C) Microtechnology	48
D) Literature Repository	48
Chapter 9 Future Activities	49
Chapter 10 Problems and Issues to be Assessed by the Evaluation Team. Answers to the Scope of Work Work Questions.	51
Tables	
2. PRICOR Approved Studies	57
3. Summary of Dissemination Priorities for FY 84/86.	58
4. Dissemination Plan.	59
5. Budget for FY 1984.	60
Appendices	
1. Examples of Administrative Documents	
2. Topics for Comparative Analysis	
3. People Contacted	

EXECUTIVE SUMMARY

Primary Health Care seeks to provide the most basic health services to LDC populations at the lowest feasible cost. This strategy is central to current AID health assistance and has been adopted on a policy level by the vast majority of AID-assisted countries. The purpose of the PRICOR project is to support research on the delivery of these services with the objective of increasing effectiveness, lowering costs, or both. There is a broad consensus among public health authorities that the cost-effectiveness of PHC programs can be substantially increased and that applied research in this area will remain an important part of the PHC strategy for the foreseeable future. There is less agreement regarding the details of how this still-evolving research agenda can best be implemented.

Within the broad mandate to pursue PHC research, the PRICOR staff has developed a strategy that is both unusually innovative and highly focused. The essential features of the PRICOR approach include: (1) Individual studies are selected from a worldwide solicitation of proposals. To a lesser degree, AID missions may also sponsor a proposal of special interest. (2) Proposed studies must address a specific problem in providing PHC services and provide an indication that this issue is of sufficient interest to PHC program managers that practical application of the results is plausible. Further, these problems must fall within the following general areas identified as priority by AID missions: community health workers, community financing of PHC services, community organization to support PHC, and community-based distribution of PHC commodities. (3) Proposals should generally follow a methodology based on traditional operations research and adapted by the PRICOR staff for use in PHC. This methodology includes four steps to analyze the problem, six steps to develop one or more proposed solutions, and four steps to field test these solutions.

It is the 10 steps leading up to the field test that most distinguish the PRICOR methodology from conventional field research. Rather than rely on intuitive insights to generate hypotheses to be tested, the PRICOR methodology begins with a previously identified problem in service delivery. The problem is then expressed in terms of the specific service delivery activities that could be improved to resolve the problem. Most problems involve several different activities, and for each of these activities, a range of plausible interventions can be identified. Thus, there are usually a number of interventions that might resolve a given problem. To screen these alternatives, the methodology uses models which have been applied in agriculture and other fields but only rarely in PHC. For the most part, these models serve to organize information that is already known by the program staff or that can be readily collected.

This methodology is potentially a major theoretical advance in PHC research. Its application is also conducive to important improvements in the overall management of PHC programs which are probably independent of the research results themselves. However, a careful evaluation of the actual use of this approach under field conditions is necessary before its appropriate role in PHC research can be determined.

The major activity of the project staff during the first 2 1/2 years was the review of approximately 400 research proposals, over 40 of which were further developed, funded, and entered into an ongoing monitoring process. This was accomplished by a small staff through project management procedures that were designed and implemented with uniform excellence. The proposal reviews observed by the team employed consultants with a broad range of expertise, supported by a project staff of exceptional technical depth. The evaluation team is in broad agreement with the decisions of the review panels, including those reflected in a retrospective sample of both accepted and rejected proposals. The solicitation process has provided the project with access to a wide variety of PHC programs and researchers that would otherwise remain unknown to AID. It has also permitted a small staff to identify and fund a large number of promising studies. Nevertheless, this single mechanism, combined with a strictly defined research approach, does limit the ability of the project to respond to promising research opportunities. Future AID efforts in PHC research should provide for a wider variety of approaches while preserving the undeniable strengths of PRICOR.

As currently projected, PRICOR will allocate 54% of its budget directly to country studies. This is an unusually high level of efficiency for a project of this nature. Indeed, the team proposes that the project's investment in support activities can be productively increased. In particular, increased on-site monitoring by the project's highly qualified staff and selected consultants should be used to increase the documentation and analysis of the delivery systems under study. In addition to allowing evaluation of the PRICOR research methodology, this would permit a systematic evaluation of delivery system components that are not necessarily the focus of the research. The PHC programs linked to PRICOR constitute a potentially rich source of practical insights into a variety of problems and innovations in PHC. Remarkably few PHC delivery systems have been described in detail and the PRICOR staff is unusually qualified to address this neglected area. Such detailed observations are critical for setting the agenda for a new generation of operations research studies dealing with more specific issues. More limited topics are probably necessary if operations research is to become a routine tool of program managers who lack extensive research training. Because of the need for increased project monitoring, we recommended that the project staff be expanded by the equivalent of two full-time professionals.

The long-term value of the project depends largely on efforts to disseminate as widely as possible the insights generated by individual studies and the technical papers produced by the staff and consultants. Planned efforts in this area should receive priority in the remainder of the project. In particular, analysis focused on generalizable findings and common trends among similar studies merits emphasis. Because of the considerable investment represented by the studies that have been funded, the team also recommends that AID give favorable consideration to a funded extension of the project to allow sufficient time for the additional documentation outlined above and expanded efforts in analysis and dissemination. Because of the even greater investment represented by AID-supported PHC projects, the team strongly recommends that the Agency continue to support applied research in this area. These efforts should include a substantial increase in the research component of bilateral PHC projects.

RECOMMENDATIONS

A. DURING COMPLETION OF CURRENT COOPERATIVE AGREEMENT:

1. Project Monitoring should be a major focus of the subsequent term of the contract. Additional staff (rather than use of consultants) should be added to assure continuity, quality and quantity of monitoring, with expanded documentation as described below.
2. Methods Papers should be completed and published within six months, and translated into both French and Spanish. The distribution of the English version should include 5000 copies, with 1000 copies printed in both other languages. Other activities listed in the dissemination plan should begin as soon as possible.
3. The contracting process should be modified to:
 - a) remove 15% line item restriction for approval of changes, so that the contractor would be able to approve changes over 15%, without prior approval from AID;
 - b) allow the contractor to approve small grants up to \$40,000;
 - c) allow the contractor to approve subagreements up to \$75,000;
 - d) reduce the paper work the contractor sends to AID contract office;
 - e) allow approval for purchase of microcomputers for subagreement contractors.

B. PRICOR SHOULD BE EXTENDED FOR UP TO ONE YEAR (USING THE SAME CONTRACTOR)

1. In order to enhance the quality of the comparative analyses, the scope of work, project completion date, staffing, and budget of PRICOR should be modified to allow the project to fully exploit the information potentially available from funded studies, including:
 - a) Development of case studies documenting the details of the application and outcome of the PRICOR operations research methodology.
 - b) Application of techniques of systems analysis in the delivery systems involved in country studies where this is feasible. This process should include direct assessment of subsystems such as supervision, management, information systems, and program evaluation. Where necessary, provision should be made for additional data-gathering and technical assistance when requested to address identified shortcomings. The findings of these analyses should be summarized in a standardized format that facilitates comparisons between projects and that does not assume familiarity with the program.

- c) Evaluation of the effect of individual country projects on the decision-making process both within the country and elsewhere as relevant. This will need to be a separate effort after the completion of each project.
 - d) The information contained above should be incorporated into the comparative analyses to provide generalizable findings from the PRICOR research. The focus of these analyses should be to enhance the understanding of ways to improve the functioning of primary health care programs and the relevance of the OR methodology for this purpose.
2. Expand the dissemination plan to assure that results are made available to decision-makers. The current time frame of the contract appears insufficient to ensure adequate dissemination. This would include publication of problems being analyzed, research methods employed, and anticipated impacts on government policies.
 3. Additional funds should be allocated for workshops that will provide training in operations research (OR) to researchers and decision-makers within countries requesting such assistance.

C. THERE SHOULD BE A FOLLOW UP PROJECT FOR RESEARCH IN PRIMARY HEALTH CARE FUNDED BY AID FOR A 5-YEAR PERIOD.

Types of Country Studies

1. A follow-up project should define operations research more broadly to include any study that promises to produce information that will contribute to increasing the cost-effectiveness of PHC programs, with continued emphasis on problem-solving and results that are likely to be replicated within or between countries.
2. Solicitation of proposals should continue but should be streamlined to reduce the total investment in proposals that are not funded. The follow-up project brochure should be rewritten to reflect the project's willingness to consider studies using other methodologies.
3. The follow-up project should substantially increase the level of resources available for assisting in project development and monitoring, particularly by core staff and consultants. These project development efforts should emphasize service delivery programs rather than researchers as the point of departure, and specifically include technical assistance in identifying researchable problems.
4. A follow-up project should continue PRICOR's emphasis on funding primarily research costs, but with explicit provision for funding service delivery costs where this is necessary to pursue a promising opportunity.

5. A follow-up project should include an explicit focus on contributing to the state of the art in PHC management, supervision, and evaluation, particularly at the level of the concrete activities that comprise service delivery. This focus should include management information systems, performance incentives, systems analysis, and factors affecting the utilization of health services.
6. Topics for study should include technical areas such as acute respiratory tract infections, pregnancy surveillance, growth monitoring, and other child survival technologies in addition to the present emphasis on oral rehydration therapy and immunizations.

Process of Selecting Country Studies

1. Preference should be given to projects oriented toward national and regional problems with well defined linkages with the national decision-making process. There should be a high potential for replicability of results, without the need for repeating the studies in different areas.
2. Priority should be given to actively developing projects with ministries of health and other service providers, including assistance in identifying the problems where an OR approach is most appropriate.
3. Efforts similar to the Swaziland and Tunisia workshops should be continued in order to train decision-makers and researchers in the OR methodology and help them develop project proposals.
4. The open tract for proposals should continue but be given lesser proportion of total budget and include a faster review process.

Capacity Building

1. The follow-up project should include local capacity building as a major goal, with substantial amounts of technical assistance given to build up local research expertise in PHC.
2. Workshops and use of previously funded investigators should be incorporated into capacity building plans.
3. In order to enhance capacity building, regional advisors with local counterparts should be tested in at least one continent.
4. Short-term fellowships should be provided to researchers to learn OR techniques.

Larger Staff

The follow-up project should rely on a larger core of experienced staff in order to provide greater continuity in technical assistance and to enhance capacity building.

Literature Respository

1. A clearinghouse for PHC research should be funded (as a project separate from that described above) to provide a broad research library on PHC.

Chapter 1: Introduction

On September 28, 1981, the Office of Health, AID, signed a five-year Cooperative Agreement (CA) for \$8,650,000 with the Center for Human Services (CHS), University Research Corporation. The goal of this CA is "to contribute to the improvement of the efficiency and effectiveness of Primary Health Care (PHC) programs in developing countries. In order to achieve this goal, the Project will develop and support operational research aimed at closing knowledge gaps impeding efforts to successfully design, implement and sustain PHC programs..." Specific outputs of the CA are to include:

- o up to 9 background/methodological studies.
- o up to 28 country studies on a variety of PHC topics.
- o approximately four comparative studies bringing together the findings of country studies.
- o up to four workshops and two conferences to disseminate study results.

The CA is currently scheduled to expire on September 27, 1986.

Upon receipt of this award, the Center for Human Services created a project called PRICOR (Primary Care Operations Research). As indicated in its proposal, PRICOR was to be a clearinghouse for research designed and implemented by others and was not to undertake its own research. PRICOR began soliciting proposals in three areas: community financing, community organization, and community health workers. (A fourth area, commodity distribution, was added later.) Professional and AID review processes were also established.

As of May 1984, midway through the life of the CA, PRICOR had approved and funded 40 studies in 30 countries, at a total research cost of \$3,465,400. Twelve of these were on financing, seven on organization, 16 on health workers, four on commodity distribution, and one was identified as "other." Studies were about equally distributed by AID region, except that only one had been initiated in the Near East. Two studies had been completed, but many others were scheduled for completion in late 1984 or early 1985.

PRICOR had largely completed work on five methodological papers and had made some progress on a sixth. Copies had not yet been distributed, however, and AID had not yet decided how many should be produced or for whom. Comparative studies had not yet been initiated, largely because country studies were still incomplete. However, they were not scheduled until years 4 and 5 of the Project.

Chapter 2: Method Used in Mid-term Evaluation

In April and May 1984, PRICOR was evaluated by a team consisting of Dr. Abraham Horwitz, Director Emeritus of the Pan American Health Organization; Dr. James Heiby, AID Office of Health; Dr. Sandra Huffman, Johns Hopkins University, and Dr. Wayne Stinson, American Public Health Association.

The evaluation team initially met alone to discuss the proposed evaluation of the Cooperative Agreement. We were then briefed by the AID technical officer (Dr. Donald Ferguson) on the terms of reference for the evaluation and on the background of the PRICOR project, including its intended purpose, the different views within AID regarding the project, and the contractor's performance as viewed by the technical officer. This evaluation was guided by a series of questions provided by Dr. Ferguson. Answers to these questions are given in Chapter 10. This background information was supplemented by detailed information provided by the PRICOR staff in two briefing manuals. These manuals included copies of the Original Request for Application, the Center for Human Services Technical Proposal, and the Cooperative Agreement.

Aside from providing historical background on the PRICOR Project, information on the operations of PRICOR and the contractual outputs produced by CHS were specified in the manuals. Such information included:

- 1) annual work plans
- 2) semiannual reports
- 3) budget and expense summary and
- 4) detailed material on
 - the proposal review procedures
 - approved studies
 - study monitoring plans
 - dissemination plans.

The team members read these manuals to familiarize themselves with the PRICOR project. In addition, further briefings by Dr. Reynolds and his staff were given to the evaluation team on the following topics:

- 1) Overview of PRICOR
- 2) Proposal announcement, submission and review process
- 3) Budget and Contracting Process
- 4) Subagreement Monitoring
- 5) Dissemination Plan
- 6) Workshops
- 7) Methods Papers
- 8) Comparative Analysis
- 9) Recommendations of PRICOR staff for PRICOR 2

Because more than half of the total PRICOR budget is allotted to operations research studies, the team spent a considerable portion of their time reviewing the proposal review process and the resulting funded studies.

Proposal Reviews

The evaluation team decided to review a random sample of the over 300 rejected proposals. Each topic was given to a particular member of the evaluation team (Horwitz - Commodity Distribution; Stinson - Community Financing; Heiby - Community Health Workers; Huffman - Community Organization). For the rejected proposals we selected randomly 20 from each category from the list of proposals, plus an additional 5 papers from the 20 unclassified proposals.

These proposals were reviewed with the purpose of learning why each was rejected, the type of project proposed, the amount of U.S. involvement, and costs.

All 44 accepted proposals (including 4 projects later withdrawn) and associated information (including subagreement, interim reports, status reports and original proposal) in the files were also reviewed by the evaluation team. These were divided among team members primarily by the same topics as the rejected proposals. In addition to reading files, the team discussed many of the projects with the PRICOR staff and project monitors, with consultants working on the projects, and when possible with investigators associated with the projects. We also observed the process by which a panel of consultants and staff review proposals.

Discussions with AID, Advisory Council, and Consultants

Discussions with Ms. Anne Tinker, the Chief of the Health Services Division, Office of Health, provided additional background on the project, and on AID's view of the purpose of the evaluation. Members of the evaluation team also met with the contracts office at AID to clarify the contracting process as seen by AID, and to discuss proposals made by the PRICOR staff in relation to this process.

Members of the evaluation staff also met individually with members of the Advisory Council and Consultants to PRICOR to learn of their overall impressions of PRICOR, what problems had been encountered, the likely impact of PRICOR at the country level and at a broader level, and whether they believed there should be a PRICOR 2, and if so, why and what it should entail. In addition to these discussions, the minutes and summaries of the Advisory Committee and the preceding Strategic Issues Group meetings were reviewed by the evaluation team.

Methods Papers

In addition to the briefing provided by the staff, the 5 methods papers that were completed in draft form (Operations Research, Cost-effectiveness, Community Health Workers, Community Organization and Community Financing) were read by members of the evaluation team. The time and cost for preparation of these papers was discussed with members of the PRICOR staff, advisory council members and consultants.

Workshops

Members of the team attended previously scheduled workshops for principal investigators. One in Mexico City included funded researchers from Latin America and Asia. A subsequent one in Monrovia included African and Near East researchers. The focus of these workshops was a review of OR methodology and discussion of the problems and progress of individual studies.

Site Visits

The scope of work of the evaluation did not provide for visits to any ongoing projects.

Handwritten notes:
D...
See...

Chapter 3: The PRICOR Operations Research Methodology

The project staff have developed a step-by-step approach to conducting OR in a PHC program. Understanding this methodology is central to any analysis of the project itself. The approach is unique to PRICOR and represents a large investment of staff time. The brochure that solicits study proposals instructs investigators to apply this single methodology. The approval of submitted proposals is heavily influenced by the degree to which they follow this paradigm. Through letters, consultations, and workshops, the staff continues to emphasize this series of steps. The results of each of the country studies will depend to a large degree on the extent to which investigators actually apply the methodology and on its effectiveness in problem-solving. Further, if this single, standardized approach to solving the problems of PHC is successful, it must be considered a significant contribution to the state of the art.

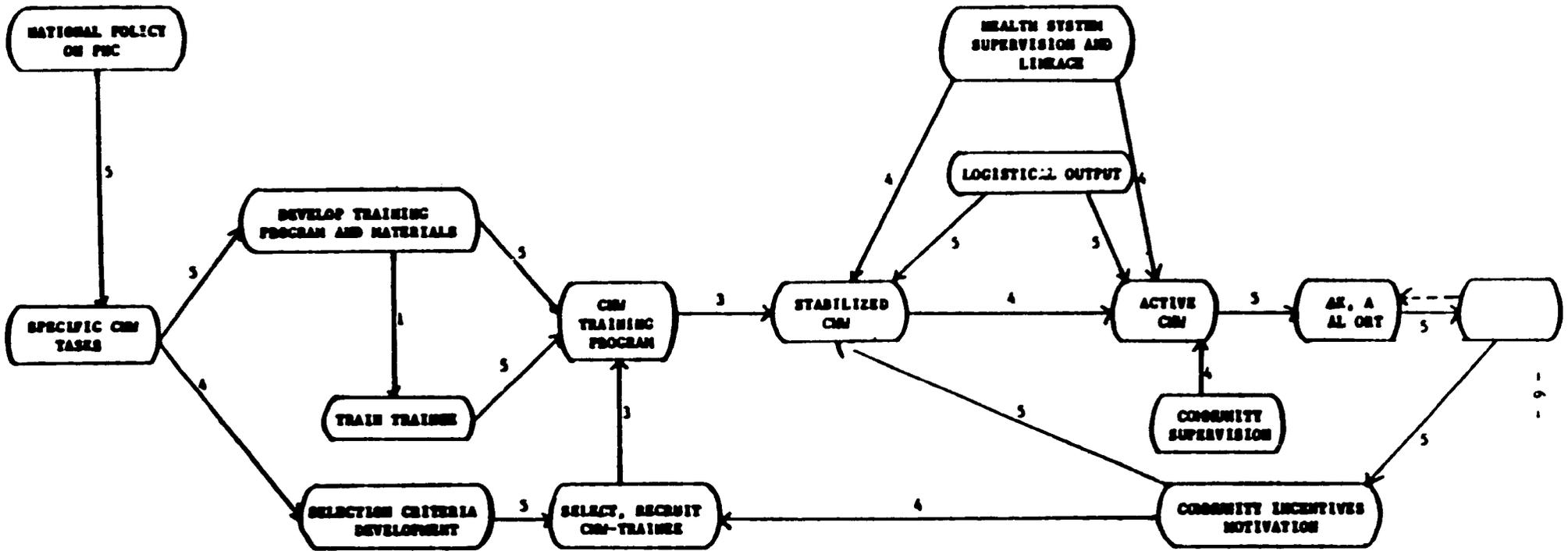
The focus of the methodology is not the actual field trial that one usually identifies with "research." Rather, like traditional OR, the emphasis is on how the investigator reaches the point where he is ready, for example, to field test a new training technique or compare two alternative supervision schemes. The staff argue persuasively that in most OR programs, the process of deciding what to study is usually an intuitive leap with little explicit analysis. At the same time, the number of questions that could be addressed by a field trial of some kind is almost limitless, even for a single program. The traditional quasi-experimental field trial is relatively expensive and time-consuming, and requires technical skills that are often scarce in LDC's. For the foreseeable future, only a very small fraction of the components of a PHC delivery system can be examined through the conventional approach to field research. Field research should be regarded as an extremely scarce resource.

For the most part, OR programs have focused on the design of valid field tests and the careful analysis of the data generated. But technical excellence counts for little if the study addresses issues of marginal importance. The PRICOR methodology is designed to guide the investigator to the most important issues in a PHC delivery system. Similarly, it is clear that most decisions related to solving design problems of PHC programs cannot, as a practical matter, be based on expensive field studies. Conventional field trials can compare only a handful of alternatives. Obviously, design decisions continue to be made on some other basis - intuition, analogy, informal trial and error. Here too the PRICOR staff hopes to offer a more systematic approach that is nevertheless relatively inexpensive, rapid, and more reliable than available alternatives. It is, without doubt, an ambitious agenda: show a program manager how to find the most important problems and how to resolve them, all at a minimal cost.

The staff have divided the process of solving a PHC problem into 14 distinct steps that apply to essentially any shortcoming that can be identified. They briefly describe the following steps in the materials they send potential investigators:

DRAFT

Figure 1: Quantified System Model Showing Estimated Impact of Component Activities on Next Activity in Subsystem.



Impact Range: 0 = none; 5 = very strong

Phase I: Problem Analysis

1. Describe the system problem.
2. Factor the system problem into small operational problems.
3. Set priorities among the problems.
4. Identify and collect the needed data.

Phase II: Solution Development

1. Specify the objective for the solution.
2. Identify the constraints and decision variables.
3. Identify/construct an appropriate model.
4. Collect additional required data.
5. Develop the solution(s).
6. Conduct sensitivity analysis.

Phase III: Solution Validation

1. Design the test.
2. Implement the solution(s).
3. Collect and analyze the additional required data.
4. Modify/adjust the solution(s).

Overview of the Methodology

The overall approach is based on a "systems" view of the delivery of health services. From this perspective, a PHC program is comprised of various distinct components or "subsystems" such as training, supervision, logistics, etc. In turn, each of these subsystems can be further divided into smaller subsystems and eventually into discrete activities. A given component is typically influenced by the performance of one or several other components. For example, the supervision of CHW's is affected by field supervisor selection and training, higher level supervision, provision for transportation, and other subsystems. When a subsystem does not perform as expected, this defines the "problem."

To a large degree, the staff have simply divided the problem-solving process into logically distinct components. They argue that any program manager dealing with a problem in fact goes through these steps unconsciously. The PRICOR methodology attempts to make each step explicit and therefore subject to overt analysis, discussion, and refinement. Remarkably little practical work has been directed toward teaching managers how to systematically refine PHC programs. At the very least, the approach developed under this project is a promising theoretical advance.

The PRICOR sequence also includes data collection efforts and a conventional field test. But its most distinguishing characteristic is the use of models to predict how the involved subsystem would respond to different courses of action. The objective, as with conventional OR, is to evaluate a number of possible responses to the problem rapidly and cheaply, without actually making

any changes in the program. The field trial, in this scheme, serves to substantiate the predicted solution or at most, to choose from a few possibilities that appear equally attractive. Sometimes, in the staff's view, a formal field trial can be omitted altogether.

Classical OR employs mathematical models that describe the relationships between variables in quantitative terms. It is because all relevant relationships are known and have been measured that researchers can successfully use techniques such as linear programming to predict how the system will react to a given change. Rarely if ever does a PHC program fulfill these conditions. It is not surprising therefore that the PRICOR methodology must rely on techniques that are far less rigorous: a graphic representation of the delivery system similar to a flow chart; the logical framework; Nominal Group Technique; Delphi Technique; Interaction Matrices; Multiple Criteria Utility Assessment; Cost-Effectiveness Analysis, and others.

These techniques are indeed rapid and inexpensive compared to the typical quasi-experimental field trial. They are established tools in social science research, but few have been widely applied in PHC programs. For the most part, they assist the analyst in subdividing the issue at hand and bringing a group of experts to a consensus regarding the preferred course of action. Only later in the project will it be possible to judge how well these tools have worked in practice. But it is possible to discuss some aspects of the PRICOR methodology on the basis of technical papers prepared by the staff, project files, observation of workshops for investigators, and discussions with the staff and investigators.

A pervasive question, as yet unanswered, is how well investigators carry out the various steps in the sequence, if, indeed, they carry them out at all. The staff have exploited various channels to convey their admittedly complex approach, including written instructions, workshops, and consultants. But for almost any PHC manager, this approach to problems is a radical departure from the status quo. Indeed, teaching PHC managers a rationalistic approach to problem solving would be an impressive accomplishment by itself. From this perspective, staff efforts to convey the details of the methodology have been relatively modest up to now.

In considering how well the PRICOR methodology worked in real PHC programs, it is important to keep in mind what alternatives are available to perform the same function. If, for example, intuition leads the manager to the same conclusion, there is little reason to bother with 10 separate steps, however inexpensive the process. If certain individual steps or OR techniques prove unproductive, they should be deleted or modified on the basis of field experience. There may be practical alternatives for refining PHC programs that the staff have not considered.

Phase I: Problem Analysis

The 14-step OR sequence begins with a problem, a subsystem that is not producing the expected output. Every study funded by the project can thus claim a direct connection to the actual delivery of PHC services. Materials

developed up to now have little to say regarding how program managers go about identifying these problems. This, in the view of the staff, is program evaluation rather than OR. In effect, the OR sequence begins with the assumption that managers or researchers have enough information about their programs to describe how services are delivered and what the major shortcomings are. But in practice, few PRICOR proposals begin with an even moderately specific service delivery problem. Rather, they pose very general issues such as "how to develop the best way to train mothers to use ORT." The staff appear to endorse this interpretation of "problem," using examples such as "the practice of CHW supervision" to illustrate the methodology. This is of concern primarily for the kinds of specific concrete problems that are certainly important to PHC but which do not appear in any of the submitted proposals: CHW's who are not effective in promoting immunizations, supervisors whose visits have no impact on the coverage of growth monitoring services, training that fails to achieve CHW competence in ORT, and similar problems. For entirely practical reasons, defining PHC "problems" merits increased attention.

The second step of the sequence involves breaking the problem down to smaller, "more manageable" problems. The specific technique proposed is a simple graphic model of the delivery system, essentially a flow chart. As illustrated in Figure 1, the examples developed up to now suggest that the investigator can deal with general and necessarily complex units such as "CHW Training Program." The examples are important because they provide the only guidance for what is "manageable." Certainly, units such as "Health System Supervision" could be further subdivided. The modeling technique itself is quite simple and serves to assure that the investigator considers all of the different activities that influence, for example, CHW supervision. A graphic model also emphasizes the interrelationships between activities such as the recruitment of CHW's and their supervision. Most PHC programs would probably benefit from greater use of this straightforward technique.

For the PRICOR methodology, the objective of representing program activities graphically is to reveal the components of a given problem. The implication is that if researchers pose extremely broad or vague problems, there is little hope for successful analysis. And in general, researchers and managers of PHC programs have indeed tended to view shortcomings in their programs in this way. The question is, how successfully have the staff conveyed this important insight. Certainly, most LDC managers will require a clear explanation of this step, with concrete illustrations of why specificity is important and of the difficulties associated with attempting to deal with issues that are too broad. A number of funded studies do in fact deal with very broad research topics, suggesting that this step would be strengthened by a more detailed explanation during proposal review and project monitoring visits.

The third step in the sequence asks the researcher to select a priority from the various problem components revealed by modeling. This step involves assigning quantitative values to the impact of each component on the end product of the subsystem. The numbers in the example (see Figure 1) indicate a range of values from 0 (none) to 5 (very strong). To give another example,

in addressing ineffective field supervision, the researcher may be required to choose between focusing on the training of the supervisors, their ability to travel, arrangements for second-level supervision, and the nature of supervisor reports. If one is confident that one of these is substantially more important in strengthening supervision, it is only reasonable to begin with that component of the larger problem. The obvious question is how can a manager attach a numerical value to the impact of variables like "supervisor training"?

It is important to bear in mind that few field research programs have any formal procedures for deciding which research issues are most important. Thus, if this step of the PRICOR methodology is even partially successful, it represents an improvement in a state of the art which is little more than intuition. It is of course possible that the different research issues are of essentially equal importance, or that the most important issue is obvious without analysis, or that there is no reliable way to choose one over another. Even under these circumstances, this step may have indirect benefits. Simply going through the exercise of assigning values to different delivery system activities is useful. It requires the manager to define the performance of these activities and the resources needed for each of them in objective terms. The absence of such definitions is an important obstacle to effective management in many programs.

As with several other steps of the PRICOR sequence, this step provides the manager or researcher with useful guidance in thinking about discrete components of his program. Following the methodology, one is virtually forced to separately examine the functioning of the delivery system on a piece-by-piece basis. The techniques employed also lead the manager to set measurable objectives for each of the involved activities. In short, even if the PRICOR methodology is not fully successful in its immediate objective, it does encourage management practices that are highly beneficial.

The actual techniques available for the priority-setting step are in themselves fairly unimpressive. Staff papers on the subject allude briefly and rather unconvincingly to the possibility that there may be empirical data available that indicate which activity is most important. Few programs have measured the relative impact of, for example, supervisor training vs. frequency of visits on CHW performance. The chief alternative is a range of procedures to achieve a group consensus through Delphi Technique, iterative survey, interaction matrix, and similar techniques. These are techniques that are all based on what the involved personnel already know about the program. For example, one of these methods could be used to arrive at a consensus among a group of trainers regarding the relative impact of "training materials" and "training of trainers" on the CHW training program (see Figure 1).

The validity of estimates of this kind is obviously open to question. Here one can appreciate the difficulties that come with trying to work with complex units like "the CHW training program." It is difficult enough to predict the impact of very specific changes: For example, how much would a given CHW bonus system increase immunization coverage? The ability of managers and others to predict the impact far more complex changes requires substantiation. It may prove advisable to limit the PRICOR methodology to very concrete issues defined in fairly narrow terms.

The fourth step is the collection of any needed data. This is discussed below, along with the data collection step of Phase II.

Phase II: Solution Development

To a large degree, the first phase of the PRICOR sequence simply leads the investigator to focus on a specific circumscribed portion of the delivery system. If Phase I is carried out successfully, the activities under consideration are those where the prospects of substantial improvement are highest. The second phase attempts to determine how shortcomings in these service delivery activities can be corrected. This process begins by specifying a measurable objective for the involved subsystem. Staff papers give examples such as "number of CHW's trained" or, for a supervisory subsystem, the utilization of certain CHW services.

The importance of describing what one hopes to accomplish in quantitative terms may seem obvious. But in many PHC programs, it is precisely this orientation that is missing or poorly implemented. CHW's may be trained to make follow up visits to cases of diarrhea they have treated, but there is no measurable target for this activity and therefore no consistent efforts by managers and supervisors to maintain a certain level of performance. Other programs set quantitative objectives that have little practical value. For example, an objective of 10 "health talks" per month per CHW is quantitative, but it is also extremely difficult to verify and fails to measure performance in a meaningful way. Here again, a manager following the PRICOR sequence is probably learning sound management principles. Indeed, it is difficult to overestimate the potential impact of defining the goal of service-delivery activities in measurable terms. Objective measurement is a prerequisite for almost any realistic effort to improve the cost-effectiveness of a given activity: If it cannot be measured, it cannot, for all practical purposes, be improved. But since few PHC managers have effectively defined program activities in measurable terms, there must be obstacles to applying this apparently simple but powerful principle. It is surprising therefore that staff technical papers treat this step in a rather perfunctory manner. The final project evaluation should examine the extent to which PRICOR investigators have learned this step.

Having set a standard of success for the troubled subsystem, the investigator is then asked to list the relevant factors he can influence (decision variables) and those he cannot (constraints). On a theoretical level, these steps completely define the universe of actions a manager might take - various combinations of decisions, falling within the bounds of relevant constraints (such as overall costs, available transportation, etc.) Of course there is no absolute dividing line between factors a manager can and cannot control or influence. His budget, for example, may not be fixed if he can find the right argument for raising it.

With regard to how one goes about compiling a complete list of constraints and decision variables, the manager is left to his own devices. The contribution of the PRICOR methodology is chiefly the idea that one should

attempt to write down all of these factors for later consideration. This step employs a very simple technique - creating a list - to encourage the manager to think about the range of what can be done about a problem before deciding what he in fact will do. It is not difficult to imagine situations where program managers might otherwise fail to consider some of the most promising options available to them.

For this step too, one can see secondary management benefits: Most programs would probably be improved if managers gave more thought to exactly what they can do to influence the performance and outcomes of their program. This simple technique costs essentially nothing but staff time and may have substantial benefits for service delivery, independent of the research itself. But since managers must rely on their own insight and creativity to carry out this step, it is important to provide them with detailed, real-world PHC examples. These have not yet been developed, but the PRICOR portfolio includes enough studies to illustrate a wide variety of situations.

A manager who thoroughly considers his options for dealing with a problematic subsystem such as financing, will almost always find a sizeable number of realistic possibilities. For example, a situation limited to three independent decisions, each with six feasible choices, has over two hundred possible courses of action. From this perspective, a traditional demonstration project tests the net effect of one among literally thousands of permutations. It is obviously a crude technique for refining PHC delivery systems. A quasi-experimental field test can meaningfully compare alternative delivery systems designs that differ in at most a handful of these decisions. This technique is precise when properly done, but too expensive and cumbersome for screening large numbers of possibilities. Indeed, the process of formulating a hypothesis that one course of action is superior to others is usually highly intuitive: Few such studies offer more than a superficial, qualitative discussion of why a given comparison is useful. Even fewer explicitly consider the relative value of other possible comparisons, the focus of the PRICOR methodology.

With this step, like those that precede it, it is possible to speculate about the potential impact of repeating this exercise in dozens of different delivery systems. Although all of these PHC programs are complex and different from others, the range of what managers can and cannot do is probably fairly limited. Thus, with experience it would probably be possible to catalogue these options, in effect providing concrete guidelines for less skilled managers in applying this approach. Presently available materials appear to be too abstract to be applied by the typical mid-level manager. The staff plan to conduct a number of comparative analyses addressing overall trends among studies (see Chapter 5). The options of the manager is one theme that should be considered.

Obviously, managers design PHC programs and attempt to resolve shortcomings without consciously going through the steps outlined above. The PRICOR staff argue persuasively that a relatively small effort in thinking systematically about problem-solving promises to make PHC programs more cost-effective

than they are currently. Individually, these steps are not particularly complex. In addition, much of the logic of the problem-solving process is conducive to improved program management, independent of the problem at hand. The next steps are necessarily more complex: Moving from a list of issues to be decided to the overall course of action that makes the most sense.

In some cases, simply deciding what actions are possible is central to a given decision, essentially an issue of creativity. In other cases, the issue is reconciling a number of objectives, such as where CHW training should be done locally, geographic coverage should be complete, and training should be finished by a certain date. Often, a central consideration is how different factors interact with each other to produce a net result: investments in additional supervisor training, transportation for field visits, second-level supervision, salaries to attract more qualified supervisors, a more elaborate reporting system and other factors. Further, the nature of individual relationships may or may not be linear, may or may not exhibit a threshold phenomenon, may or may not be directly causal, and may be unidirectional or bidirectional. The most common response to this complexity is to dispense with systematic analysis altogether and make what amounts to a intuitive decision. As noted above, strictly empirical approaches have described only the smallest proportion of these relationships.

Many commercial enterprises face equally complex relationships but have found alternatives to strictly intuitive decision-making. Traditional operations research is one of the major tools used to assess complex alternatives, usually through modeling. Where individual relationships between variables can be measured, it is feasible to use sophisticated mathematical formulas to predict the net results of a large number of alternative courses of action. Since this is a series of calculations, it is rapid and inexpensive. The basic premise of the PRICOR methodology is that a similar approach can be applied to PHC programs even though most of the relationships between variables have not been measured. For example, the influence of increased supervisor training on CHW performance in ORT services has not been carefully measured. Is it worthwhile to invest scarce resources in expanding this training? Short of actually carrying out the necessary field experiments, one has little choice but making what amounts to an educated guess. This is precisely what the PRICOR methodology advocates. The contribution of the modeling step is to formalize the process, systematically dividing it into discrete estimates that can be openly debated. The obvious question is, how well does this procedure actually work?

PRICOR's use of modeling in PHC is genuinely innovative. One of the most important contributions of the project will be to clarify the practical value of these techniques. The modeling approaches themselves have been reasonably well developed in other fields such as agriculture where there is also a need to deal with complex, incompletely described systems [see for example Delp et. al, Systems Tools for Project Planning]. Indeed, AID itself makes extensive use of techniques such as the logical framework and the Gantt Chart. While most of these approaches rely ultimately on intuitive estimates of relationships between variables, there are specific models for different situations. Delphi, for example, is suited to anonymously bringing the judge-

ments of a group of knowledgeable persons to a consensus. Similarly, multiple criteria utility assessment helps a manager to compare different courses of action when he has several unrelated objectives. In practice, five or six of these techniques account for virtually all of the modeling carried out in PRICOR studies, primarily the simpler techniques. Whatever technique is chosen, the objective of the model remains the same: to help the manager predict the likely effect of a number of different, complex changes in the delivery system.

In the problem analysis phase and following the selection of a model, the PRICOR methodology directs the researcher to collect any data that may be necessary to proceed. It is for these steps that the staff have provided the least amount of guidance. The implication is that sometimes the various estimation procedures are simply inadequate by themselves. It is certainly true that program managers often lack information describing how services are actually delivered. In a number of PHC programs for example, managers have only a vague idea of what supervisors really do during field visits or how CHW's go about promoting the use of ORT. Without such basic information, one is certainly handicapped in estimating the effect of increasing supervisory visits or expanding ORT training. Indeed, most PHC programs would probably benefit from increased efforts to describe actual service delivery activities in concrete terms, whether or not there is a research agenda. It is less clear whether or not the staff intend to encourage actual experimentation to clarify the effect of changes in specific activities.

Certainly, data gathering is an area that requires the explicit attention of the staff in each of the funded studies. If it proves necessary to carry out extensive data gathering in order for modeling to be useful, these steps will be the most costly and time-consuming portion of the problem-solving process. If researchers collect the wrong information, the entire process will be unnecessarily weakened. Finally, specific information on concrete activities is likely to prove useful in other programs. Particularly where managers base much of their models on intuitive estimates, empirical data from other programs will probably help them in making realistic guesses. For example, even the most observant manager currently has virtually no basis for predicting the effect of increased CHW training in the follow-up of cases of diarrhea treated with ORT. One can only guess if there is a threshold beyond which additional training has no impact, whether the relationship between training and actual followup activities is linear or curvilinear, and so on. A model of this relationship would represent little more than a guess. Actual observations of this relationship from several other programs would, without doubt, help the manager construct a more useful model, even if falling short of scientific "proof."

Selecting a course of action to resolve the problem at issue is the next step. PRICOR documents treat this as a relatively straightforward process of inserting different values for decision variables into the model. There is yet an additional step in which the model is used to show the impact of changing policies that were initially taken as fixed. Both of these steps merit a more detailed explanation and would benefit from more elaborate illustrations in PRICOR materials.

Phase III: Solution Validation

The third phase of the methodology follows conventional field research approaches to either demonstrate that the proposed solutions really works or to compare two or more solutions that appear roughly equal in the model. The staff generally view this step as optional, but most studies include it. The team believes that field-testing is an essential element for influencing program managers. Compared to the steps that precede it, the field trial portion is by far the most expensive and time-consuming in most cases. For the most part, these trials are not designed to assess the preceding steps themselves. Indeed, evaluation of the problem analysis and solution development phases is heavily concentrated in the study proposal review process. Once a study is approved, there are only limited efforts by the staff to systematically document and evaluate each step of the PRICOR methodology under field conditions. Such evaluations are critical to deciding the place of this innovative methodology in PHC research.

Conclusion

The PRICOR methodology appears complex at first glance, but dividing the problem-solving process into logically distinct steps serves a practical purpose. Most of the approach is directed toward a neglected area: systematically selecting a course of action for a clearly defined problem. Some steps, based on their logic and simplicity, would be useful techniques in almost any PHC program. Other steps, particularly certain modeling procedures, invite skepticism. In many cases, however, the obvious alternatives are even less impressive. Each of the steps indirectly encourages sound management practices. It remains unclear, however, how well investigators have learned these steps, the extent to which they actually apply the sequence, and the overall effectiveness of the process. If the PRICOR methodology works well, it is without doubt a major advance for PHC. If investigators have a poor understanding of some elements of the methodology or if some of these techniques simply do not work under field conditions, the staff should modify their approach. The PRICOR methodology must be considered incomplete until its practical value in real PHC programs has been systematically documented. The current staff is uniquely qualified to carry out this step. AID should assure that such an evaluation is completed before the end of the existing cooperative agreement.

Chapter 4: Country Studies

A. The Review Process for Concept Papers and Full Proposals

To a large degree, the effectiveness of the Project depends on identifying well-conceived studies and investigators capable of carrying them out. PRICOR relies primarily on the extensive distribution of a 12-page pamphlet to solicit research proposals. This effort has been remarkably successful in that the project has received over 400 written proposals. In addition, AID missions may sponsor a proposal, which then receives special attention, including assistance in developing a technically acceptable study.

Fairly early in the project the staff divided the review of proposals into two stages: The initial submission, termed a "concept paper" (CP) is limited to 6 pages. The PRICOR pamphlet asks for 2-3 pages on the research problem, 2 pages on methodology, and 1-2 pages on the plan for managing the research while the staff receive proposals throughout the year, the review process takes place only in biannual "cycles." A panel of outside experts selects the CP's that should be invited to submit a longer and more complete proposal. This invitation includes specific advice from the panel on how the study could be strengthened. The full proposals subsequently undergo a similar review leading to a final decision on funding. A variation on this pattern took place in Africa, where the staff conducted a workshop to assist researchers who had submitted promising but technically weak CP's. Virtually all of the proposals developed at this workshop were later approved, and the project's initial shortage of studies in Africa was thus resolved.

In considering the review process, there are two distinct issues. One is the overall strategy itself--a worldwide solicitation followed by expert review and selection of studies for funding. The second issue to consider deals with the details of the review process that are unique to PRICOR, the criteria by which the staff and consultants actually accept or reject a proposal.

At the time of the mid-term evaluation, 4 cycles in the proposal review process had been completed, while the 5th cycle review process was finished up to the stage of approval of concept papers and request for full proposals. The first two cycles of the review process differed from the next three, in that the staff took a larger role in determining which projects should be rejected before the external panel review. In the first 2 cycles, the staff rejected about 60% of the initial concept papers. In the 3rd to 5th cycles, the staff rejected only 30% of the initial projects. In these latter cycles, consultants were added to the review process, so that staff first only screened papers obviously not suited to PRICOR (such as requests for a scholarship, a descriptive family planning survey, or a project on disaster relief). The new second stage included review by both staff and consultants. The reasons given by the PRICOR staff for this change in routine was concern that reliance on primarily PRICOR staff would bias the types of studies funded.

In reviewing 20 of the rejected projects in each topic area, the team was able to assess how the approval process worked. Of the rejected projects, about 50% had U.S. involvement through the principal investigator, or a consultant. This was a similar proportion to that seen in the funded projects. In most cases, the team generally agreed with the decision of the review process. In reviewing concept papers and proposals on community financing, health workers, and community organization, the evaluation team agreed in most cases with the reviewers. Reasons for rejection of projects included: lack of a clear research design or problem, poor methodology, absence of the 3 phase OR model, focusing on only one aspect (such as pilot projects), inadequate links to decision-makers, and topics for study which were not priority concerns.

Regarding the commodity distribution projects, all but four were agreed to be worthy of rejection. One concern noted was a too-stringent definition of the priority topics of PRICOR. Health issues of priority in one country or region (such as Kerala) are not likely to be the same as those in countries with less adequate health services (such as Chad), but may still be significant PHC problems that need to be solved.

The PRICOR approach to OR in PHC (see Chapter 3) is summarized in one page of the pamphlet. The prospective applicant is also explicitly informed that the focus of OR is problem-solving and that any study should be linked in some way to "decision-makers." The four topical areas are also described very briefly. Few of the submitted CP's failed to relate their research to one of the four topical areas. However, a large portion of the rejected CP's failed to address one or more of the other requirements outlined in the pamphlet. Most of those reviewed by the team were also weak in other ways, especially in methodology. Beyond this is an additional group of extremely vague CP's which would probably have been rejected by any comparable OR program, however it defined OR.

The discussions of the review panel observed by the team provided an in-depth consideration of each CP. These discussions demonstrated the broad range of experience and technical expertise appropriate for such a process. Direct personal knowledge of the applicants was understandably rare and familiarity with the program involved or the corresponding national program was represented among the panel only occasionally. Much of the panel's discussion focused on each study's methodology, specifically in comparison with the PRICOR paradigm. In general, approved CP's were distinguished by their adherence to the three-phased approach of problem analysis, solution development, and solution validation (field test).

The three phase approach to OR is sequential. Thus, in order to follow this paradigm, the researcher is in effect prevented from offering a detailed description of what he plans to do in phases II and III in the proposal. The methodology dictates that solution development depend on the results of the problem analysis phase. And the nature of the field trial, if any, cannot be specified until the modelling of phase II has revealed the most desirable solution(s). (In fact, the project staff has come to view these phases as fluid and iterative, but the implications for the CP are nearly the same as

those of a straightforward sequence of steps.) Thus, panel approval of a project appears to be based primarily on a stated commitment to apply a three phase methodology which in itself tends to rule out a specific, detailed plan for the field test portion of the research. Indeed, in at least one approved study, the staff specifically cautioned an investigator against committing himself to a detailed plan of action before the prerequisite analyses had been carried out.

The effectiveness of LDC investigators in applying techniques such as modelling and Delphi technique is thus central to most individual studies. The panel repeatedly demonstrated familiarity with these techniques and provided a number of insights related to their use in specific projects. However, in certain cases, when the panel sought clarifications about how the investigator would apply certain techniques, the final proposal was not completely responsive. Time limitations often require the panel to accept partial answers. In no case was approval made contingent upon actually carrying out one or more such procedures, and none of the CP's or full proposals reviewed had actually conducted part of this analysis. Neither was continued support made contingent upon satisfactory completion of certain steps. Indeed, current arrangements for specifically evaluating this component of the studies are minimal. There is room for concern that in reality, many of the studies do not closely follow the staff's carefully developed paradigm. Few of the proposals reflect a detailed understanding of the entire sequence. We conclude that increased on-site monitoring will be necessary to assure a thorough trial of the PRICOR approach to OR.

Compared to the methodologies to be applied, the importance of the research issue received little explicit attention in the CP reviews the team observed. This is of course a highly judgmental area, but the lack of discussion suggests that the inclination of the reviewers is to accept the view of the investigator, whose priorities tend to be parochial rather than global. A proposal related to mental health services was rejected on methodological grounds rather than lack of priority. Similarly, studies were approved in Uruguay and Korea, despite the favored health status of those countries. A relatively costly study in Liberia focuses on finding a way of training adolescents in school to promote healthful behavior in their homes. A \$100,000 study in the Dominican Republic examines the effectiveness of audio-visual aids to be developed by the investigators. The importance of the research topic to local decision-makers did however receive substantial attention. The review panel consistently examined each CP for an indication that the subject to be studied is of interest to the director of a service delivery program.

After reviewing the rejected projects, the step in the process at which each was rejected, and assessing the cost of the review process, the evaluation team concludes that the review process can be streamlined with substantial cost savings. PRICOR has a special strength in the quality of its professional staff. The addition of consultants to the review process adds unnecessarily to costs, and did not appear to change the types of projects sent on to the concept paper review panel. Since 1-2 PRICOR staff review each paper anyway during the second phase of the review, the addition of consultants may also reflect the heavy work load of the PRICOR staff.

We believe that additional full-time staff would be a more effective way of processing the concept papers, rather than using a three-tiered rejection process (first, staff review of obvious rejections, then staff plus consultant review, and finally, panel review). In the panel we observed some reviewers had already been involved in earlier stages, and were reviewing the same project twice. This is true also for the staff. By inviting new people to the review panel, time was wasted in re-explaining the PRICOR approach. Given the cost of the panel review (about \$5000), and the cost of bringing in consultants to review concept papers, it may be more efficient yet equally effective to have the staff review the proposals, and send out the best 10-20 proposals to outside reviewers. Currently, the acceptance rate of approved concept papers to be funded as proposals, is high (about 80%). This suggests that the final review panel may not be necessary. It may be more appropriate to send proposals to researchers familiar with the topic to be studied and with the country context. Proposals which may seem to be appropriate and to be closely tied to the government decision-makers, may in fact be the opposite. Only reviewers who know the local situation are fully qualified to assess the likely impact of a proposed project, as distinct from evaluating its technical merits.

The major concern that we have with the concept review process is the high rejection rate. Of the 318 concept papers submitted up through cycle 4, only 31 were approved for funding (plus an additional 13 mission tract projects). The 10% success rate in funding proposals indicates that a large amount of effort is put forward by the researchers who were rejected, by decision-makers associated with the project and by the staff in responding to the applicants. The high rejection rate indicates that the specification given in the brochures were not clear enough to delineate the specific requirements PRICOR has for funding projects. It may happen that some researchers whose projects would not be acceptable have not understood the process so that they should not have applied. Aside from this, however, the high rejection rate also is indicative of the general shortage of resources available for research on primary health care.

In summary, although we recommend certain changes in the review process, the team is generally satisfied that the project has funded the best of the proposals that were submitted.

B. Review of Funded Projects

Community Organization

The review of 6 projects funded in Community Organization (CO) (1 was withdrawn prior to funding) illustrate a wide range of topics included for study and a varied regional distribution. Topics studied included assessing which types of community organizations are most beneficial to PHC operations (in the Cameroon, Malawi, and Haiti), the success of Community Health Practitioners working alone compared to those working through community organizations (in Korea), methods to increase the utilization of polyclinics through the help of community organizations (in Uruguay) and involvement of mothers in the distribution of ORT (Liberia). Most CO projects have only been recently funded;

therefore, results are not available yet on those projects. The cost of the CO projects ranged from \$37,000 to \$151,000. Two out of three CO projects in Africa were developed at the Swaziland Workshop. Both illustrate the success of the workshop in substantially strengthening the originally submitted concept paper, leading to a greatly improved proposal. This was also true of the CHW projects funded in Africa, with all seven having been improved greatly through the participation by researchers and decision-makers in the Swaziland Workshop.

Of the seven approved CO projects, most were oriented to the three phase approach of the OR design. This was often not the case in the original proposal, but was developed after TA provided by PRICOR, attendance at the Swaziland Workshop, or through comments provided by the reviewers. This process illustrates the high level of time and concern given by PRICOR to approve proposals to help transfer the OR methodology to improve the quality of proposed studies.

This type of excellent guidance by project staff should be continued in the subagreement monitoring role of the contractor. This would be enhanced by the addition of professional staff, rather than a continued reliance on consultants, who have in many cases not proved to be as effective as the PRICOR staff itself.

Community Health Workers

The funded CHW studies generally had a well-established connection to an ongoing PHC program. Most studies examine selection, training, or supervision, all areas of obvious importance. In the files reviewed by the team, the research issue was in most cases defined in fairly general terms. Project records provide relatively little description of how the OR methodology was applied.

At the time of the evaluation there were 16 studies related to CHW's underway or approved. The ultimate value of each study depends on a number of factors that cannot be assessed from project records. Nevertheless, it is possible to discuss the potential value of each study on a preliminary basis in order to illustrate points made earlier in the report.

A \$21,000 project in Sierra Leone will examine approaches to training mothers to use ORT. The objective itself is certainly worthwhile and, if well done, would be of interest throughout the region. A May 1984 project summary follows the three phase approach rather loosely and provides no concrete observations or analysis. The investigator apparently plans to rely chiefly on a survey to lead him to alternative solutions. The summary offers no clue as to the nature of these alternatives. Substantial technical assistance will be necessary if the study is to generate reliable and useful insights.

A \$63,000 study in Swaziland addresses the MOH program of Rural Health Motivators (RHM) which provide simple preventive and curative services in isolated rural areas. The study will attempt to develop a mechanism for local payment of RHM salaries, which the government has been unable to pay.

Researchers also plan to examine the potential role of different types of community organizations and of MOH supervisors as longer term measures to encourage RHM productivity. The investigators list certain techniques that they plan to use such as system definition matrix and oval diagram. These would identify "knowledge gaps" and lead to a survey, the nature of which is unspecified. Similarly, the range of possible solutions or how they would follow from the survey, and the objective of the field test are not discussed. Since the study was only recently approved, it is understandable that a number of details are not yet determined. A careful analysis of any of the three areas listed would be potentially of broad relevance, but currently the research problem and overall approach are not well defined.

A \$112,000 project in Tanzania is examining the cost and effectiveness of different CHW supervisory systems in use in the country. The project has fairly detailed plans for data gathering and analysis. Information on the cost-effectiveness of this important but poorly understood area is badly needed. A \$33,000 project in Nigeria which also addresses supervision is discussed elsewhere. Another project in Nigeria costing \$22,000 seeks to identify the causes of CHW attrition, primarily by examining several different church-sponsored programs. The design of this study does not attempt to measure the cost of CHW attrition, but assumes that it is a problem that should be addressed. The lack of cost information will impede any assessment of a proposed solution. Data collection consists of rather unfocused, largely open-ended interviews that are unlikely to produce results of interest beyond the local setting.

As noted previously, the team found the \$149,000 study of using school children as health promoters (in Liberia) to be of questionable value. A \$50,000 project in the Philippines will evaluate and attempt to improve the nutrition services provided by the CHW program. Since the study begins with what is in effect a program evaluation, its objectives are stated in very general terms. Any useful findings will be applicable to the national program. A careful examination of what makes a nutrition program effective would also be of wider interest, since this is one of the least studied areas of nutrition. Another study addresses the same national program, focusing on CHW training. At a cost of \$39,000, the investigators will evaluate existing training, and then develop and test a new approach based on the problems identified. The value of the study will depend on the skill with which it is carried out since it does not begin with any particular insight into the program or even a "problem." A potentially important feature of the design is the process of measuring CHW performance to evaluate training. Surprisingly few PHC programs have such an orientation, and a concrete example of this important principle should be of general interest.

A \$54,000 study in the state of Mexico also begins with a general evaluation of what health auxiliaries actually do compared to what services members of the community want to receive from them and some independent judgment of what is really needed. This evaluation is expected to suggest changes in training and "programation," to be field tested. A careful evaluation of the program, including direct observation of auxiliary services, is likely to

be useful at a national level. The study file is less convincing in its approach to actually improving services and documenting that improvement.

A \$104,000 project in the Dominican Republic to develop and test audio-visual aids has already been cited as an example of dubious priority. This is particularly true in view of the range of more pressing PHC problems that are obvious in most programs and the size of the budget allocated for what would otherwise be a routine program activity. In northern Brazil, a \$120,000 study will examine different approaches to providing ORT through traditional healers. If such a program proves viable, the results of the study would be directly applicable for this region of Brazil, with the possibility of some limited influence on the national diarrheal diseases program.

In Ecuador, a \$140,000 study requested by the AID mission is a sophisticated application of the PRICOR methodology. The study examines a rural health program of the MOH which has already trained 300 CHW's. Researchers will use a variety of indepth interviews, structured surveys, and participant observation techniques to document the actual operation of the program. At present, only the plans of the program have been systematically recorded, not the process of service delivery itself. With this background information, the investigators will focus on (1) lowering supervisory costs, (2) raising the number of measurable skills achieved by CHW trainees within a cost ceiling, and (3) raising the efficiency of the CHW logistics system. In each case, researchers will draw on a variety of modeling approaches to identify, for example, the most promising potential changes in the CHW training program. Over the course of a twelve-month period, investigators will conduct field trials to evaluate the validity of the changes indicated by their models.

Any insights generated by this study will have direct, national application. A detailed, field-level examination of how systems such as supervision, training, and logistics function and the nature of the most common problems would be potentially useful throughout the region. The formal results of the field trials, such as the comparison of two training programs, constitute a small proportion of the useful information expected of this study.

A \$78,000 study in an urban area in Haiti has a narrower focus but an approach similar to the Ecuador study. The researchers will evaluate the current program for traditional birth attendants and attempt to improve the training program, with specific emphasis on referrals. Improved training approaches could be directly applied on a national level. A concrete demonstration of competency-based training compared to current approaches could have broader implications in Haiti and, to a certain degree, other LDCs.

A \$168,000 study in Jamaica will examine the productivity of MOH clinic workers, expressed as "service output per person hour." Researchers will observe how different MOH personnel use their time. Then, based on cost-effectiveness measures that they will develop, the researchers will propose changes in worker allocation, job descriptions, IEC content, training and other factors under MOH influence, to increase productivity. This study, to the extent that it produces practical results, will apply to the national health

service. A number of sources of low productivity will likely be of wider interest, including many African countries.

In conclusion, very few, if any, of the CEW studies are restricted to strictly local issues. Most begin with an in-depth assessment of part or all of a delivery system. In view of the general inadequacy of analyses of this type in PHC, virtually all of these studies are of potentially worldwide interest. On the other hand, most studies begin with a broad research issue that will be defined only once the analysis is underway. No one can quarrel with an objective like "find the best way to train CEW's." But on the other hand, it is extremely difficult to anticipate the outcome of a process that begins with such a general objective and then simply promises to carry out the necessary analysis leading to the optimal solution. The success of each of these studies depends on steps that, for the most part, cannot be planned until the preceding step is completed. It is critical, therefore, that PRICOR monitor the progress of these steps, judge their effectiveness, and take any corrective measures that are necessary.

Community Financing

PRICOR has approved 13 financing studies at a total cost of \$1,268,902 (mean \$97,608; range \$31,205 to \$165,203). Five studies are underway in Africa, three in Asia, and five in Latin America. All deal with methods by which health care beneficiaries can or do contribute to financing, but some relate to potential nationally operated schemes, while others emphasize community or cooperative management. The problems addressed in each case appear significant and worthy of research.

These studies will greatly increase international knowledge about a central primary health care issue. They will also contribute to national and, perhaps, international decision-making. (They may be less likely, however, to influence community decision-making, for reasons given below.)

A basic question regarding these studies is whether they should focus on the outcomes of alternative financing schemes or rather on the process by which community support for primary health care can be mobilized. PRICOR literature (including methods papers) clearly emphasizes outcomes (e.g., the best financing scheme), but several researchers with whom we spoke emphasized community decision and management processes. Outcome-oriented studies, like most of PRICOR's, compare alternative financing methods (e.g., service fees, prepayment), while process-oriented ones study various ways in which health personnel might work with community groups to create financial commitment. (The actual mode of support might vary greatly from one community and time period to another.) PRICOR studies which consider process—and there are several—are likely to be more generalizable than those considering only outcome.

One issue that arose is whether PRICOR should focus on community financing rather than on health financing more broadly. Communities, after all, are only one potential source of funds, not the only one. In fact, most

PRICOR studies consider a number of financing options and mixes, so that this does not appear to be an important issue.

Commodity Distribution

In the field of Commodity Distribution (CD) five studies had been funded. The evaluation team agrees with each of these decisions, for all of the studies deal with important constraints for the effective delivery of primary health care services. Four of them are related to the control of diarrheal disease through the use of Oral Rehydration Therapy (ORT). They focus on the most cost-effective distribution system to ensure the timely use of ORT in the household. The problem is of high priority in traditional and transitional societies; the method is scientifically sound and has been experimentally tested with significant results; the need for effective delivery of ORT is urgent to ensure the survival of a large number of children under 5.

At the time of the evaluation, three of the CD-ORT projects were in the initial phase of data collection for problem analysis, the first tier of the PRICOR OR methodology. Although in two of them some alternatives are mentioned, they cannot be related at this stage to any variables of the problem itself. Nor can there be any discussion of methods for the second phase of Solution Development. One could foresee that at least cost-effectiveness analysis should be included as one criterion to decide among competing alternatives. One of the projects has been finalized. It was developed in Mexico and refers exclusively to marketing and distribution of oral rehydration salts in drugstores. It does not, therefore, include the actual use of the product and its effect on the control of diarrheal diseases, a major objective in primary health care. Besides, it involved only a small amount of the PRICOR funds, \$5,000.

One study focuses on a different issue: operational procedures to improve availability of drugs. This is also a priority problem in primary health care. Most developing countries in the world do not have an explicit essential drugs policy as defined by WHO. They also lack a well designed system for purchasing, controlling, distributing and utilizing basic drugs for the most prevalent diseases. The need is greatest in the communities, both rural and urban, where a PHC strategy is followed. The study to be developed in Somalia will analyze four constraints: ignorance, inadequate distribution system, inadequate supply and insufficient income. It will identify alternative solutions in terms of different parameters. As of June 1984, it had not started.

Some statistics are in order. Three of the CD studies are being implemented in Latin America, namely, in Brazil, the Dominican Republic, and Mexico. One in Egypt, and the fifth in Somalia. Costs have a range of \$90,912 to \$178,572. The one exception is in Mexico, with an investment from PRICOR of only \$5,000. The average time period between the presentation of the Conceptual Paper and the approval of the study by AID has been 6-1/2 months, which seems reasonable considering the rather structured procedure.

As stated, the basic problems addressed by the 5 CD projects are of great importance for PHC. One of them, the use of ORT for the control of diarrheal disease, was introduced at AID's request as a categorical issue in PRICOR. The evaluation team believes that each study will identify, develop, and validate solutions that will be more cost-effective than those applied at present to facilitate the timely use of ORT and the availability of essential drugs at the local level for PHC. It is to be expected that both the methodology employed and the outcomes could be adapted to the same problem under similar circumstances in the same or in another country within the region.

C. Project Monitoring

PRICOR will enter a qualitatively new phase with the completion of the final round of proposal reviews early next year. Project monitoring will abruptly replace proposal review and selection as the staff's major activity. The development of the methods papers should be largely completed by then and most of the planned conferences will have been held. The overall strategy of the project staff to date has focused on the events leading up to the funding of a proposal. This approach reflects the view that the staff has only limited influence on a study after a formal agreement has been signed. But the extent to which the staff can influence studies has not yet been put to the test. Indeed, monitoring is one of the least developed areas of the staff's impressively detailed and systematic management plan. It is difficult to overestimate the importance of thorough on-site monitoring in a project such as this.

The team's evaluation of this area is of course handicapped by the lack of any site visits to ongoing studies. However, on the basis of reviews of PRICOR's extremely thorough and well-organized technical files and by attending two regional meetings for principal investigators, we have a number of observations.

The current approach to monitoring country studies emphasizes compliance with the original proposal. With a small staff responsible for 40 or more studies scattered around the world, the staff primarily relies on reports, letters, and consultants to keep the study on schedule. Site visits by the staff itself are limited in the monitoring plan to dealing with particularly difficult problems. Approaches such as this have resulted in an exceptionally high level of productivity for a project of this kind. More than 50% of total costs can be directly attributed to individual country studies. Within a five year period, the project will have carried out perhaps 60 field studies at a cost of under \$9 million. By these measures, few comparable research programs can approach PRICOR's level of efficiency. However, while figures like these have a legitimate role in project evaluation, it is imprudent to rely on these crude measures alone. Particularly with regard to monitoring activities, the project appears to have allocated insufficient resources to fully exploit its success in other areas. Certain additional investments, chiefly in providing on-site technical assistance by the project staff, is likely to provide AID with substantially more, useful information on PHC at a relatively small addi-

tional cost. These additional field activities are needed to address the following areas:

1. The effectiveness of the FRICOR operations research methodology. Without additional efforts, it is quite possible that at the end of the project, the value of the FRICOR paradigm for OR will remain unclear. It is difficult to take issue with the general premise that PHC problems should be addressed in a logical and systematic manner. The project staff have consistently advanced this perspective through every component of the project and this is likely to prove to be a major contribution to the field. There remain legitimate questions about the details of the approach, however, that can be addressed only through careful observation of its actual use. Many of these questions involve activities that would never appear in a final report. Further, it cannot be prudently assumed that the principal investigators understand, apply, and benefit from these methods. The methodology itself represents an impressive intellectual accomplishment, but the staff have, for the most part, discussed its use only in abstract terms or through hypothetical examples. In order to evaluate and refine the methodology, the staff require exposure to its application to practical PHC problems, not merely a report of the results.

There are few details of the actual use of OR techniques available, but there are indications that some applications are proving problematic. One study is developing a model for CHW supervision that involves 61 parameters, including items such as "degree of dedication of supervisor," "availability of electricity," "infrastructure," and "positive results of previous supervision." The investigators will attempt to create "models" of supervision with these parameters. They will then measure each variable through interviews and observation and finally arrive at the best design for supervision to be field tested. This appears to be primarily the sophisticated manipulation of a large number of poorly conceptualized variables. The need for increased monitoring and assistance is apparent in this case.

A more typical situation is where the details of the OR techniques are poorly documented or not yet developed. One study has selected a relatively broad objective, to develop the best way to train women to use ORT. The study summary studiously lists the three phases and uses terminology found in the FRICOR brochure. But "problem-analysis" will be based on nothing more than "personal experience," hospital statistics, and a survey that among other things is to "identify effective methods of communication in the community." How these activities will actually achieve the investigators ambitious objective is left unclear. This study also illustrates the importance of expanding the role of the project staff in actively supporting investigators after the decision to fund the study.

Even if the principal investigators apply OR techniques skillfully, there is room for doubt that the techniques themselves will consistently provide practical benefits. It is not obvious that the design of PHC delivery systems will be improved through "brainstorming" as planned in one study. One

may question the ability of LDC program managers to create a flow chart representing their delivery system with enough precision to allow one to predict the effect of changes in training or supervision. The value of the nominal group and delphi techniques probably depends on skills and insights that are poorly understood and may be missing from a given group. PHC problems have been analyzed and resolved without these techniques. Only if they provide a demonstrable benefit do these techniques deserve to be promoted as fundamental tools appropriate for PHC problems of all kinds. It is important for the staff to directly examine the techniques themselves where they have been fully applied, to determine the extent to which the solutions produced are insightful or obvious, whether the differences between alternatives revealed by field tests were substantial or trivial.

Increased field experience by the project staff will be needed to refine the OR techniques where they are unsatisfactory. Some vital steps have been outlined in only the vaguest terms and would benefit from at least some concrete illustrations. Collecting information for use in a subsystem model is an important and often costly step but one for which the staff has been able to provide little guidance. This was also a conspicuously weak component of a number of projects we reviewed. Minimizing the cost and time required to collect enough data to reach an acceptable level of validity and deciding that level are other areas where investigators appear to need some guidance or at least detailed examples.

In the course of evaluating and refining the OR methodology through field visits, the staff will also have the opportunity to address how these techniques are communicated to their LDC counterparts. The PRICOR approach to OR has been transmitted via several channels, such as written materials and workshops. But in all these modalities, the substance has been fairly abstract, lacking real, detailed PHC examples. Concrete case studies would be a promising addition to these efforts. Since a number of investigators appear to have an incomplete understanding about how to apply the various techniques, improved communication is an important objective in its own right. The long term potential for initiating this approach within MOH's also requires more effective teaching materials.

2. The broader application of systems analysis techniques: A second area where increased on-site monitoring would be valuable concerns the components of the delivery system that are not being studied directly. Detailed, systematic descriptions of the process of service delivery in real PHC programs are surprisingly rare. PRICOR is in a favorable position to generate a large volume of valuable observations in this area, but this is unlikely to take place without the active intervention of the staff. Even a limited effort to expand PRICOR's documentation and analysis of the delivery systems under study would probably be highly productive. In addition to producing insights into the range of shortcomings in PHC programs, these observations would also provide topics for OR that are far more specific than those currently under study.

The PRICOR methodology includes collecting information on any factor that might influence the "subsystem" under study. Thus, an effort to train mothers to use ORT could be affected by the subsystems that deliver supplies and provide for referring difficult cases to the nearest clinic. This represents a "systems" view of how PHC services are delivered: different components of training, supervision, financing, etc. interact with each other to produce a net result. The practical problem, as the staff notes, is where to draw the line. It is simply impossible to take into account every factor that might influence, for example, CHW supervision. Deciding what factors to study remains a matter of judgement.

This judgment has been largely left to individual principle investigators, who have tended to focus their attention rather narrowly. We would propose that in most circumstances, some documentation of the major components of the involved delivery system is warranted. Other AID-funded projects illustrate the potential value of even fairly simple documentation techniques. A few brief observations of field supervisors in one project revealed that less than 7% of their time was devoted to activities related to improving the effectiveness of service delivery. A review of the reporting system in another project showed that useful information was omitted while superfluous or uninterpretable observations were included. In yet another PHC project, little effort was required to establish that the basic competence of CHW's was never measured objectively. There are, of course, examples of the converse, such as a program that had developed an innovative but undocumented approach to making the most efficient use of the higher levels of the supervisory hierarchy.

Many of the most serious problems of PHC programs can be identified with fairly rapid, simple observations. Yet relatively little information of this kind is available, and it appears that newer PHC programs are repeating the shortcomings of earlier programs. It is certainly not possible for a given PRICOR study to resolve every major problem of the delivery system. But it is feasible to make the systematic examination of the components of the delivery system a standard feature of each study. The project staff has unusual depth in systems analysis and direct access to a large number of PHC programs. They are in a position to produce documentation and analysis of a series of concrete problems in PHC service delivery. This is the first logical step in doing something about these problems whether or not PRICOR funding is used. It certainly falls within the mandate of the cooperative agreement.

Increased description of the process of service delivery will also contribute directly to future OR studies. Few of the current PRICOR studies began with a detailed insight into a weakness in the delivery system. Rather, most studies seek to bring about broad and rather ill-defined improvements such as increasing the productivity of PHC workers, identifying the best financing scheme, or developing the best way to train mothers to use ORT. These broad objectives are in themselves problematic. Studies with broad objectives are necessarily more complex. If OR techniques are to be transmitted to ordinary program managers without access to experienced researchers, it will probably be necessary to find more specific research issues susceptible to simpler

approaches. PRICOR can begin this process by documenting concrete, well-defined delivery system problems. The project would also thereby avoid giving managers the impression that one can safely ignore damaging problems in the delivery system, while at the same time pursuing a lengthy study such as how to best incorporate traditional birth attendants into the program.

3. Generalizability of study findings. AID is understandably interested in the extent to which the findings of PRICOR studies, some of which are fairly costly, will have utility outside the program in which they were conducted. Increased on-site monitoring will directly contribute to this objective. Both increased documentation of the actual use of the OR methodologies and the broader application of systems analysis play a role in generalizing from PRICOR's experience. Certainly, it is not only the results of the field trials and surveys that can lead to useful advice for PHC program managers.

Since OR deals with management and policy issues to a large extent, findings are more difficult to generalize than, for example, the clinical trial of a new antibiotic. But despite a diversity of settings and overall designs, PHC programs for the most part do share a number of basic components such as financing, logistics, supervision, and so on. A central feature of the systems approach advocated by the project staff is the process of further subdividing these components into discrete activities that can be measured. Of course, simply breaking a complex system down into its elements does not by itself produce an understanding of how the system works or how it can be improved.

This process does, however, provide a logical and broadly valid framework for organizing observations from a variety of programs. For most components of a PHC delivery system, very little descriptive information is available. It is difficult to imagine how one can form late general principles when the most basic field observations have not been systematically documented. Thus, every observation of a specific service delivery activity is potentially relevant to other programs. Particularly where observations from a variety of country studies are consistent or fall into identifiable patterns, one may draw useful lessons for other programs. It is not essential that PRICOR itself produce enough observations of a given PHC component to establish a new generalization, although the wider application of study results is a fundamental goal. Equally important is to set a pattern for collecting and analyzing this information so that future studies can be incorporated within the same system. Surprisingly, comparisons of very specific components of PHC delivery systems, based on a consistent approach to describing the activities, are virtually nonexistent. Indeed, if the project can demonstrate that their systems approach is practical in real programs, it will have achieved the most valuable kind of generalization. The staff have outlined how this can be done on an abstract level. What remains is to provide the real world examples. Few research programs in the world offer a comparable opportunity.

D. Time Required for Country Studies

PRICOR's five-year cooperative agreement with AID is relatively short in terms of field needs. The average duration of country studies funded to

date has been 18.4 months, not including likely extensions. The PRICOR/AID approval process adds 8.3 months, producing a total interval of nearly 27 months between proposal initiation and completion. PRICOR will need at least six months after all studies have ended to disseminate results and conduct audits. PRICOR's Cycle V studies have a limit of 18 months duration, while those to be supported in Cycle VI will be limited to 12 months.

There is a certain degree of conflict between the time required to develop a high quality research project and possible deadlines imposed by host country decision processes. Managers habitually make decisions with whatever imperfect information happens to be available when a decision is required. This may include PRICOR results if they are ready, but it may not if pre-agreement processing or the study itself have taken too long. The average interval of about 2-1/2 years between formulation of an issue and completion of a study has to be judged against the great instability of primary health care resources; clearly, the interval is reasonable for many issues, but not for others. We feel, in general, that PRICOR proposals should provide greater information about managerial decision processes and time frames so that the relevance of results can be better evaluated.

E. Costs of Developing and Monitoring Country Studies

PRICOR's detailed accounts permit analysis of project development costs by region. The following figures include general and administrative (G & A) costs.

The cost of developing the research agenda, which includes topic selection, brochure development and distribution, and other publicity efforts, has been \$130,256 through 3-31-84. This averages to \$3,250 per funded study. This covers much of the conceptualization and direction of PRICOR and is a start-up cost that will eventually be spread over additional studies.

The cost of developing studies up to the point of funding has been \$393,500 in Africa (including \$146,700 for the Swaziland workshop), \$86,900 in Asia, \$298,600 in Latin America and the Caribbean, and \$23,400 in the Near East. This works out to \$23,150 per funded study in Africa, \$14,500 in Asia, \$18,700 in the LAC region, and \$23,400 for the single Middle Eastern study. The all-regions average is \$20,100.

Calculations by the project director indicate average development costs of \$21,385 per funded open track study, \$24,555 per AID-track study, and \$24,501 for studies arising from the Swaziland workshop.

PRICOR has so far spent \$78,700 on monitoring funded studies and plans to spend an additional \$319,400 during the remaining life of the agreement. Costs to date average \$1,130 per African study, \$3,025 in Asia, \$2,275 in LAC, and \$5,030 for the single Middle Eastern study. These figures do not include costs of the Monrovia and Mexico City workshops nor the costs of consultants included in the proposals. Low costs in Africa reflect the recency of studies in that region.

Country Study Costs

The AID Request for Application called for 28 country studies at a total cost of \$5,600,000 (average of \$199,900 each). PRICOR has so far obligated funds for 40 studies at a total cost of \$3,465,400 (average \$86,600). The team commends this move to smaller studies but notes the greatly increased staffing burden that has resulted.

The recent Cycle V review panel invited proposals for 12 additional studies costing \$591,100. Based on past experience, about half of these will eventually be funded, but at higher budgetary levels than indicated by concept papers.

In December, PRICOR proposed that the total budget for country studies be reduced to \$4,641,500. Assuming an obligation of \$400,000 from Cycle V, this will leave approximately \$775,000 for Cycle VI. Some of this money will have to be reserved for extensions and overruns on existing studies, however, and PRICOR assumes that only small grants would be possible after Cycle VI even if the cooperative agreement is extended.

Chapter 5. Dissemination of Results

Methods and outcomes of every study sponsored by PRICOR must be known by as large an interested audience as possible. Should this not happen, the information will be restricted to the files of the local staff that developed it, international consultants, AID missions, and Regional Bureaus, and it will enrich the experience of the PRICOR professional group as well. This may be considered a valuable result. However, others may feel that it is far below the long-range expectations of the Project.

Accordingly, the Cooperative Agreement contemplates, among the major project outputs, the dissemination of findings to the responsible decision-makers. Article B, on Specific Tasks, spells out in paragraphs 16-19 the various components of a dissemination process, while Article VI stipulates the major prospective outputs. Paragraph D specifies how methods and findings will be made known to decision-makers, investigators in operations research, primary health care professionals, and others.

PRICOR Dissemination Plan. The Center for Human Services has prepared a comprehensive dissemination plan for the activities of the Project, based on the terms of the Cooperative Agreement. It is included in the Background Document. Conceptually, it links "dissemination" with "utilization" of information, i.e., the "transfer" of pertinent messages between potential resources and users. The former, or disseminators, are the PRICOR staff, researchers working on the national studies, and third parties, i.e., individuals and organizations active in the field of operations research. The latter, the users, will be host country primary health care officials, AID program managers, researchers, and individuals/institutions involved in primary health care development. And the messages will be based on research results, operations research methods, project activities, and the primary health care/operations research literature.

The PRICOR Plan will concentrate on six channels of communication, namely conferences, workshops, periodic briefings/informal meetings, occasional papers, reports (both administrative and technical), and journals/newsletters/bulletins.

We quote from the Plan: "The purpose of PRICOR's dissemination activities is to assure that information generated by the project's studies is made available to host country decision-makers and USAID health program managers to assist them in resolving policy and design issues that impede the development or extension of viable PHC programs."

The expected outcomes of the plan — positive changes in the behavior of the users — represent the utilization of research findings in policy-making and program decision-making and the application of OR methods to the study of primary health care operational problems. The latter is equivalent to institution-building in host and other countries. Table 3 summarizes the dissemination priorities for FY 84-86.

Results and prospects of the PRICOR Dissemination Plan

If the main purpose of the Plan is the utilization of information stemming from the country studies for problem-solving in Primary Health Care, it could be safely stated that it is only in its initial phases. To date two projects have been completed. By the end of 1984, it is expected that 10 will be finalized. This situation makes the mid-term evaluation timely, for it provides the opportunity to review the priorities in dissemination, the audiences they are addressed to, and the likelihood of their implementation.

The evaluation team agrees that a number of early project activities — most of them in support of PRICOR, aimed at getting it started and established — could be included in the dissemination process. We refer to the mailing of 31,000 announcements in the first two years in order to stimulate and guide research proposals. Whether because of the intrinsic complexity of OR, or the interpretation of its definition as used by PRICOR and the three-tier approach that it entails for its application, or difficulties in the understanding of the announcements, the fact remains that out of approximately 500 proposals only 44 have been approved. We must keep in mind the time and cost of the review process.

The PRICOR staff has presented scientific papers at several national and international conferences. It has published its research program in recognized journals and has briefed numerous organizations in the USA and abroad, among them, AID Offices.

It is to be expected that, with greater experience, a larger proportion of the concept papers will be approved and developed into detailed proposals for specific studies, and that these will be implemented. Still, the dissemination plan as such is yet to be developed, and the evaluation team is convinced that it should have a high priority within PRICOR up to the end of the Contract.

As a source of information for dissemination, it is obvious that the study findings are paramount. This is all the more so when the problems analyzed are of national or regional significance. Table 2 shows that out of 45 PRICOR-approved studies, 27 are national and 10 are regional. It could be argued that the outcomes of these projects stand a better chance of utilization at the host country level since it would not be necessary to repeat the entire OR process. For the same reason, the comparative analyses, if properly focused, should be the main source of information for the dissemination plan within and between countries. We deal with them elsewhere in this Report.

The evaluation team agrees in general with the dissemination priorities for FY 1984-86, as shown in Table 3. During 1984, the emphasis per force must be on Operations Research Issues and Methods. Starting in 1985, up to the end of the Project, the focus must be on the utilization of study findings and particularly on the outcomes of the comparative analysis.

In principle, the team would prefer that priority be given to activities whose effect is the utilization of research findings and the application of OR methods by Primary Health Care officials at national and/or local levels through the most direct channels of dissemination. With regard to the latter, in relation to Table 3, the team would suggest the following priorities:

1. Technical reports and comparative analysis
2. Workshops à la Swaziland and/or Tunisia
3. Methods papers
4. Conferences sponsored by PRICOR
5. Meeting presentations
6. Journal articles
7. Seminars
8. Administrative reports
9. Briefings

Table 4 presents an update of the dissemination plan, including budget estimates up to the end of the Project, and a quantification of the proposed channels of communication. The latter are not presented in priority order.

In analyzing these figures, we need to keep in mind that the literature related to the theory and practice of operations research in the health field is rather limited. It is even more so in Primary Health Care. Hence the significance of the contribution that the PRICOR project could make. We reiterate that the objectives of the Project are sound and that their implementation is timely and warranted. However, if outcomes of the country studies — and of the comparative analyses — are not to be known beyond the boundaries of the localities where they were developed, a great opportunity to enrich the literature on OR will be lost and particularly to "institutionalize" this scientific discipline in developing countries so that they may become progressively self-sufficient. The same way of thinking — a true objective — applies to all the other PRICOR channels of dissemination.

In Table 4, the distribution of 1000 copies of each of the six method papers is proposed. We assume that the audiences are the ones described in the Dissemination Plan on page 7. With the exception of selected research organizations, all others are directly related to the Project itself. Although valuable, this seems to be a limiting diffusion process, because it excludes many scientists and officials who deal with PHC and who should be informed about the possibilities of OR. In these circumstances, the need to increase the number of copies of the method papers is evident. Universities and other scientific centers, decision-makers, and interested professionals should receive them. Then, translation into French and Spanish becomes essential despite the cost and staff time required in order to carefully check the accuracy of terminology on concepts and methodologies. And this has not been budgeted for. It is also important to note that the delicate issue regarding rights to data on the part of CHS has been solved. Thus, CHS can disseminate the results of each investigation outside the host country.

Each study is required to provide a final technical report that will contain the study findings and, in most cases, this will be prepared by the Principal Investigators. PRICOR will provide technical assistance for producing and editing the 10 full reports of projects expected to be completed as of the end of 1985. Summaries of all of these reports — and we expect of forthcoming reports — will be prepared also by the staff for wider distribution including PRICOR-related applicants and grantees, consultants and advisors, and PHC officials. A total of 1000 copies only in English will be published and, again, the number for actual dissemination purposes seems small. PRICOR will also prepare four comparative studies relating to the four major themes that the Project has developed.

The evaluation team supports this process of dissemination, but it reiterates the need for translation into Spanish and French of all these documents. It may well be that not all the reports should be published as a whole. For some, the problem, alternative solutions, identification and implementation of the most cost-effective solution, and policy implications of the study could be clearly described in around 20 pages.

The publication of a monograph of summaries of the 10 studies completed as of the end of 1985, or the best ones, has also been suggested by the PRICOR staff. Summaries, of course, may have a larger audience but a lesser impact than the entire reports. Still, they should prove useful for spreading the concept and prospects of operations research in Primary Health Care. The team would prefer, if politically feasible, not to exclude the unsuccessful ones, because they will also convey important lessons. The staff intends to act accordingly. This exercise has not been budgeted for in Table 4.

It is worthwhile to point out that between 1/3 and 1/2 of the projects include funds for a local dissemination plan. Among its components, workshops to present results to key decision-makers and operational staff are of special relevance. We would suggest that this approach be implemented in all the approved studies, enlarging the audience to include academicians and other interested scientists.

According to the PRICOR Dissemination Plan, journal articles during 1984 are to be based on the information contained in the methods papers. Most of the six of these have been decided on and are in an advanced stage of preparation or in the peer review process. None has been published to date. The Plan contains a series of journals to be targeted for the technical and informational articles. The evaluation team feels that a special effort should be made to publish these six scientific papers.

In an overview of plans for FY 85 and 86, it is stated that journal articles will be prepared by PRICOR staff based on the results of country studies and comparative analyses. The main audiences will be, in order of priority, PHC personnel, AID staff, and other institutions and individuals involved in PHC development. Research will also be targeted in order to make the country self-sufficient for future investigations.

We strongly support the 1985-86 journal articles program. Table 4 includes 5 of them per year starting in 1984, for a total amount of \$54,000.

Briefings/Meetings were planned at the beginning to inform interested scientists about the Project objectives and, progressively, its activities and outcomes. Starting this year, they have become more systematized in terms of their content and audiences. The Dissemination Plan shows a schedule of agencies, bilateral and multilateral, public and private, and the frequency of each meeting. Table 4 cites 60 per year, for a total investment of \$20,000 and \$60,000 between 84-86.

Seminars will be organized by PRICOR staff -- two per year during 84-86, with a total investment of \$57,000 -- to discuss operations research issues and findings from country studies and how they can be applied in order to improve the delivery of PHC at the national level. Their objectives fit with what the evaluation team believes should be the main focus of the Project over the long range. We also support them.

Conferences not organized by PRICOR. The scientific staff of the Project is encouraged to present papers at the annual meetings of different organizations, such as the APHA and NCIH. The staff should also participate in the sessions of professional societies that deal with operations research. The source of their articles should be the outcomes and methods of the comparative analyses and country studies. A total of \$45,000 during 84-86 is earmarked for this purpose.

Workshops

Up to four workshops were to be organized and developed by PRICOR during the implementation stage of the Project. At the time of this writing, two have been completed and a comprehensive report of one is available. The other two are underway. The four have occurred in developing countries, as follows:

1. Swaziland for African PRICOR research applicants and decision-makers.
2. Tunisia for ministry of health officials.
3. Mexico City for Latin American and Asian PRICOR investigators.
4. Monrovia for African and Near East investigators.

The type of participants depends on the objective for each exercise. Their overall purpose was to disseminate information on research issues and OR methodologies relative to the four priority areas of the Project. More specifically, the Swaziland workshop reflected a strategy for cooperating with African applicants whose proposals had been rejected so that they could develop technically acceptable ones that stood a better chance of being funded. In Tunisia the intent was to train managers and investigators in the principles and uses of OR for problem-solving in Primary Health Care. In Mexico City and Monrovia the main objectives are to improve the ability of researchers to carry out already approved PRICOR studies, thus resolving technical and administrative problems. For all workshops, the purpose was also to provide participants

with the opportunity to exchange ideas, experiences, partial results, constraints, and prospects regarding the outcomes of their studies and their use by decision-makers. In this sense, the workshops became a practice in group dynamics, the discussions being stimulated by either the participants and/or the PRICOR professional staff and by special consultants assigned to each workshop. As an educational methodology, if properly organized and conducted, a workshop can be very successful. And this was the case in the Swaziland workshop, as stated in the workshop report.

The Swaziland Workshop. In relation to its main objective — to improve the quality, quantity, and funding of OR proposals from Africa — this workshop was carefully thought through and organized. Twenty-eight participants, divided into 14 teams each with one investigator and a program manager/policy maker from 11 countries, followed a three-stage schedule: preparation, macro-design, and microdesign. The first phase, prior to the workshop, consisted of the development of a concept paper to be submitted to the PRICOR staff, who would review and discuss it with the applicant during the first session. In the second phase, the concept paper was systematically analyzed and modified accordingly with the technical cooperation of the staff and consultants. It lasted three days, at the end of which the decision-makers left with a clear understanding of the objectives of their country's study and its significance for problem-solving in Primary Health Care.

The researchers, remaining for another three days and a half, refined the proposal again with the professional guidance of PRICOR. This was the third, or microdesign, phase. The whole exercise turned out to be an intensive learning-by-doing effort, all participants showing great interest and dedication. Hence the highly positive results: out of 12 completed and reviewed proposals, 11 have been approved and funded. Only one was not submitted. The participants, in turn, gave a very high rating to most aspects of the workshop.

Taking into account the time and cost of formulating OR proposals at the country level — 90% of which have been rejected because they did not fulfill PRICOR's conditions — the Swaziland workshop turned to be highly cost-effective. The estimated investment was \$147,000; thus each proposal that was approved and funded cost an average of \$13,363 to develop. However, this is only a very superficial evaluation of the workshop. It does not take into account application of the study's outcomes by the decision-makers, nor does it include what the researchers learned about the design of new OR problem-solving investigations in PHC — in other words, the long-range returns of any educational process.

For the PRICOR professional staff there were also significant lessons. The need for simpler terminology in operations research became apparent, as did that for good reference materials, case studies that indicate methods applied to the solution of specific PHC problems, and a paper describing operations research and outlining in clear terms its principles, basic methods, and uses.

In sum, the evaluation team believes that this has been a most significant exercise for the Project as a whole and particularly for the Dissemination Plan.

Other Workshops. With reference to the other workshops, all three have been completed. The team has been informed verbally that the Tunisian workshop was also a success. It is worthwhile to point out that it was proposed, sponsored, and largely financed by the Ministry of Health and the AID Mission. PRICOR assisted in organization and implementation of the different sessions. Participants included officials of the MOH and researchers who had attended a brief course on OR and its applications in PHC. As a result of this workshop, four proposals related to specific problems were prepared. To a large extent they are to be financed with funds from the AID Mission and to receive technical cooperation from PRICOR.

In Mexico City and Monrovia the main objective was solving problems, both methodological and administrative, in ongoing studies, thus improving the capacity of the investigators in different countries of the world. It was to be both a clarifying and a reinforcing process, aimed at strengthening expected outcomes by adequately carrying out the different phases of the project. It could be asked whether closer technical and administrative monitoring might not have been equally or even more cost-effective than the workshops. Still, this should not detract from their intrinsic significance. Our appraisal looks more to the future.

One team member attended PRICOR's first workshop for sponsored researchers, held in Mexico City May 23-25, 1984. Principal investigators and others representing 19 studies attended. They came from Asia, Latin America, and the Caribbean.

The workshop covered five principal topics, namely, problem analysis, solution development, solution validation, dissemination of results, and sub-agreement administration. In most cases, PRICOR presentations were supplemented by the researchers themselves. Small group discussions focussed on each research phase as well as on systems analysis, qualitative measurement, and microcomputer applications.

The workshop clearly benefitted those attending, including both PRICOR staff and researchers. Researchers gained through exchange of experiences and ideas, while staff learned about research results and difficulties. One-on-one staff-researcher consultations facilitated monitoring.

A detailed workshop report is not planned, although persons doing similar research (perhaps not funded by PRICOR) would clearly benefit from knowledge of specific projects and research methods.

The Monrovia workshop followed a similar pattern. In general, discussions centered on overviews of ongoing projects and theoretical discussions of methodology. None of the studies had reached the point where the details of applying the OR methodology to a real PHC problem could be presented.

Should there be a new AID-sponsored OR Project in PHC, the evaluation team recommends that workshops be included in the Dissemination Plan and that special consideration be given to the Swaziland and Tunisia models-the latter

all the more so if a "Government track" for stimulating proposals, as suggested by the team, is approved.

The PRICOR staff should be commended for having completed the workshop component of the Project both successfully and on time.

Conferences sponsored by PRICOR. In the proposal presented by the CHS two worldwide Conferences are included: one to be organized in 1985, based on the research findings of the PRICOR-funded country studies, and the second, in FY 1986, to focus on a comparative analyses of the series of projects under each of the main four infrastructural PHC problems. Thus, in order to "promote the development of a constituency for operations research in PHC, PRICOR will solicit the cosponsorship of these conferences by WHO, UNICEF and an international research organization."

Table 4 shows a budget of \$120,000 with 40 participants for each conference. The team has been informed that in a revised dissemination plan consideration is given to developing only one conference, with perhaps a moderate increase in the number of participants. We are inclined to agree with this suggestion since by FY 1985 the number of completed country studies may be relatively small. On the other hand, we will strongly recommend that the 1986 Conference be implemented as planned. We ascribe great importance to the comparative analyses, which should distill the main findings and lessons stemming from the Project as a whole. Elsewhere in this report we suggest that the Project be extended for up to a year in order to ensure, inter alia, that the foregoing analyses be carefully planned and developed. The conference will become a high-level forum in which to discuss them and to show the real significance of OR as it applies to problem-solving in PHC.

The budget for the Dissemination Plan presented in Table 5 is only for FY 1984. It includes the number of staff days but not dollar costs; only two workshops are assumed. Table 4 contains the estimated budget for dissemination activities up to the end of the project, i.e. 1986. It covers staff costs, fringe benefits, rent, supplies, telephone, overhead, and other expenses. In 1984 three workshops were implemented, the first in Tunisia and then in Liberia and Mexico. The total investment will increase from \$193,820 for 1982-3 to \$309,000 for this year, out of which \$70,000 is for the third workshop.

The estimated budget of the Dissemination Plan, as shown in Table 4, is \$1,043,000. If need be — and we hope it should not come to that — we suggest having only one conference sponsored by PRICOR and making some reductions in the number of journal articles, briefings, seminars, and conferences with only participation by the staff.

We will recommend that the Dissemination Plan be implemented in its entirety, taking into account the suggestions of the evaluation team. If necessary, an extension of one year should be considered for this and other components of the project.

Priority should be given to activities whose effect is the utilization of research findings and the application of OR methods by primary health care officials through the most direct channels of dissemination.

If further investments in operational research become a reality, i.e. a new AID Project is approved containing a Dissemination Plan, the team suggests that regional and global conferences be included. Given that operational research is a rather young discipline — even younger in the social sciences and in health care — it becomes a must that PHC managers and investigators have the opportunity of analyzing the principles and practices stemming from country studies. Conferences, when properly organized, could stimulate an effective interchange of experiences about methodological and managerial issues in OR.

Comparative Analyses

We quote from the Cooperative Agreement: "Identify opportunities for comparative studies from data collected in country studies and integrate these ideas for comparative study topics into the research agenda (e.g. opportunities for comparing data from two or more studies or for replicating results or methods of one study in another environment or with a different target population" — page 5.

The analyses are supposed to be developed during FY 1985 and 1986. Their purpose would be to "draw generalizable conclusions from the country studies." The team believes that these conclusions should be based on all of the latter already completed, which may amount to 60 at the end of the Project.

The need for classifying them is obvious, and a major criterion should be the four main priority areas, namely: community financing, community health workers, community organization, and community-based commodity distribution. All of them relate to the infrastructure of primary health care, which may facilitate the generalization of findings and methods. The two categorial areas that were added to the Project, immunizations and ORT, should be also included in the comparative analyses.

In Appendix 2, a table on Most Likely Areas for Comparison is presented. It has been prepared by the PRICOR staff. Each of the four categories already mentioned has been broken down into a series of "problem clusters" which could be addressed by applying operations research methodologies. Studies yet to be funded will increase the number of studies available for comparison.

It will be difficult to find new components in each category. With reference to commodity distribution, we would like to know whether the product, i.e. drugs, has been utilized. We note that monitoring and evaluation is included within the area of community organization — which is perhaps rather complex to measure — but not in any of the other categories. A similar exercise of disaggregation will be needed for the other comparative possibilities, all of which are of great importance for organizing and effectively developing PHC.

For the evaluation team the main issue relative to the comparative analyses is what should be expected from them by decision-makers in developing countries, by AID, and the international agencies engaged in PHC. Further, to the enrichment of the scientific literature on problem-solving in PHC, could the findings and methods of each study be reproduced in other environments within the same country or in other countries within the same region? Moreover, for the same problem, is it always necessary to repeat the threeter approach of PRICOR, i.e. problem analyses, solution development, and solution validation? In other words, based on the experience stemming from the comparative analyses, couldn't any Government willing to solve a specific PHC problem — particularly one of national or regional scope — apply directly the most cost-effective solution validated in the PRICOR studies in the same region? This would be the Evaluation Team's interpretation of the generalization of outcomes of OR as developed by PRICOR. Our view is not in consonance with the staff's argument that this approach will drastically change the thrust of the project because there are too many operational problems with too many variables that are location-specific. Quite the contrary, local variations should strengthen these generalizations for, from the analysis of the different studies related to one single issue in PHC, the most effective method could be identified and then implemented in other countries.

It is for these reasons that the evaluation team ascribes such a high priority to the comparative analyses. The long-range consequences of PRICOR will depend on them to a significant extent.

Chapter 6: Methods Papers

Contractual Provisions

PRICOR's cooperative agreement with AID called for it to produce up to 9 methods papers. "These studies are intended to guide and maintain consistency in the design, data collection and analysis of country-specific studies and to support the development of comparative studies." By implication the papers were to be completed before the studies began, although AID (according to PRICOR) later directed that studies should not be delayed for this purpose. The C.A. did not specifically call for standardized protocols although it did encourage comparability. The target audience, though unspecified, was clearly intended to be PRICOR researchers.

PRICOR initiated its first paper in mid-1982 (the project's second semester) and has now initiated a total of six. Their titles and current status are as follows:

1. "Cost-Effectiveness Analysis," by Reynolds and Gaspari: Completed and ready for distribution.
2. "A General Approach to OR in PHC," by Blumenfeld: "draft in progress," still needs considerable editorial and possibly technical work before distribution.
3. "Community Financing" by Russell and Reynolds: Completed and ready for distribution.
4. "Community Organization," by Goldsmith, Pillsbury and Nicholas: nearing completion but needs editorial work.
5. "Community Health Workers," by Schaefer, et al: draft appears preliminary with sections remaining to be completed.
6. "Commodity Distribution," by Newman and independent consultants (Miner, Fabricant and Crichton): draft in progress.

The first two are called methods papers while the last four are called issue papers. Topics are in line with PRICOR's research priorities. Note that none of the papers has yet been distributed although 40 of PRICOR's expected 50 studies have already been initiated.

Writing Process

Consultants and staff have worked together for each paper (with the exception of the OR paper being drafted by Stewart Blumenfeld). In each case except the latter, an advisory panel suggested key topics and reviewed drafts as they progressed. Drafts by consultants have generally required considerable rewriting so that all of the papers could have a comparable format and style.

Contents

Each issue paper has three chapters plus appendices. The first chapter discusses the topic's importance and the rationale for research, the second major decision variables and constraints, and the third methodology. Terse summaries of generalizable findings from earlier studies are also presented. Appendices describe current PRICOR-funded research in the specific topic.

The three issue paper drafts reviewed by the team deserve praise for the clarity with which they identify "decision variables." Regarding financing, for example, managers must decide:

- . what the role of the community will be
- . what kinds of health activities a community financing scheme should support
- . who within the community should contribute and who should benefit
- . how the community activity should be linked with other financing sources
- . how resources will be mobilized
- . what prices will be set
- . what training and education will be needed
- . how managerial and administrative skills will be developed
- . who will collect revenue, at what times, and
- . how the scheme will be supervised and controlled

The paper on community organization similarly identifies and clarifies central issues in a way that few others have done. The central section (Chapter Two) of each manual, entitled "Operational Problems in...", deserves wide circulation among planners and managers as well as researchers.

The cooperative agreement called for preparation of up to nine papers at a total cost of \$90,000. PRICOR has so far initiated or completed work on six at a cost through 3-31-84 of \$172,532. No additional funds have been budgeted although it is clear that several of the papers will require considerable additional work.

The cost per completed paper, excluding printing and distribution, is likely to be in the \$35-40,000 range. This appears more reasonable than the original \$10,000 estimate, given the complexity of the field and lack of established methodologies. Printing and distribution of 1,000 copies will cost about \$5,000 per paper.

The revised budget which PRICOR proposed to AID on 12-8-83 omitted funds for methods papers because these have been done by in-house staff and consultants rather than by the subagreement procedure originally anticipated.

Community Organization Methods Paper

The methods paper on Community Organization (CO) is in a preliminary draft stage. As with the other methods papers, it lists issues which must be

dealt with, within the primary health care system, in this case when using community organizations. These issues, which are amenable to the OR approach, include:

- 1) Initiating contacts with the community
- 2) Setting objectives
- 3) Determining CO functions and strategies
- 4) Determining CO structure
- 5) Identifying appropriate incentives
- 6) Determining the management structure
- 7) Providing supervision and support
- 8) Monitoring and evaluating CO performance

For each issue, the paper provides a discussion of the significance of the problem, lists the decision variables and constraints involved, and presents what has already been tried and learned in relation to the issue.

A major portion of the paper is focused on how to design an operations research project on CO. This section clearly outlines the steps in the OR process, oriented specifically to CO. This section would be helpful for decision-makers and researchers interested in using the OR approach to solve CO problems.

A missing component of this paper is a clear explanation as to why OR is a more appropriate technique to use when trying to solve CO problems than other more traditional approaches, such as the use of community development specialists or anthropologists.

Operations Research Methods Paper

The OR methods paper presents the most detailed description of the PRICOR methodology produced to date. A paper of this type will be essential to any broader application of the PRICOR methodology. As a teaching device for relatively inexperienced readers, however, the paper is handicapped by the lack of concrete PHC examples. Documentation of the use of OR techniques in the project should provide this kind of case material. This will greatly increase the clarity of the discussion and will probably serve to convince skeptics that this novel approach is both feasible and useful.

Chapter 7: Contracting Process

Subagreements

PRICOR and AID exercise extreme thoroughness in negotiating, preauditing, and monitoring subagreements. Detailed clearances make it highly unlikely that AID procedures will be accidentally violated, although they do not, of course, rule out willful fraud. One person told the team that she knew people who had decided not to apply to PRICOR because of the detailed paperwork required.

In general, the team perceived a greater risk of subagreement failure due to political instability or inadequate technical support than to deliberate misuse of funds. As part of these procedures, AID/PRICOR requires:

- . a detailed salary history of every person supported under a subagreement
- . a pre-agreement audit by a reputable local firm
- . bi-monthly or quarterly accounting statements
- . AID approval for shifts exceeding 15% of any budget line item (in local currency)
- . AID approval for any increase in the total local currency budget

Budgets received from subagreement recipients are never adequately detailed and self-explanatory, necessitating lengthy correspondence, use of telex, and long distance phone calls. PRICOR used to wait for recipient concurrence before sending papers to AID but now sends revisions simultaneously to both parties. The old system led to an average interval of 3.5 months between PRICOR approval of a proposal in principle and its submission to AID; PRICOR estimates that the new method will take only one month. (This time is used for technical refinement as well, of course.) AID approval then requires an average of 36 calendar days (and cannot be obtained at all during the last quarter of the fiscal year). The net result of the PRICOR and AID approval process is an average interval of 8.3 months between PRICOR's receipt of a concept paper and initiation of a country study.

PRICOR initially budgeted 20% time for an administrative officer but has recently increased this (with AID approval) to nearly 100%. Much of the increase can be attributed to paperwork requirements, although some is due to the unexpectedly large number of studies.

According to the Office of Health, this project was deliberately funded as a cooperative agreement so as to increase flexibility and responsiveness to field conditions. Timeliness is critical if decision-makers are to use research results, but long paperwork delays defeat this objective.

PRICOR has received permission to issue purchase orders without prior AID approval for country studies costing up to \$10,000. The one study so far funded under this authority required only 33 days (instead of 8.3 months) to process. PRICOR has requested additional authority:

- . to make grants up to \$40,000
- . to enter into subagreements for up to \$75,000
- . to approve certain daily consultant rates
- . to shift budget lines without the 15% limitation

-all subject only to post-completion auditing of PRICOR and not of individual projects. Two team members met with the Contracts Office during the evaluation and found representatives generally sympathetic to these requests.

A Note on Overall Cost Distribution

PRICOR currently plans to spend \$4,641,491, or 54% of its budget, through subagreements, with the remainder going for associated tasks such as research development, workshops and conferences, and dissemination. If PRICOR eventually funds fifty studies this will mean that it spends \$80,170 on associated costs for every subagreement funded.

The original agreement allocated \$5,600,000, or 65% of the total budget, for subagreements, indicating that PRICOR has significantly reduced the allotment for country studies. The same agreement called for 28 studies, however, meaning that the staff burden for administration was expected to be much less than it has turned out to be. (The administrative time needed for a small study is virtually the same as for a large one.) Associated costs would have averaged \$109,024 per subagreement instead of the \$80,170 currently anticipated.

Chapter 8: Advisory Committee, Microcomputers, Internship Program
and Literature Repository

A. Advisory Committee

The Advisory Committee developed from the initial strategic issues groups which were involved in the planning of the operations of the PRICOR project subsequent to funding. These groups have utilized experts in the field of OR and health, and have also included researchers and program administrators. The Advisory Committee has added a breadth of knowledge and expertise to the project that appears to have been helpful. They have seemed to help in the dissemination of information about the project. In many cases, members of the Advisory Committee have played a larger role in the project, by participating in the panel reviews or as consultants to individual country projects. In other cases, some members have attended only one meeting of the committee.

Now that the project is clearly established, it will be more difficult for the advisory committee to play a dynamic role. Its major functions in the following 2-1/2 years will probably be to help in the development of the dissemination plan and comparative analyses. In a follow-up project to PRICOR, an advisory committee may not be necessary, especially if sufficient in house staff with expertise in OR or PHC are provided for.

B. Internship Program

In 1983, PRICOR sought approval for an internship program as a cost-effective means to assist in the activities of PRICOR. Funds budgeted for consultants were used to reimburse two interns. They have been utilized in various phases of the project, including subagreement monitoring, concept paper review, general correspondence with applicants and project staff, editing of methods papers, and organization of workshops. Initial plans were to have interns for a six-month period, but the high quality of their work has led to an extension of the terms of employment.

We strongly support the continuance of the internship program. It provides an excellent entry level position for recent master's level graduates, while adding needed personnel to the core staff at PRICOR. The clear job descriptions and close supervision provided by PRICOR staff has helped this program be especially successful. In recruiting future interns, consideration should be given to recent graduates from developing countries, particularly those who seem likely to return to their homeland. This will help to enhance the training capabilities of the project by training personnel who may eventually work with the ministries of health in their own countries.

C. Microtechnology

As suggested by the PRICOR Advisory Committee, the use of microcomputers within individual projects is an appropriate component to be included, especially to promote management capabilities. For example, the use of microcomputers can be important additions to management information systems, inventory control, and program evaluation. The purchase of microcomputers for use in such activities should be approved by AID, rather than the current approach of contractors only being able to lease microcomputers. In many cases, the costs of computing facilities budgeted in the subagreements approximates the cost of purchasing microcomputers.

D. Literature Repository

PRICOR's Cooperative Agreement with AID calls for it to "establish and maintain a centralized repository (automated and nonautomated) for data sets and completed studies." PRICOR is also to "provide to AID copies of all files of data collected from studies, corresponding user documentation, ...and source copies of statistical programs used." Experience has revealed numerous problems in obtaining raw data from developing countries, and PRICOR has sought agreement from AID that only analyzed results need be obtained.

PRICOR plans to maintain country study materials and to make them accessible as required. The group has a limited primary health care library but one of the best collection of materials in Washington concerning current research problems and health projects. Both rejected and approved proposals provide interesting reading for those seeking innovative projects and lessons from experience.

The evaluation team encourages creation of an expanded literature repository covering all aspects of primary health care research materials. It should not be limited to PRICOR-funded studies nor even to PRICOR topics, but should cover all areas of relevant basic and applied research. PRICOR may not be the best location for this, and in any case, additional funds would be needed.

Chapter 9. Future Activities

National primary health care programs are still in their infancy in most developing countries. PRICOR was an initial attempt by AID to help improve the operation of PHC projects, in order to increase their coverage, and impact. The problems involved in how to improve PHC programs are still paramount. There is a continuing need to rationalize decision-making in PHC programs as they are currently operating, but as yet few countries have a self-perpetrating system of OR. We therefore strongly recommend that the work initiated in PRICOR be continued, in order to meet the continued need for help to improve the operation of PHC programs.

We believe that a follow-up project should continue to support research that is problem-solving in nature. However, the emphasis should be on national and regional projects, with results that are likely to be replicable between countries or within a country or region. There is a need for decision-makers to have access to generalizable results that go beyond a particular issue tested in one project area.

Because there are numerous types of problems within the national context of PHC, research on this issue should not be limited to the strict definition of operations research as seen in PRICOR, but should include other types of research that may be necessary to answer particular operating problems within the country context. A follow-up project should promote methodologies beyond the narrow limits of the OR approach seen in PRICOR. For example, some operational problems are not ready for the OR approach. Other types of research may be necessary to first assess where particular problems lie. Management information systems may need to be developed first to provide the knowledge on how programs are functioning. Process evaluations of operating programs may be necessary to see where aspects of the program are not operating as planned.

The issues previously included as priority topics in PRICOR are only a small part of the issues that PHC programs need to address. A follow-up project should therefore expand on the approvable research topics to include (a) acute respiratory tract infections, (b) growth monitoring, pregnancy surveillance, (c) prevention of diarrhea (breastfeeding, weaning food, water supply), (d) information systems, (e) appropriate mix of health services, and similar child survival technologies, and (f) factors affecting the supply and demand for PHC services.

Preference should be given to national and regional projects that have the potential for capacity building. They should have a high probability that results will be replicable without future reliance on external skills or funds.

In order for the follow-up project to have a substantial impact on problems affecting the largest proportion of people, priority should be given to helping ministries of health develop studies aimed at improving their programs. A future contractor should therefore take an active role in working with ministries to help define which issues are of greatest concern, and which can

benefit from research to address specific problems. Technical assistance should be given to ministries to help them decide which issues can be most appropriately addressed by management techniques, demonstration projects, and operations research methodologies. The contractor's role would be enhanced in working with ministries, and would also link to other forms of technical assistance (such as PRITECH) to help overcome simple management problems. Aside from direct involvement in country activities to accomplish this, the Swaziland Workshop model, where decision-makers and local researchers work together to develop OR projects, should be continued on a larger scale.

The focus described above with the major emphasis on Ministry of Health national level activities should be paramount. However, it is acknowledged that in some cases, this approach may not be feasible. The open tract method for selecting proposals should therefore continue, but should be given less emphasis in funding, with a faster more efficient review process than seen in PRICOR.

Capacity building within countries should be a major purpose of a followup project. Technical assistance should be given to build up local expertise in OR in PHC. Project personnel who previously received OR funds should be incorporated into the plans for local institution building. Workshops (such as PRICOR conducted in Swaziland and Tunisia) should be promoted, in order to train large numbers of people in various countries in the OR methodology. Regional advisors, with local counterparts, should be attempted, at least on a trial basis, perhaps limited initially to only one continent. A local counterpart who would be trained and supported by the project, would help ensure that capacity in OR research would be locally available after the termination of PRICOR 2.

Because of the altered focus for future activities, the staff of the contractor selected will need to be enlarged over that seen in PRICOR. A follow-up project should rely on a large core of expert staff, and use fewer ad hoc consultants than seen in PRICOR.

Chapter 10: Problems and Issues to be Assessed by the Evaluation Team
Answer to Scope of Work Questions

A series of 20 questions were posed to the Evaluation Team and included in the terms of reference of the Project (see page 55). As several of them refer to a similar issue, we have grouped them for an appropriate answer. We refer to sections of the Report when we believe the reader would like to have more information.

Group I. On progress made in terms of contract outputs and requirements.
(Questions 1-6, 10 and 16).

For the Evaluation Team, the performance of the PRICOR staff has been excellent, both from the technical and managerial points of view. Some figures show that in important areas, it has accomplished more than expected. The Cooperative Agreement calls for 28 country studies at a total cost of \$5,597,328, with an average of \$199,905 each. PRICOR has, so far, obligated funds for 44 studies with an average of \$86,635 and a total of \$3,465,398. (For more details see pages 30-31 of the Report.)

Continual efforts are being made to improve the quality of every component of the Project in the face of great difficulties related to the nature of the operational research itself and its varied interpretations, the complexities of Primary Health Care, the newness of scientific research applied to problem-solving in PHC, and the lack of trained professionals at the national and international levels.

While in the country studies--the main objective of the project--outputs are quantitatively and qualitatively very good--in other areas, activities are behind schedule. However, it is expected that all of them will be developed in the second phase of the Project, particularly the technical monitoring of the country studies by the PRICOR staff, the comparative analysis of the studies, the methods papers, and other components of the dissemination plan.

In analyzing the relation between level of output completed by the Contractor and funds provided, we took into account the long preparation phase of the Project. It included the drafting, translation and distribution of 31,000 announcements in three languages, briefing of scientists as potential consultants and/or advisers, presentations to professional associations, seminars, and other activities. Notwithstanding, as noted, significant progress has been made in the implementation of the Plan in a highly satisfactory manner.

Group II. On management and reporting. (Questions 7-9 and 17.)

Good management in our evaluation entails, among other conditions, precise and timely reporting; financial resources commensurate with objectives,

disbursed and audited on time; effective administrative procedures; and high quality staff. The Evaluation Team is convinced that the Project has been exceedingly well managed, the staff showing great experience and imagination for streamlining operations in order to reduce time and costs. This is clearly illustrated by two tables provided to the team (Appendix 1). The first section of Appendix 1 lists the major problems in the processes leading to the approval of each project and the strategy proposed and implemented. In the second part of Appendix 1, a comparison is made between the original budget/approval process and the current one. The time elapsed has been shortened from 20-63+ weeks to 12-17+ weeks for proposals with major problems, and to only 7-10 weeks when problems are minor.

PRICOR has requested additional authority, within the contracting process, to speed up, even further, the approval and implementation of country studies. All proposals will be subject to post-completion auditing. The team supports this. In addition, we recommend that efforts be made to reduce the paper work the Contractor sends to AID contract offices. The changes referred to will contribute to this end. For more details see Chapter 7, Contracting Process and Recommendation A 3.

Final reports of country studies prepared by principal investigators, with the technical cooperation of the staff, may be distributed as a whole or summarized in 20 pages. To date, only two are available; 10 are to be completed as of the end of 1985. The team, therefore, cannot make a concrete recommendation. Each case must be decided according to the significance of the problem studied, the generalizability of the outcomes, the quality of research, the application of the three tier O.R. methodology adapted by the staff for use in PHC, and similar considerations. From this analysis may result changes in the reporting system for country studies.

Group III. On the staff. (Questions 14-15).

We have already pointed out its high technical and managerial quality. In its proposal to AID, the Center for Human Services (CHS) offered to organize and implement the Project with a small experienced staff and a series of consultants, most of them from the academic world. The methodological approach was novel in O.R. as applied to Primary Health Care. Time has shown that the number of concept papers was greater than expected; that the review process took longer than planned; the number of funded studies -44 to date exceeded the 28 projected in the Cooperative Agreement; the methods papers and the technical monitoring of studies turned out to be more complex than had been thought; and the management of the Project, requiring the concurrence of the recipient investigator and/or the institution, AID and PRICOR, became more time-consuming than perceived. As a result of these and other factors, it has become apparent that the staff, including two very good interns, is certainly overworked despite all the very substantial streamlining of procedures to reduce time and costs. For the completion of the Project, the Evaluation Team is recommending the addition of two more experienced staff members in O.R. as applied to PHC. We believe that they will be more productive and contribute more effectively

than consultants whose inputs, in spite thorough briefings, may not always be adequate for the actual needs of each study. We keep in mind the immediate needs of the Project, particularly the technical monitoring of every country study, the comparative analysis on the basis of final reports, the completion of the dissemination plan, the funding and implementation of some of the projects in Cycles V and VI, and other components.

The Evaluation Team believes that the facilities provided by the University Research Corporation, through the CHS, have been very adequate for all this complex undertaking.

Group IV. On Project goals and PRICOR's approach. (Questions 11-13).

The governments of the world, at the 30th World Health Assembly in 1977, agreed to focus on primary health care in order to guarantee health for all citizens by the year 2000. They have designed a plan of action containing certain specific objectives, and a strategy to implement it.

This fundamental decision, with significant consequences for socio-economic development, has made even more apparent and urgent the need for research on problem-solving methods to improve the cost-effectiveness of PHC programs in less developed countries. This is precisely the purpose of PRICOR, whose innovative methodology, the team believes, is potentially a major advance in PHC research. Its application in the series of country studies sponsored by the Project will show, under field conditions, what its real contribution is to increase impact and lower costs in PHC programs, this being one of the main objectives of the final evaluation of PRICOR. However, the team wants to point out the soundness of the approach and the assumptions therein, as well as the effects that the methodology will have on strengthening the management of each program besides the research results themselves. We recognize that PRICOR entails an ambitious agenda, namely, to show a manager how to identify the most important problems and main constraints and how to resolve them, all at a minimal cost. Nobody could disagree with the general purpose of the Project. Nor could it be denied that primary health care problems, usually very complex, should be addressed in a logical and systematic manner. The methodology designed by the staff fulfills these conditions, but must be tested by them in the field, cooperating with the principal investigators. Thus, they will know about the actual delivery of services and the impact they are having, or should have, in relation to measurable objectives. As a result, the OR methodology will be refined where and when needed, more accurate and better documented descriptions of country studies will be produced for dissemination, and more specific PHC problems may be identified for future investigations.

In sum, for the remainder of the Project, the Evaluation Team does not recommend any change or deviation in the PRICOR three tier, 14-step methodology of OR in PHC. We suggest more emphasis on the validation phase, specifically in the areas of management, information systems, program evaluation and supervision. When necessary, provision should be made for additional data-gathering and technical assistance to address identified shortcomings.

In order to do all of this and, as a result, strengthening the comparative analysis looking for generalizable findings from all the country studies and completion of the dissemination plan, the Evaluation Team recommends that PRICOR be extended for up to one year under the same Contractor. For more information, the reader is referred to Chapter J. The PRICOR Operations Research Methodology.

Group V. On future activities. (Questions 18-20.)

The Evaluation Team believes that AID should be commended for having invested an important amount of funds in OR in PHC with a problem-solving approach, following a systematized methodology. At midterm of PRICOR—two-and-a-half years after inception—progress is evident. It is reflected in the organization and management of a complex undertaking covering over 40 projects in 31 countries of the developing world. It is also shown in the advance made in the application of systems analysis for the resolution of PHC problems of an infrastructural or categorical nature. All of them are frequent in LDC and interfere with an effective coverage of services for people in critical poverty. The team believes that the Project will demonstrate how to use, in a more effective way, available resources for providing basic health services to larger numbers of people in need. And this goal will be reached all the more so should the PRICOR staff, from now on, focus on technical monitoring of country studies on site, including the actual delivery services. Important lessons should be inferred from these observations and analyses, all of which should be incorporated into the comparison of projects related to the same PHC problem using different methods to solve it.

For the Evaluation Team, the issue of generalizability of study-findings has been paramount. Besides its intrinsic value, it is a legitimate concern of AID. Indeed, if the Project can demonstrate that its systems approach is practical in real programs, it will have achieved the most valuable kind of generalization. For some, this may not be enough. For they would like to know whether or not any government willing to solve a specific PHC problem—particularly one of a national or regional scope—can apply directly the most cost-effective solution validated in the PRICOR studies in the same region of the world. This is precisely the purpose of the comparative analysis, an important component of the Project.

Under the best of circumstances, the contributions of PRICOR to the improving and extending of primary health care services in developing societies will be only the beginning of a long process. Operations research, whatever its definition, contributes to rationalize decisions, a fundamental exercise for problem-solving in PHC, leading to Health for All. Besides effective methodologies, it requires institution-building for self-sufficiency in developing countries. These were the tasks ascribed to PRICOR by AID, and will continue to be in the immediate future. The Evaluation Team strongly recommends further investments in OR for PHC by AID in a new Project.

Because there are numerous types of problems within the national context of PHC, research on these issues should not be limited to the strict definition and approach to OR as seen in PRICOR. It should be extended to include other type of investigations or studies that may be necessary to answer particular operating problems of developing countries. Emphasis should be on national and regional projects looking for results that are likely to be replicable among countries or within a country or region. Decision-makers need generalizable results that go beyond a particular issue tested in one project area. And the series of studies, the methodological approaches and the outcomes should serve for training in OR and institution-building in each country involved. Thus, the process of research for problem-solving in PHC should become self-perpetuating, without avoidable reliance on external skills or funds.

Besides the issues included in PRICOR that require further investigations, newer problems, perhaps of a more topical or categorical nature as listed in this report, should be considered in a follow-up project. And in the process of identifying the most important issues in each country, the team believes that the views of the Ministers of Health should be obtained by the new contractor who would then select, with MOH concurrence, those that are more prone to OR. In this proposal, the open track developed by PRICOR should remain but be given a lesser importance in funding.

A follow-up project should include an explicit focus on contributing to the state of the art in PHC management, supervision and evaluation of service delivery under field conditions. This focus should include management information systems, performance incentives, and system analysis techniques.

The significant progress made by PRICOR thus far, and the expected outcomes of the series of studies underway, have served as a basis for the Evaluation Team to recommend to AID further investments in OR in PHC. The need goes far beyond the best expected results of PRICOR and will remain urgent in order to provide governments, in traditional and transitional societies, effective tools for improving the health of unserved and underserved populations. The Evaluation Team does not know at present of any national or international agency that shows a greater interest--and is willing to invest a significant amount of funds--in OR in PHC than AID.

For more information on future activities of AID in Operations Research in Primary Health Care, the reader is referred to chapter 9 of the Report and to the Recommendations.

Problems and Issues to be Assessed by the Evaluation Team:

1. To what extent have contract output requirements been realized?
2. Relative to the EOPS (End of Project Status) has the project made sufficient progress to date?
3. Are contract outputs achieved to date of sufficiently high quality?
4. Has the contractor performed adequately, given particulars of the Cooperative Agreement and Subagreements?
5. Is the Cooperator approximating the implementation plan satisfactorily?

6. In what ways have project expenditures differed from projected costs? Are discrepancies justified in the light of country and project realities?
7. Have reporting requirements been met adequately?
8. Are changes in reporting requirements recommended?
9. Has the contractor exercised sound technical, fiscal and management skills in implementing the project?
10. Is the level of output completed by the contractor consistent with the level of funds provided?
11. Are the purpose and assumptions of the project still valid?
12. In the light of lessons learned to dated by the Cooperators, what elements of the project should be considered for redesign?
13. Have there been any deviations from project goals?
14. Are facilities adequate?
15. Is the staffing appropriate?
16. Are the financial resources of the project justified in terms of accomplishments and outputs?
17. Are the project and administrative procedures effective and appropriate?
18. Should a follow-on project be envisioned or a similar project be considered? What changes in project design are suggested by lessons learned to date?
19. Is there a need for future AID assistance of this type?
20. What changes are suggested for any component of the project?

Table 2

PRICOR APPROVED STUDIES

ID NO.	APPLICANT NAME	COUNTRY OF STUDY	COST US\$	TOPIC	DURATION (MONTHS)	CYCLE
055	BAKER, TIMOTHY	BRAZIL	84,289	CFCHW	12 R	1
*053	HIRSCHORN, NORBERT	NEPAL	146,264	CO	24 N	1
065	HONG, YEO-SHIN	KOREA	103,633	CO	24 N	1
054	TANSKUL, ORATHIP	THAILAND	112,128	CF	19 N	1
090	CROSS-BERAS, JULIO	DOMINICAN REPUBLIC	103,895	CHW	14 N	1
140	EBOLE, ABDOLIA	URUGUAY	75,312	CO	22 L	2
*133	RUSKTON, GERARD & BHATIA, J.C.	INDIA	111,196	CHW	24 R	2
159	COIT, ELIZABETH	BENIN	82,082	CF	18 R	2
183	LASSNER, KAREN	BRAZIL	149,071	CF	21 L	2
*210	SHAKRA, JUNEJO	PAKISTAN	99,970	CHW	24 R	3
233	MARTINEZ, FRANCISCO	DOMINICAN REPUBLIC	178,572	CD	24 N	3
219	TRAORE, MAHADOU N.	MALI	28,878	CF	14 N	3
237	TAMFIK, YOUSSEF S.M.	EGYPT	90,912	CD	18 N	3
243	NATIONS, MARILYN K.	BRAZIL	119,271	CHW,D	18 N	3
208	LANTICAN, LETICIA S.M.	PHILIPPINES	38,992	CHW	24 N	3
*236	BUSSON, ROBERT	NEPAL	123,535	CHW	20 N	3
310	STANSFIELD, SALLY	HAITI	103,260	CHW	20 L	4
321	ELKINS, HENRY	INDIA	112,174	CO,CF	17 R	4
295	SALVOSA-LOYOLA, CARMENCITA	PHILIPPINES	50,000	CHW	24 N	4
305	PIELMEIER, NANCY	LIBERIA	68,370	CO	18 N	4
216	JOHNSON, SARAH	MEXICO	54,296	CHW	18 R	4
323	WARD, WILLIAM	HAITI	151,028	CO	24 N	4
302	LANE, NORMAN	SOMALIA	136,913	CD	6 N	A
108	OSTERIA, TRINIDAD	PHILIPPINES	95,107	CF	24 R	A
099	NTANGO, PARIJI D.	TANZANIA	112,168	CHW	20 N	A
149	CROSS, PETER	DOMINICA	165,203	CF	18 N	A
151	MILLER, MARTIN	BOLIVIA	137,738	CF	24 R	A
150	DESAI, PATR' LA	JAMAICA	168,371	CHW	12 N	A
009	ECHVERRIA, RAMIRO	ECUADOR	140,205	CHW	24 N	A
010	GRAY, CLIVE	SENEGAL	31,205	CF	3 N	A
184	BOULOS, CARLOS	HAITI	77,959	CHW	21 L	A
006	HARTMAN, FRED	HONDURAS	94,385	CF	24 N	A
062	LUSAMBA, N.B. & BAER, F.	ZAIRE	132,587	CF	20 N	A
271	MACCORA, LUIS DE LA	MEXICO	5,000	CD	4 L	A
263	MBANDI, STEPHEN	CAMEROON	45,300	CO	12 N	U
256	OJOFEITINI, E.O.	NIGERIA	33,405	CHW	10 R	U
265	JALLON, M.B. & MACAULAY, T.E.A.	SIERRA LEONE	21,255	CHW	20 R	U
270	MUGAMBI, M.	KENYA	52,521	CHW	18 N	U
269	MAKHUBU, M. & CONNOLLY, C.	SWAZILAND	62,867	CHW	22 N	U
267	SANON, LAYE	IVORY COAST	104,623	OTHER	27 N	U
268	CHIZINDI, P.S.	MALAWI	38,387	CO	12 N	U
190	COLE, ANDREW	LIBERIA	44,055	CF	18 L	U
192	MOORE, JANET & WALL, PAUL	LIBERIA	149,035	CHW	24 N	U
196	GRAY, HERMAN	NIGERIA	21,907	CHW	18 L	U
*266	O'DONOHUE, M., M.D.	ETHIOPIA	15,856	CHW	18 L	U

4,073,180

*Cancelled

A = USAID Mission-initiated study
U = Africa Workshop study

(N)ational = 27
(R)egional = 10
(L)ocal = 8

Table 3

SUMMARY OF DISSEMINATION PRIORITIES FOR FY 84/86*

FY 84	1. Application of OR Methods	1. Researchers	1. Occasional Papers	1. OR Issues and Methods	1. PRICOR Staff/Consultants
	2. Support for PRICOR	2. PNC Officials	2. Workshops (2)	2. OR Methods	2. Researchers
		3. Other Individuals and Institutions	3. Conference/Meeting Presentations	3. PRICOR Activities	3. Intermediary Organizations
		4. AID	4. Articles		
			5. Technical Reports		
			6. Administrative Reports		
			7. Briefings		
			8. Seminars		
FY 85	1. Utilization of Research Findings	1. PNC Officials	1. Conferences (2)	1. Study Findings	1. PRICOR Staff/Consultants
FY 86	2. Support for PRICOR	2. Other Individuals and Institutions	2. Technical Reports	2. Comparative Analyses	2. Researchers
	3. Application of OR Methods	3. AID	3. Conference/Meeting Presentations	3. PRICOR Activities	3. Intermediary Organizations
		4. Researchers	4. Articles		
			5. Administrative Reports		
			6. Briefings		
			7. Workshop (1)		
			8. Seminars		

*The items in each column are listed in order of priority.

Table 4

DISSEMINATION PLAN

	82-83	84	85	86	Total
Methods papers (6 x 1000 copies)	-	30	-	-	30
Workshops: Swaziland, Tunisia, Liberia, Mexico	146	70 70			306
Conferences (PRICOR) 2 x 40 participants	-		120	120	240
Conferences (not PRICOR)	8	15	15	15	53
Technical reports (Study Findings) 50 summaries, 10 full reports, 4 comparative	-	29	80	80	189
Administrative reports 30/year	-	18	18	18	54
Journal articles 5/year	-	18	18	18	54
Briefings and meetings 60/year	-	20	20	20	60
Seminars 6/year	-	19	19	19	57
Total (amounts in thousands)	154	309	290	290	1043

Important assumptions:

1. We would publish only 1,000 copies of each methods paper in English.
2. We would publish only 1,000 copies of the country study summaries, again, only in English.
3. We would provide limited technical assistance to summarize 50 of the country study final reports and to edit about 10 full reports. These would only be published in English.
4. We would hold two international conferences but could only pay the travel and per diem of 40 participants to each conference.
5. We would not hold any more workshops.

Table 5

BUDGET FOR FY 1984

	Occasional Papers	Workshops	Conferences	Technical Reports	Admin. Reports	Journal Articles	Briefings & Meetings	Seminars	TOTAL
Staff (days)	300	220	30	180	60	45	50	12	827
Consultants	\$34,000	\$10,000	--	\$ 4,500	--	--	--	\$1,200	\$49,700
Travel and Per Diem	\$ 6,300	\$58,800	\$4,440	--	--	--	--	\$300	\$69,840
Other Direct Costs	\$24,720	\$16,720	\$240	\$30,000	\$2,600	--	--	--	\$74,280
TOTAL	\$65,020	\$85,520	\$4,680	\$34,500	\$2,600	--	--	\$1,500	\$193,820

PROBLEMS AND SOLUTIONS

MAJOR PROBLEMS

Turnaround time for international mail

Unreceived mail

Unreceived cables/telexes

Recipient's desire to make numerous changes in subagreement

Recipient's slowness to revise technical proposal

Recipient's difficulty in preparing technical proposal and/or budget

Recipient's slowness/difficulty in revising budget

Turnaround time for Mission approval

Turnaround time for international check clearance

Turnaround time in AID Contracts

STRATEGY

Communicate by telephone or telex; send letter confirming oral conversations

Handcarry if possible; use pouch if Mission is agreeable

Ask recipient to confirm receipt; resent if not confirmed in 3 days

Explain in initial letter that most clauses are in our prime agreement and cannot be changed

Require revision within 30-60 days after effective date of subagreement

Provide consultant/staff assistance on-site

Contribute major portions ourselves

Revise budget ourselves, amend it after AID approval if necessary

Submit to AID Contracts for their approval while waiting; contact Mission by telephone/telex

Set up special account to cable payments

Develop three-tiered priority system with contract negotiator:

- o Submit all subagreements in envelopes marked "top priority" with date approval is needed

- o Submit all other approval requests in usual manner; refrain from "bugging"

PROBLEMS AND SOLUTIONS

MAJOR PROBLEMS

STRATEGY

o Send all executed copies in mailed envelope to distinguish them

Separate approval of daily rates from approval of subagreement

Separate approval of second-tier agreements from first-tier ones

Submit all unquestionable items together; submit each questionable item in package by itself

Call contract negotiator 3-5 days before proposed start date and ask for oral approval

Send copies of all approval requests so AID does not have to make its own; pre-punch everything for their files

Refuse to submit items that we judge will not be approved

Get oral opinion from contract negotiator before submitting anything unusual

Ask for authority to approve subagreements and amendments under \$75,000 ourselves

Turnaround time between AID approval and recipient signature

Have recipient sign while waiting for AID approval

Turnaround time for preaward audits

Initiate audit by cable simultaneously with submission of subagreement to AID Contracts; use cable/telex for instructions, fee approval and report

Time required to write letters/telexes to recipients/AID Contracts

Develop modular letters/telexes to fit a variety of situations and modify as needed

- 2 -

1.9

PROBLEMS AND SOLUTIONS

MAJOR PROBLEMS

Recipient's unhappiness over problems, requirements, etc.

AID reluctance to approve increases for consultants

Recipient's ignorance/misunderstanding of provisions/regulations

Recipient's not having necessary accounting/recordkeeping systems

STRATEGY

Have Budget Officer write all letters about problems, protecting relationship of technical monitor

Relate to CHS policy; ask for minimum number of days

Reiterate requirements commonly not know/misunderstood in each letter/conversation

Include maximum requirements in proposal kit

Use preaward audit as a means of helping them understand

Pay preaward auditor additional fee to advise on adequate systems

Hold group and individual sessions between recipient and Budget Officer at 1984 workshops

|
|
|

63

ORIGINAL BUDGET/APPROVAL PROCESS

<u>WHO</u>			<u>WHAT</u>	<u>ELAPSED TIME*</u>
<u>PRICOR</u>	<u>RECIPIENT</u>	<u>AID</u>		
X			Reviews technical proposal; reviews budget; sends feedback by mail	2-4 weeks
	X		Revises technical proposal; revises budget; mails to PRICOR	4-7 weeks
X			Budget Officer reviews budget for reasonableness, conformity to per diem/mileage rates, prime agreement, AID regulations, and biodata information; negotiates problems by telephone and mail; develops proposed subordinate agreement	1-4 weeks
		X	Mission concurs by telex	1-4 weeks
X			Budget Officer submits package, including daily rates for personnel and consultants, to AID Contracts for approval. Budget Officer also sends package to recipient for review	1 week
		X	Program Manager reviews package; Agreement Officer reviews package	4-12 weeks
X			Budget Officer negotiates problems with AID and recipient by telephone and telex	1 week
X			Budget Officer sends subagreement to recipient for signature	2-12 weeks
X			Budget Officer contacts audit firm by letter	1-4 weeks
X			Budget Officer approves audit fee; audit is conducted; report is mailed	2-8 weeks

*Includes time in mail.

ORIGINAL BUDGET/APPROVAL PROCESS

<u>WHO</u>	<u>WHAT</u>	<u>ELAPSED TIME*</u>
<u>PRICOR</u> <u>RECIPIENT</u> <u>AID</u>		
X	CMS Officer signs agreement; Budget Officer arranges for CMS check and sight draft; executed copies and mobilization payment are sent to recipient	1 week
X	Receives check; begins work; check clears	<u>1-12 weeks</u>
	TOTAL TIME	20-63 + weeks

*Includes time in mail.

6.

CURRENT BUDGET/APPROVAL PROCESS

<u>WHO</u>			<u>WHAT</u>	<u>ELAPSED TIME*</u>
<u>PRICOR</u>	<u>RECIPIENT</u>	<u>AID</u>		
X			Reviews technical proposal; reviews budget. If problems are major, sends feedback by mail	2-4 weeks
			OR	
X			If problems are minor, technical monitor and/or Budget Officer negotiate changes by telephone; revised workplan is required within 1 month of effective date of subagreement	1 week
	X		If major problems, recipient revises technical proposal and budget; mails to PRICOR	4-7 weeks
			OR	
X			If problems are minor, Budget Officer changes budget, develops proposed subagreement, submits package to AID Contracts for approval (excluding daily rates)	
X			Budget Officer sends copies to recipient for signature, explains changes, promises to amend agreement <u>after</u> approval to resolve differences	1 week
			Budget Officer contacts audit firm by telex	
X			Budget Officer submits justifiable daily rates to AID; writes or telexes recipient about problems	1 week

*Includes time in mail.

66

CURRENT BUDGET/APPROVAL PROCESS

<u>WHO</u>			<u>WHAT</u>	<u>ELAPSED TIME*</u>
<u>PRICOR</u>	<u>RECIPIENT</u>	<u>AID</u>		
		X	Program Manager reviews package; Agreement Officer reviews package under "priority" system	3-6 weeks
		X	Mission concurs by telex	3-6 weeks
	X		Signs subagreement; mails to PRICOR	3-6 weeks
X			Budget Officer confirms audit instructions by letter; approves fee; audit is conducted; report is made by telex	3-6 weeks
X			CHS Officer signs agreement; Budget Officer notifies recipient by telephone or telex; arranges for wire transfer of mobilization payment; sends executed copies to recipient; recipient receives money and begins work	1 week
				<hr/>
TOTAL TIME				
Major problems				12-17 + weeks
Minor problems				6-10 weeks

*Includes time in mail.

167

CURRENT BUDGET/APPROVAL PROCESS

<u>WHO</u>	<u>WHAT</u>	<u>ELAPSED TIME*</u>
<u>PRICOR</u> <u>RECIPIENT</u> <u>AID</u>		
X	Reviews technical proposal; reviews budget. If problems are major, sends feedback by mail	2-4 weeks
	OR	
X	If problems are minor, technical monitor and/or Budget Officer negotiate changes by telephone; revised workplan is required within 1 month of effective date of subagreement	1 week
	X	
	If major problem, recipient revises technical proposal and budget; mails to PRICOR	4-7 weeks
	OR	
X	If problems are minor, Budget Officer changes budget, develops proposed subagreement, submits package to AID Contracts for approval (excluding daily rates)	1 week
	Budget Officer sends copies to recipient for signature, explains changes, promises to amend agreement <u>after</u> approval to resolve differences	
	Budget Officer contacts audit firm by telex	1 week
X	Budget Officer submits justifiable daily rates to AID; writes or telexes recipient about problems	

*Includes time in mail.

6

CURRENT BUDGET/APPROVAL PROCESS

<u>WHO</u>			<u>WHAT</u>	<u>ELAPSED TIME*</u>
<u>PRICOR</u>	<u>RECIPIENT</u>	<u>AID</u>		
		X	Program Manager reviews package; Agreement Officer reviews package under "priority" system	3-6 weeks
		X	Mission concurs by telex	
	X		Signs subagreement; mails to PRICOR	3-6 weeks
X			Budget Officer confirms audit instructions by letter; approves fee; audit is conducted; reports made by telex	3-6 weeks
X			CMS Officer signs agreement; Budget Officer notifies recipient by telephone or telex; arranges for wire transfer of mobilization payment; send executed copies to recipient; recipient receives money and begins work	1 week
				<hr/>
				TOTAL TIME
				Major problems 12-17 + weeks
				Major problems 7-10 weeks

1
6
1

*Includes time in mail.

2/1

APPENDIX 2: TOPICS FOR COMPARATIVE ANALYSIS

Most Likely Areas for Comparison

Community Financing (components or "problem clusters")

The role of the community	5
The objectives of community financing	9
Linkages to other financing of PHC	3
Contributors to and beneficiaries of CF	2
Services and commodities to be financed	1
Revenue mobilization methods	12+1
Prices, Fees and charges	2
Training and education	0
Management and administration	2
Payment and revenue collection	2
Supervision and control	0

Community Health Workers

The role of the community	3+3
Selection of CHWs	3
Specification of CHW tasks	2+4
Training of CHWs	3+7
Supervision of CHWs	2+9
Incentives/means of motivation of CHWs	1+3
Provision of supplies/logistical support	1+3
Linkages of CHWs with other health resources	2

Community Organization

Initiating contacts with the community	1+3
Setting objectives	3
Determining CO functions and strategies	2+4
Determining CO structure	2+5
Identifying appropriate incentives	3
Determining the management structure for CO	1+1
Providing appropriate supervision and support	2
Monitoring and evaluating CO performance	1

Community-based Commodity Distribution

Community preparation and organization	1+5
Organization and management	1+6
Information systems/communications	0
Personnel	1+4
Procurement	1+4
Receipt/storage	0
Distribution	1+5
Transport	3
Maintenance/Repair	1

Operations Research Methods

- * Problem analysis
- * Solution development
- * Solution validation
- * Cost-effectiveness analysis
 - Linear programming
 - PERT/CPM
 - Goal programming
 - Multiple criteria utility assessment
 - Nominal group technique
 - Interaction matrices
 - Delphi technique
 - Oval diagramming
 - Assessing community needs
 - Setting priorities

Other comparative possibilities

- * Household expenditures on health
- * Health-seeking behavior
- * Common constraints/obstacles
 - Oral rehydration therapy
 - Distribution
 - Training/education
 - Community need vs. health planning

Appendix 3

List of People Contacted

Advisory Council

Dr. George Brown
Dr. Ann Brownlee
Ms. Peggy Curlin
Dr. Michael Jancloes
Dr. Al Neumann
Dr. Jorge Osuna
Dr. William Reinke
Dr. Stan Scheyer
Dr. John Young

Population Council
SHDS/Boston University
CEDPA
World Bank
UCLA
PAHO
Johns Hopkins University
URC/CHS Associate
Johns Hopkins University

Consultants

Mr. Arthur Goldsmith
Dr. Carl Kendall
Dr. Juan Aguilar
Ms. Sharon Russell

Johns Hopkins University
Office of International Health
Massachusetts Institute of
Technology
International Science and
Technology Institute

PRICOR Staff

Dr. Stewart Blumenfeld
Ms. Beverly Graham
Dr. Jeanne Newman
Dr. Dave Nicholas
Dr. Jack Reynolds
Ms. Lani Rice
Ms. Marty Pipp

Country Study Personnel

Ms. Jennifer Astophar
Dr. Timothy Baker
Ms. Peggy Mune
Ms. Elizabeth Coit

Ministry of Health - Dominica
Johns Hopkins University
Management Sciences for Health
Unitarian Universalist Service
Committee
Columbia University

Dr. Henry Elkins
Ms. Sarah Johnson
Dr. Trinidad Osteria
Dr. Ida Sison

University of the Philippines
University of the Philippines
in the Visayas

Others

Dr. Gerald Rosenthal
Dr. David Dunlop

Institute of Medicine
Boston University

AID

Ms. Anne Tinker
Dr. Donald Ferguson
Ms. Johni Pittinger
Mr. Robert Ware
Ms. Terry Lucas
Ms. Cathy Overholt
Mr. William Goldman

Office of Health
Office of Health
Contract Office
Contract Office
Bureau of Africa
Bureau of Latin America
Bureau of Asia