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**IMPROVING BASIC EDUCATION
IN GUATEMALA:**

A Midterm Evaluation of the BEST Project

Volume I: Findings by Evaluation Objectives

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U.S. Agency for International Development
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Prepared by:

Creative Associates International, Inc.
5301 Wisconsin Avenue, NW
Washington, DC 20015

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TABLE OF CONTENTS

Acknowledgements.....	iv
Team Members.....	v
I. Introduction.....	1
Basic Education Strengthening (BEST) Project: An Overview.....	1
Evaluation Purpose and Methodology.....	5
Organization of the Evaluation Report.....	7
II. Goal and Purpose.....	9
Evaluation Task.....	9
Findings.....	9
Status of Project Assumptions	13
Status of End-of-Project Status (EOPS) Indicators.....	14
Status of Policy Indicators.....	
Recommendations	22
Analysis of the BEST Reprogramming Proposal	30
Summary of Key Recommendations for Goal and Purpose.....	32
III. Program Objectives.....	34
Evaluation Task.....	34
Findings.....	34

IV. Implementation Effectiveness	39
Evaluation Task	39
Findings.....	40
Conclusions	50
Recommendations and Suggestions for Project Implementation.....	54
Summary of Key Recommendations	60
V. Project Impact.....	61
Evaluation Task	61
Findings.....	61
Conclusions	63
VI. Project Innovations	66
Evaluation Task	66
Background.....	66
Methodology	67
Findings.....	68
Conclusions	87
Recommendations	90
VII. Organizing Principles of the Technical Assistance Contract.....	93
Evaluation Task	93
Findings.....	94
Conclusions	99
Recommendations	100

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TEAM MEMBERS

Dr. Kjell Enge
Professor, Dickinson College

Anthropologist

Robert Etheridge
Consultant, Reston, VA

Logistics Specialist

Walther Gandara
Consultant, Montevideo, Uruguay

Technology Transfer Specialist

John Gillies
Consultant, Staunton VA

*Team Leader
Planning/Project Design Specialist*

Michael Gomez
Consultant, Folsom, LA

*Educational Finance
Specialist*

Nathan Kravetz
Consultant, Sherman Oaks, CA

Evaluation Specialist

John MaGowan
Consultant, Silver Spring, MD

*Management Information
Specialist and Statistics*

H Ned Seelye
Consultant, Washington, DC

Primary Education Specialist

Dr. Bruce Perlman
Professor, University of New Mexico

*Educational Administration
Specialist*

Margaret Valdivia
Consultant, Alexandria, VA

Gender Specialist

I. INTRODUCTION

Basic Education Strengthening (BEST) Project: An Overview

Background

Guatemala, the third largest country in Central America, has a population of approximately 8.6 million; 63 percent of the inhabitants live in rural areas. Fifty percent of the population consists of native indigenous people, 73% of whom live in rural areas and speak primarily Mayan languages. Guatemala has experienced significant political and economic gains in recent years. However, the most disadvantaged members of the population--the altiplano indigenous groups, the urban poor, and women--have not been able to participate or benefit from these changes.

Studies conducted in recent years by several organizations, including the World Bank, provide evidence that economic and social development of developing nations is heavily influenced by improvements in basic education. Unfortunately, the public primary education system in Guatemala is unable to meet the basic needs required to establish that essential link with economic and social development due to the fact that the system is extremely inefficient. The primary school completion rate in 1988 was 51 percent and the average number of years required to produce a sixth grade graduate was 11.6, figures that are considerably lower in other Central American countries.

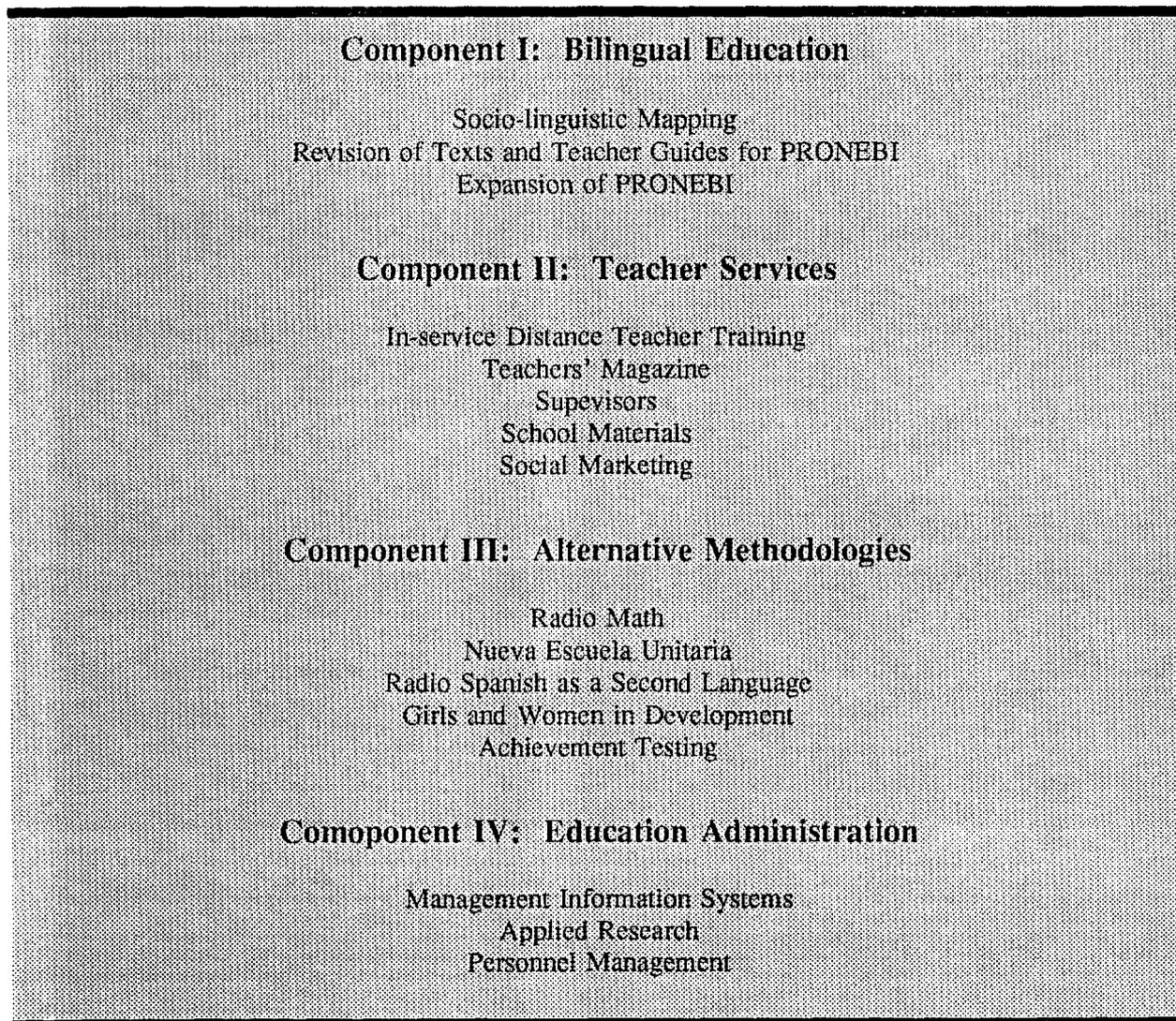
Project Design

As a response to the needs of the disadvantaged populations and Guatemalan children as a whole, the Agency for International Development (A.I.D.) and the Government of Guatemala signed the Basic Education Strengthening (BEST) Project (520-0374) Grant Agreement in an effort to improve the quality, efficiency, coverage, and administration of primary education services in Guatemala. A six-year effort, the Project provides \$30 million to the Ministry of Education (MOE) and is supported by an additional \$31 million in counterpart funds. The Project includes 16 separate activities in four components that are designed to address the institutional, financial, and technical constraints to productive, efficient education in Guatemala. A complete list of the activities is provided in Figure I.1.

Component I, Bilingual Education, is designed to incorporate the original bilingual education program into the BEST Project, and the activities included in the component support the bilingual program by providing information through the mapping of socio-linguistic variations and by improving both the methodology and the materials used by the program. As part of the BEST Project, the bilingual program will receive assistance to

FIGURE I.1

BEST Project Activities



implement a horizontal and lateral expansion of the program and absorption into the MOE as the Bilingual Education Directorate.

Component II, Teacher Services, includes five activities designed to strengthen the services offered to teachers by the MOE. The activities focus on methods and instruments to improve the quality of teaching in the Guatemalan public school system, such as training and

supervision, providing teachers' magazines and school supplies, and increasing community participation through social marketing.

Component III, Alternative Methodologies, incorporates pilot programs, research, and development of alternative, cost-efficient, educational services. In order to improve the educational coverage and access to education by disadvantaged groups, activities under Component III include the application and evaluation of interactive radio programs (Spanish-as-a-Second Language and Mathematics), pilot testing of a Guatemalan adaptation of the Colombian one-room school methodology, and improving the educational opportunities of girls through the Girls and Women in Development Activity.

Component IV, Education Administration, includes activities designed to improve aspects of educational administration in the MOE. The Project focuses on improving management skills and operations in the MOE in order to improve the planning and decision-making capabilities necessary to improve the system as a whole. The Project activities support a decentralized system that is able to share and utilize information gathered at the national and regional levels. To achieve the administration objectives determined by the MOE's needs, the activities include developing a management information system (including hardware), creating of a plan to conduct necessary applied education research, developing of a program to conduct standardized achievement tests, and upgrading the software capabilities for the administration of MOE personnel functions.

Project Accomplishments to Date

Although not all of the activities have been implemented according to the original framework, many of the activities have enjoyed a significant level of progress and have produced successful results. Two of the three activities in Component I have progressed.

- Socio-linguistic mapping is close to producing the final report from the linguistic mapping of the eight primary language areas, to enable the MOE to efficiently allocate teachers and materials to bilingual schools.
- A plan for the expansion of the bilingual education model has been created, and although there have been some delays in the printing and revision of textbooks and guides for the original and additional schools, the USAID and PRONEBI staff have corrected the problems related to internal and contracting delays to continue the printing process. Furniture for PRONEBI schools has been delivered.

Two activities in Component II, Distance Training and Social Marketing, have been suspended pending adjustments to their original work plans, but the component also contains three activities that have the potential to greatly improve teachers' teaching capabilities by providing them with much needed materials, information, and supervisory support.

- The basic school materials activity distributed 18,000 kits of basic student materials in 1992, and the private institution implementing the activity has presented a five-year plan to increase the coverage annually. The activity was modified slightly to include *valijas didácticas* to provide teachers with basic teaching materials such as chalk, markers, and instructional drawings.
- A prototype issue and the first regular issue of the teachers' magazine have been produced. The result is a glossy, attractive magazine with a range of articles. Although the activity is slightly behind schedule, the planning of the second issue is in keeping with objectives of providing teachers with updated information on teaching techniques, learning difficulties and solutions, and articles on Ministry activities.
- The supervisor strengthening activity is just beginning after a newly reconstituted supervisory system was established. The new system is attempting to redefine the traditional role of the supervisor and has considerable potential in the future.

All four activities in Component III are currently being implemented in pilot form. Formative evaluation has not been conducted and analyzed for all the activities, but the principles and objectives have been well accepted by Ministry officials, and they are enthusiastically supported by teachers and Ministry staff.

- The Girls in Development activity has played the primary role in the creation of the National Commission on Girls' Education, and its monitoring activities have played an integral part in raising consciousness of all other Project activities towards girls' needs. The approach used in developing public awareness and support for this issue is an example of a model approach to policy dialogue.
- Two of the activities, interactive radio mathematics and Spanish-as-a-second language programs, have been piloted in 168 schools in two areas. The professionally produced programs have generated enthusiasm and acceptance from teachers, students, and parents.
- The one-room school methodology, based on the *Escuela Nueva* model from Colombia, is still in its first year of implementation. Pilot schools have been selected, and teacher training has begun. The activity, although new, has created considerable enthusiasm among teachers and MOE officials.

Component IV includes research, MIS systems, applied achievement tests, and automated personnel management. One activity, Applied Educational Research, has been suspended. The other activities are being implemented impressively, despite some delays in schedules.

- The MIS activity that will develop an educational MIS system has improved aspects of data collection and analysis and is producing usable educational statistics for the MOE for the first time in years.
- The development of achievement tests is being conducted with a high level of professionalism. The first national piloting of these tests was conducted in August 1992, covering 37,000 students.
- Hardware acquisition and initial systems planning are underway for the personnel management systems.

Evaluation Purpose and Methodology

The purpose of the midterm evaluation of the BEST Project was to assess the progress made in meeting project implementation goals and the intermediary effects of the project after two years of implementation. Based on the findings and analysis of the evaluation, the evaluation team made recommendations for changes in the design and implementation, procedures to increase the probability that project investments will meet the goal and purpose of the BEST Project.

The scope of work (SOW) for the evaluation established six crosscutting objectives that address the following key areas:

- Goal and Purpose;
- Program Objectives;
- Implementation Effectiveness;
- Project Impact;
- Project Innovations; and
- Organizing Principles of the Technical Assistance Contract.

A copy of the SOW is provided in Appendix A.

Most of the evaluation objectives, and the specific questions posed for each objective, applied to all of the 16 project activities. All 16 activities were to be reviewed from the perspective of implementation timelines, technical assistance effectiveness, and contribution to the goal and purpose. Detailed technical review and intermediary impact assessments, however, were to be focused primarily on the activities considered to be project innovations--

interactive radio, one-room school methodology, bilingual education, and girls in development.

The evaluation team was composed of 10 specialists in different fields. Each member of the team had responsibilities described in individual SOWs. However, as the sum of the individual SOWs not adequate to answer all of the questions posed by the evaluation, each team member also assumed broader responsibilities for answering specific questions or reviewing individual project activities. In response to the objectives of the evaluation SOW, most of the team members were selected on the basis of their broad experience and capability to answer the crosscutting questions rather than on the basis of specific experience related to individual BEST Project activities. Nonetheless, in the aggregate the team included a wealth of experience relevant to individual activities, including educational radio, one-room schools, bilingual education, nonprofit organization development and management, testing, textbook development, management and control systems, magazines, and evaluation methodology.

The evaluation team used multiple methodologies to review project accomplishments from different perspectives and to cross-validate conclusions. These methodologies included review of project documents and correspondence; review of products; structured interviews with project participants in A.I.D., the Ministry of Education, the Academy for Educational Development (AED), the Ministry of Finance, SEGEPLAN, and the private sector; focus group discussions with recipients of technical assistance; classroom observations; and interviews/focus groups with teachers, parents, and students in project areas.

In addition to the CAII evaluation team, five local field researchers were hired to conduct classroom observations, teacher interviews, and parent interviews. A total of 34 schools were visited, of which 20 were rural, 10 were suburban, and 4 were urban. Of the total, 17 schools were part of PRONEBI, 11 were using *Español, Mi Segunda Lengua*, and 4 were using *La Familia de los Números*. A total of 45 teachers and school administrators were given in-depth interviews, and 104 students, mostly pre-primary, were given relatively short interviews. Eight groups of parents participated in focus group discussions.

Two aspects of the SOW are worth noting. First, the requirements for activity-specific reporting were not wholly consistent with either the skill makeup of the team nor with the individual or aggregate SOWs. The balance between the reporting on individual activities and addressing the broader evaluation issues was a delicate one. The approach taken was to derive the response to many of the broader questions from the aggregate findings in individual activities.

The second notable aspect of the SOW is that each member of the team was assigned a fairly specific focus for review. For this reason, it was neither necessary nor appropriate for every member of the team to interview every project participant, nor was it necessary for every member to visit schools. Rather, the interview and site visit schedules were coordinated among the team to assure that all questions were asked and answered. This

enabled 10 people to work efficiently as a team and to be able to respond to specific issues of administration, logistics, finance, MIS, evaluation, and project strategy as well as to technical and gender issues and classroom response to innovations.

Organization of the Evaluation Report

The evaluation report is organized in accordance with the categories established in the Scope of Work, which includes the six broad evaluation objectives: Goal and Purpose; Program Objectives; Implementation Effectiveness; Project Impact; Project Innovations; and Organizing Principles of the Technical Assistance Contract. In addition, each broad objective contains a series of specific evaluation questions to be answered. A total of 46 such questions are included in the SOW.

This volume of the evaluation report, Findings by Evaluation Objectives, answers the broad issues addressed by the evaluation objectives. This section does not answer the specific questions in a question-and-answer format. Although the answers to the broad questions depend on insights from most of the specific questions, each specific question is not necessarily answered directly. The use of a question-and-answer format in the main document was not considered to be useful because it would have been difficult to integrate the answers in such a way as to clearly highlight the main points and facilitate the rhetorical flow of the presentation. Therefore, the answers to the specific questions for each category of objectives are included as annexes to the main document for the following categories: goal and purpose; program strategy; implementation; and impact. The answers to the other two sections, on project innovations and organizing principles, were more easily incorporated into the main body and so this was done. The answers to the broad evaluation objectives constitute the main body of the evaluation report.

The second volume of the report includes the findings, by project activity, for each of the BEST Project's 16 activities. Although this presentation was included in the reporting requirements in the SOW, neither the evaluation questions nor the specific SOWs for the consultants were focused on in-depth assessment at the activity level. The makeup of the evaluation team also was not designed around the intention of evaluating each of 16 activities. Rather, the evaluation was intended to provide answers to the "big" questions and also to focus most on the project "innovations," which include interactive radio, one-room school methodology, girls in development, and bilingual education. Therefore, this second section of the report is, in a sense, secondary, and the level and depth of analysis of the activities vary considerably. This is consistent with the purpose of the evaluation.

The final volume of the report consists of the annexes. This section includes the answers to specific evaluation questions that were not addressed separately in the main body as well as the individual reports of several consultants. The nature of some individual SOWs was fairly specialized and could not be adequately integrated into the main body of the report.

Other consultant reports contained more detail than could be easily incorporated into the main report. The main individual reports in the annexes are for logistics and maintenance, educational finance, project implementation, and girls in development.

II. GOAL AND PURPOSE

Evaluation Task

Assess the extent to which the BEST Project is meeting the goal and purpose of the Project, and based on an analysis of the *Policy Indicators and Assumptions* underlying the project design, recommend changes or modifications in project outputs, end of purpose indicators, and implementation strategies and foci.

The goal and purpose of the Project are as follows:

Goal: To improve the productivity, quality of life, and democratic participation of the Guatemalan people.

Purpose: To improve the efficiency, coverage, and administration of basic education services.

Findings

This chapter reviews the project goal and purpose and assesses progress to date in achieving the objectives at both levels. The primary issues are the extent to which project objectives are in fact achievable and what changes in project design might be warranted to improve the level of impact.

Goal and Purpose Objectives

The *BEST Project goal* generic statement that represents the overall objectives of USAID/G at the time the project was authorized. Before the initiation of the Latin American and Caribbean (LAC) Bureau strategic objective planning process, goal-level objectives represented a philosophical statement of the purpose of A.I.D. activities rather than a specific management and planning tool with measurable progress indicators. The new program planning process in A.I.D. requires that the goal-level objective provide a specific linkage of the project objectives to strategic program objectives. While the BEST Project design might well benefit by reorienting the objectives to better conform to the program planning structure, the goal must first be assessed on its own terms.

There is a clear conceptual linkage of the project purpose to the project goal. The high degree of correlation between educational levels and health, population, productivity, income, and other quality of life indicators are well established in the literature. However, these

indicators are of limited use for measuring program level impact because the time lag between primary education and changes in productivity or income on a societal level is much greater than the life of the BEST Project. Perhaps in recognition of this, the logical framework made no attempt to quantify changes at this level. Moreover, the number of intervening variables at the societal level make any claim to a direct causal relationship untenable. Therefore, the present goal statement reflects a historical correlation among these factors rather than an objective toward which change can be measured.

Given the limited utility of the existing goal statement, the inconsistency with current LAC Bureau standards, and failure to provide a linkage to the USAID/G strategic objective, the goal statement needs to be changed to meet the program accountability needs of the project. Any revision of the goal statement, however, would need to be part of a larger reassessment of the formulation of project purpose and strategic objective.

The *BEST Project purpose* is the focal point for project strategy, design, and activities. The project strategy is based on two key premises. First, the low level of GOG investment in education is the primary long-run constraint to improving educational quality and coverage in Guatemala. This constraint can only be addressed by substantive increases in GOG support to education. A project covenant established a goal of increasing educational investment to approach 3 percent of GDP by the end of the project. Although this was established as a policy goal and is measured by an End-of-Project-Status (EOPS) level indicator, the BEST Project is not structured to require such increases as a condition of the grant. The only project activity that might be used as a tool to facilitate policy dialogue on these issues is the applied research activity and, in a general way, the improvements in the management information system. At this mid-point in project implementation, it is unlikely that the conditions of the grant agreement could be substantively changed to affect the nature of the covenants and conditions. However, to the extent that USAID/G determines that policy change is in fact an important objective, the project strategy and activities can be adapted to better focus on such change. Options for this are discussed below.

The strategy basis for the project design, or the linkage between the activities and the purpose, is the recognition that the existing system is highly inefficient in using the scarce resources that are available. The very high levels of student repetition and dropout result in the waste of up to 20 percent of the MOE budget. Repetition rates in the first grade are so high that around 45 percent of the students are repeaters. This not only is vastly inefficient but also reduces coverage by limiting the number of new entrants that the system can absorb each year. The problem continues throughout the primary years, although at lower levels for each grade, and contributes to frustration, poorer quality instruction due to overcrowding, and dropout. Only about half of primary school enrollees will eventually complete the sixth grade, and more than 11 student-years are needed to produce each graduate. Until such problems of system inefficiency are addressed, additional resources provided to the sector will only result in even greater wastage.

The project strategy identifies the principal cause of system inefficiency as the low quality of classroom instruction. Teachers are poorly supervised, poorly supported, poorly motivated, and poorly trained. The project design responds to these problems by including a range of activities to expand and strengthen bilingual education, develop innovative teaching materials and methodologies, provide direct support services to teachers through in-service distance training and materials, and improve overall administrative efficiency and personnel management. The common theme of the activities is a focus on supporting and strengthening teachers to improve classroom instruction.

The problem analysis and general strategy established in the Project Paper remain valid. With the existing knowledge base, it is reasonable to assume that the problem analysis is valid. However, a number of basic questions still do not appear to be fully analyzed. In the Project Paper, one of the purposes of the applied research activity was to improve knowledge about some of these issues. One question that would benefit from some targeted research is the whole issue of dropout. What are the dominant factors that influence parents and children to stop schooling? How do these factors change over time (differentiate by grade and age of child), by school accomplishments, by gender? What are the major school related factors that would influence parents to keep their children in school, and what factors are unrelated to school quality? Such information could be useful not only in developing strategies to keep children in school and in identifying critical periods, but also to help base the school programs on reality. What level and type of flexibility might be needed to enable more children to complete more schooling? What school activities or accomplishments are most likely to influence parents? If some or most of the children will drop out regardless of school quality, what time frame, or window of opportunity, does the school have, and what can be achieved in that period? Another question might be raised about the causes of repetition. In some countries, studies have indicated that neither teacher quality nor student achievement is the critical constraint, but rather availability of space in the next grade. Targeted study into how and why students are promoted or retained would also be useful information. Such information is essential for truly understanding the issues facing education. Programs that fully understand and incorporate these issues could affect such measures of efficiency as repetition or number of students who complete primary school.

The BEST Project strategy is composed of two key factors that are reflected in a design and implementation philosophy. The first key factor is identifying a mix of activities that can balance broad systemic improvements with specific classroom-level support to achieve *measurable impact on system efficiency*. The second factor is an emphasis on *institutionalization of project activities* in existing organizational units. This is stressed in both the strategy and in the operating principles for the technical assistance contract. These principles are clearly focused on the concept of empowerment, such as the ideas expressed in the Project Paper to "assist the MOE to set its own priorities, develop program and project proposals for the Ministry of Finance, and efficiently execute investment programs."

The midterm evaluation has reviewed the project strategy, design, and implementation using these same criteria of impact on system efficiency and institutionalization. This framework is particularly relevant given the current long-term program strategy for USAID/G that envisions ending A.I.D. support to education at the end of the BEST Project. The expectation of a 10 to 15-year A.I.D. commitment to education was an important assumption in the original project design. BEST was to be followed with a series of phased and coordinated projects to expand the impact of project activities and to introduce innovative methodologies in a prudent and deliberate manner. The modified design in the Project Paper authorized a six-year project with later follow-on projects. In particular, the Project Paper planned for a 1995 follow-on project that might, depending on the progress and outcomes in the BEST Project, expand the one-room school model, develop a national educational radio service (including interactive radio for primary schools, equivalency for adults, in-service training, and nonformal education), further expand bilingual education, and continue organizational and administrative development.

These expectations have changed significantly in the last two years. USAID/G total program resource levels are expected to fall to \$40-45 million per year, from the highs in 1987 of almost \$175 million, and these resources will be increasingly focused on a few objectives. Over the past year, the Mission has consolidated from nine to five strategic objectives, and this may be reduced to two or three by 1997. The Mission has determined that education will not be among the priority objectives in the future, and therefore the BEST Project will be the last A.I.D. education project in Guatemala for the foreseeable future. This change in the strategy and programmatic context of the BEST Project has unquestionably influenced both the implementation of the project and the nature of the midterm review of goal and purpose.

With the expectation that A.I.D. support will end with the BEST Project, it is critical to clearly identify changes that are achievable and that can be well institutionalized within the next 3-7 years. This perspective has strongly influenced the midterm evaluation. It should be noted, however, that the BEST evaluation effort takes as a given the current intent of strategic objectives and project objectives. While the team has suggestions on the formulation of goals and purpose statements, the overall objective and focus of improving efficiency and administration remains as a given for the purposes of the evaluation. In the broader context of USAID/G program and project reassessments, of course, such restrictions would not apply. The following factors were considered in assessing impact and institutionalization factors that relate to project activities and implementation strategies:

Impact

- What impact is desired? Is the objective still system efficiency, or is it equity, quality, or coverage?

- Is the scale of the activity in proportion to the problem? If the problem is defined in national terms, the response must be on an adequate scale to address the problem.
- What are the tradeoffs between broad institutional, system, or regional change and the more measurable but narrowly focused impact on individuals.
- Do the mixture and intensity of the activities represents the most effective strategy to achieve impact in 3-7 years?

Institutionalization

- What are effective measures of real institutionalization and sustainability for each activity?
- What specific constraints to institutionalization exist -- institutional policies, human resource and material resource constraints, or others?
- What are effective financial and implementation strategies to achieve real institutionalization? How can these strategies increase participation, commitment, and organizational strengthening?

Status of Project Assumptions

For the most part, the project assumptions have proven to be valid. A notable exception is that the World Bank education loan has been delayed for three years. The BEST Project was essentially designed as a set of loosely related interventions wrapped around the World Bank loan, which was to include new schoolhouse construction, textbook production and distribution, and in-service teacher training aimed at developing an Educación Mínima program. The absence of these activities has unquestionably affected the pace of improvement in basic education services in Guatemala and the potential improvements in quality and efficiency indicators. Moreover, it has affected implementation and planning in the BEST Project. In terms of the specific project objectives, the impact of this delay is mixed. The stated intention of the donor collaboration was that BEST would focus on improving efficiency while the World Bank would expand coverage (see Project Paper, p. 25). This statement oversimplifies the relationship, however, because both textbooks and teacher training are critical to efficiency and quality. The impact of school construction on the specific BEST EOPS indicators is unclear because BEST does not include coverage measurements and the degree to which inefficiency is related to overcrowding is uncertain. However, the delay in the textbook activity clearly affects quality at the classroom level. In fact, the importance of the timely arrival of textbooks was an A.I.D./W concern during the design, reflected in a suggestion that if the Bank project did not materialize a book

component might be added. This has had some impact on the project, but given the stage of implementation of BEST, the potential for mutually reinforcing activities is limited to date. This may change as the BEST activities move farther into implementation.

Fortunately, the obstacles to the second World Bank loan appear to be resolved, and implementation is expected to begin as soon as the final arrangements are made to clear the arrears. The loan has been well coordinated with the BEST Project and will complement A.I.D. activities with both construction and textbook production. The World Bank education loan does not include any policy conditionality to support A.I.D.'s goal of increasing GOG budget support to education. However, a Structural Adjustment Loan (SAL) that is also being planned does require a 15 percent increase in education expenditures, which is supportive but not equivalent to the A.I.D. policy objectives. The combination of these loans will reinforce and support USAID/G objectives in the education sector.

Status of End-of-Project Status (EOPS) Indicators

The BEST Project is a highly ambitious and complex undertaking in both concept and implementation, a fact that is reflected in the scale of expected change in EOPS indicators. The original EOPS indicators are:

- 25 percent improvement in academic achievement;
- 32 percent reduction in repetition, from 318 to 215 per 1,000;
- 22 percent increase in 6th grade completion;
- 20 percent decrease in years to produce a 6th grade graduate;
- 21 percent reduced repetition in bilingual schools;
- 30 percent increase in promotion for girls in bilingual schools; and
- 17 percent reduction in national dropout rate, from 82 to 68 per 1,000.

The EOPS indicators, which represent the specific measures of project success, were reviewed to answer the following questions:

- How were they calculated? How are they related to project activities?
- What do they mean?
- How reliable are the data?

- Can the EOPS be achieved?

Answers to these questions revealed several important findings.

The BEST Project EOPS indicators are subjective estimates that are not directly based on the scope or type of project interventions. The EOPS indicators were developed at the time of project design by estimating the current data and projecting secular trends through the use of the Primary Education Tracking System (PETS), a sophisticated mathematical educational system modeling tool that uses an advanced variation of cohort analysis. The impact of the project was then estimated by assuming a project impact on repetition in the early grades, which then led to changes from the secular trends. The EOPS numbers derived from that process did not have any clear relationship, other than a broad conceptual relationship, to the actual mix of project activities. There is no direct linkage between the indicators and the expected quantitative achievements of the project, such as 20,000 more teachers trained, textbooks printed, 900 new PRONEBI schools, or 100,000 thousand students receiving school materials. Nor is there a calculation of the expected impact of broad administrative improvements, such as the management information system and personnel system. Rather, the indicators are generated by the computer model based on a subjective estimate of the impact of a \$30 million project on repetition rates.

It is clear that national level changes in the educational system such as those envisioned in the EOPS would require a very substantial degree of direct impact at the classroom and teacher level. Moreover, such changes would depend on improvements in the quality of classroom instruction (teachers, materials, texts, etc.) in the majority of the schools in Guatemala. The mathematics of calculating change in national statistics are fairly straightforward--even very large improvements in schools with a limited percentage of the total student population will not leverage significant changes in the national averages.

The BEST Project design never calculated or envisioned direct classroom level impact in the number of schools that would be necessary to achieve such large changes in overall system efficiency. To a substantial degree, these types of impact indicators were highly dependent on the World Bank project to the extent that the loan improved existing schools as well as constructed new ones. During implementation, the limited likelihood of achieving such impact was further decreased as the activity that directly reached large numbers of teachers, in-service distance training for teachers, was suspended due to implementation obstacles. In the first half of the project, the only project activity that actually reached classes and affected students and teachers was the pilot radio program. While these numbers will change in the second half of the project, the number of activities that will actually reach a significant proportion of classrooms is still limited. Most of the other activities, which are clearly essential to lasting improvements in the overall system, such as supervision and administration, are several steps removed from the classroom. The time lag between these activities and changes in national educational statistics is much greater than for direct classroom interventions.

THE EOPS are interrelated and somewhat overlapping. The EOPS indicators are dynamic and interrelated variables rather than discrete measurements. For example, both the dropout and retention rates will affect average student achievement scores. Reduced dropout rates leave marginal students in classes, which is likely to lower average scores. In the same way, high retention rates may actually increase average achievement scores because individuals who have taken the same course several times are more likely to achieve high scores. The indicators also overlap because improvements in the repetition and dropout rates will be reflected in the broader measures of the graduate rate or years to produce a 6th grade graduate. Therefore, the use of a more selective set of indicators might be appropriate. Several possibilities exist, but the exact choice depends somewhat on having very clear objectives.

Data reliability for some measures is suspect. As was explained above, the indicators and the baseline established in the Project Paper were derived using a modeling tool. The raw data collected by the Ministry of Education was not considered to be reliable for several key measures, particularly for repetition rates and in-grade dropout. The purpose of the model used, the Schiefelbein model, is to make mathematical comparisons of age- and grade-specific enrollments by year to derive repetition and dropout rates. The results are numbers that approximate what the true numbers might be. The Schiefelbein model calculates much higher repetition rates than does the alternative (UNESCO) model and both methods estimate much higher repetition than is calculated from the number actually reported. Because the baseline was established with the model, the only valid measure of change must also use the model, which is not independently verifiable from other data sources.

The comparability of data over time presents problems because the quality of the data improves as data gathering methods improve. Among other things, more students who are actually in the school system are included in the statistics. Therefore, the raw numbers that are used in the model may indicate change in coverage or graduation when in fact the system is just counting better. While this is clearly a benefit for the educational system, it complicates measurement.

It should be noted that neither the raw data nor the revised model were currently being used to track the EOPS indicators by the Mission, project advisors, or the Ministry. No one had been specifically tasked (i.e., a contractual obligation) with maintaining and tracking the indicators. At the time of the evaluation, the data for the years 1989 and 1990 had not yet been tabulated by the Computer Center. With a large number of other demands, tabulation of past year statistics was a lower priority for the MOE after the publication of the 1991 Statistical Yearbook. At the request of the team, the subcontractor for that activity finalized the input and tabulation of the data that were necessary to update the computer model. Without this valuable assistance, the team could not have reviewed or understood these numbers.

The EOPS are unlikely to be achieved by the end of the project. At the mid-point in project implementation, there is considerable doubt that these levels of achievement can be reached by the end of the project in 1995, and possibly not even by 1999 in an extended project. The original model calculations were revised after adding in real data for 1989, 1990, and 1991 to estimate the current status of the EOPS indicators using the original model and assumptions. The results, included in Annex D, show several points clearly. First, the annual variation in repetition measures are substantial, indicating that the trendline is not a good predictor for exact numbers for any given year. Second, the timeline analysis and trends that can be derived from the data show periods of very slow change. For example, the measures of years to produce a sixth grade graduate show that the change in the 21-year period from 1979 to 2000 may be from 3.2 percent (method 1) to 6.8 percent (method 2). Change from 1989 (the baseline year) is slightly better only because the situation was worse in that year. The long-term trends do not offer a lot of hope for changes of the magnitude envisioned in the Project Paper. The projections for repetition, years to produce a sixth grade graduate, and dropout indicate that these measures may change by about 10 percent from 1989 to the year 2000. While the initiation of the World Bank project and the start of classroom level activity in BEST will have some impact, national level indicators of an educational system move slowly.

A comparison of the status in 1992, from the new calculations by the model, with the estimates in the Project Paper is interesting. It shows that most of the indicators are approximately where the model predicted they would be--without the BEST Project. This is largely a reflection of the lack of direct interventions of the World Bank project and the delay in direct intervention of the BEST Project to date.

While some improvement on these scores is possible if the BEST Project is really successful and if the World Bank project is implemented without significant delays, total changes of 20-30 percent at the national level in this period of time seem unlikely. The impact of BEST in the short-term will not be, for the most part, at the classroom level affecting a significant proportion of the students. The project activities have different kinds of classroom level impact: (1) direct and intensive (PRONEBI, the Nueva Escuela Unitaria (NEU), girls' interventions, and materials to a lesser degree); (2) direct and extensive (radio); (3) indirect and extensive (supervision); and (4) general supportive and very indirect (MIS, personnel). The only activities that have the potential for a direct and intensive impact on classroom activities, and therefore that will have a relatively direct impact on repetition, promotion, dropout, and achievement (if they are done right), are NEU, girls' interventions, and PRONEBI. The scale of BEST interventions at the classroom level is relatively small given the size of the problem. Only the PRONEBI component is potentially large enough to directly affect a significant proportion (about 20 percent) of the students in the system. Radio has the potential to directly reach large numbers of students with an extensive, rather than intensive, type of intervention that addresses some of the learning needs. If adequately supported with significant amounts of teacher training, this has potential, although both overall cost and the marginal impact on the indicators raises questions about the potential of

this intervention. The other activities, current and proposed, that have a direct impact on teachers and students will not reach more than a small fraction of the total students in school in any given year. NEU, for example, will reach 4,529 students in the first 100 schools in the pilot program. In the proposed expansion program, assuming the same average number of students in the 519 other schools, the total number of students reached each year in this very intensive program will be 27,855 by the end of the project. While the level of impact of this intensive intervention can reasonably be expected to be very high for the schools involved, the intervention remains small in comparison to the size of the problem. The same holds true, even more so, for the local level interventions (scholarships and materials) for girls education. (The gender focus at the institutional level in the Ministry, on the other hand, has the potential to have a broad, if less intensive, impact).

A summary of the classroom level impacts of the project activities is provided in Table II.1.

Table II.1
Classroom-level Impacts of BEST Project Activities

Activity	Number of Schools		Number of Students		Percentage of Total Students	
	Actual	Repro	Actual	Repro	Actual	Repro
PRONEBI	900		250,000		20	
NEU	100	600	4,529	27,855	0.4	2.2
GID	---	60	-----	6,000	---	0.4
Radio	94 Sp 74 math 330 vol	National	37,000	57,000		National level
CANASTA	--	--	18,000	NC	1.4	--

Sources: Project Paper, Reprogramming Proposal, and interviews with technical advisors

We suggest that the evaluation team’s findings be used as a starting point in a joint A.I.D.-MOE review of BEST Project objectives and strategy. The changes in the circumstances of A.I.D. program strategy, interest, and achievements in various activities and the overall relationship between BEST Project activities and EOPS objectives indicate that this is an appropriate time for the USAID/G Mission and MOE to rethink what their real objectives are. After reviewing the project design and discussing the issues with various

USAID/G and MOE officials, it is not clear that a consensus exists. A serious rethinking of the project would be a very useful exercise at this time for both USAID and the MOE--even if it eventually does not result in any changes in activities. Clarity and consensus of purpose are essential. The evaluation team has suggestions, but these are most appropriately used as an input into a joint Mission/MOE review. This type of critical review, to a lesser degree, is useful as a format for annual reviews as well. This type of strategic reassessment should attempt to define the priority of different objectives--efficiency, quality, coverage, equity, and administration--and clarify the relative importance of policy objectives and indicators.

Status of Policy Indicators

The BEST Project EOPS include three policy indicators. These indicators are measures of the degree to which the GOG has complied with the covenants in the Project Agreement. Specifically, the covenants call for GOG budgets for education, to approach 3 percent by 1995, to increase in the proportion of the budget allocated to primary education and increases the proportion of the MOE budget devoted to investment to approach 10 percent by 1995. The 1991 Annual Statistics Yearbook for the MOE includes most of the historical data necessary to track progress on these indicators. Although these policy objectives are considered critical long-term improvements in education in Guatemala, the project activities do not reflect this priority. The main tool for policy dialogue on budget issues is the administration component, consisting of applied research and an improved management information system. The Project Paper states: "The project will...help the MOE improve its budgetary analysis and reporting in an effort to increase its access to the Core Development Budget and other MOE budgetary resources." However, there are no substantive training resources to accomplish this, and the applied research activity has been suspended. The MIS technical assistance, however, has contributed to this through the 1991 statistical yearbook, which included historical analysis.

The current and projected status of GOG budget support to education indicates substantial real (after inflation) increases in the budget since 1990, while the nominal budget increases from 1988-1990 probably represented a decrease in the real value of the MOE budget. The current year budget, 1992, represents 1.28 percent of GDP, and the proposed budget for 1993 just prior to submission was estimated at Q1.14 billion, or approximately 1.62 percent of the estimated GDP. (All of the data figures are based on SEGEPLAN and MOE figures. It should be noted that the data for 1991 in the *Anuario Estadístico* were later revised.) The outyears are less certain. SEGEPLAN's *Plan de Acción de Desarrollo Social* (PLADES, Febrero 1992) projects that MOE's budget will continue to increase relative to GDP, reaching 2.3 percent in 1995 and 2.5 percent in 1996. The evaluation team was unable to extensively review such plans in detail with the education specialists in the Ministry of Finance, SEGEPLAN, and the Minister of Education's budget advisor because of the timing of the evaluation. During the time the educational finance expert was in country, all of the key finance contacts were heavily occupied trying to meet the budget submission deadline in

early September, after which they were given time off to recuperate. This unavoidable conflict of schedules limited the depth of analysis of outyear budgets. However, the existing trends in the budget, while falling short of the target in the Project Paper, represent a significant statement of the importance that the GOG is assigning to primary education.

With respect to the MOE capital budget, neither the recent trends nor outlook suggest any significant increase from the 3-5 percent range of investment relative to the total MOE budget. Nonetheless, the projected increase from 4 percent in 1992 to 5 percent in 1993 is significant given the extraordinary increase in salaries in 1993. The MOE capital account is used primarily for equipment, maintenance, and repairs. New construction is financed in the capital budget of the Ministry of Communication, Transport, and Public Works.

A summary of the status of policy indicators is provided in Table II.2.

Table II.2

Status of BEST Project Policy Indicators

Policy Indicator	1989	1990	1991	1992	1993
MOE Budget (Q. million)	433.7	467.7	621.7	786.8	1,135.5
GDP (Q. million)	23,636.0	34,291.0	46,998.0	61,555.0	70,173.0
MOE Budget as % of GDP*	1.83%	1.36%	1.32%	1.28%	1.62%
MOE Budget for Primary and Pre-primary (Q. million)	127.1	169.9	197.1	360.5	560.7
Primary Education Share of MOE Budget	30%	30%	35%	48%	52%
Primary Enrollment (000)	1,166	1,192	1,250	1,296	1,341
Expenditures per Primary Pupil (Q)	109	143	158	278	418

Sources: MOE *Anuario Estadístico* 1991 and SEGEPLAN *Plan de Acción de Desarrollo Social - PLADES*, 1992-1996, 1997-2000. 1993 budget estimates from SEGEPLAN, enrollment estimates from IDEAS.

* GDP - Gross Domestic Product

It is worthwhile noting that all of these statistics must be considered and analyzed in context. For example, the substantial estimated increase in the Gross Domestic Product (GDP) for 1992 (31 percent) explains in part the drop in education spending as a percentage of GDP. In the same way, the investment portion of the 1993 budget is significant considering the very large increase in salaries.

Other measures of budgetary support to education are as useful, if not more useful, as indications of the real resources being devoted to primary education. A particularly noteworthy statistic is expenditures per primary school pupil. The 1991 Statistical Yearbook shows that between 1972 and 1988, real (constant Quetzal) expenditures per primary school pupil dropped to less than half of the 1972 levels, despite rising budget levels in nominal terms. This analysis has been a useful tool for the Ministry in budget requests. However, since 1989 the expenditures per pupil (shown above in nominal terms) have increased substantially--the estimated 1993 budget is almost four times the level in 1989. While the 1993 numbers partly reflect substantial government salary increases, the trend clearly indicates increased support for primary education in meaningful terms. (Note: the above numbers for 1991 differ slightly from those in the Statistical Yearbook because of final adjustments to the budget totals and use of official enrollment figures for 1991.) These numbers, perhaps refined to break out salary, texts, and material support per student, might be a useful indicator of commitment.

Several budget issues were beyond the scope of this midterm evaluation but are important to the larger issues of MOE financial and institutional capacity. USAID/G should conduct an in-depth review of the MOE budget beyond just the scope of the BEST Project activities, to assess Actual expenditures versus budgets, trends within the capital account, and allocations to and within the primary education sector. Analysis of budget performance can provide indications of administrative capacity as well as commitment.

The current budgetary trends and economic plans and priorities indicate that education activities are likely to be beneficiaries of GOG reallocations in the sense that rural primary level education is receiving higher priority (i.e., PLADES). Nonetheless, it is essential that the MOE seize these opportunities. The BEST Project has the potential to assist the Ministry to raise policy issues, and indeed has already started to do so through the information and analysis provided in the MIS system. Additional avenues for supporting policy dialogue include sponsoring high level seminars or workshops that bring issues of educational finance and social/economic development to the attention of public and private sector decisionmakers. Another feasible approach is to renew the applied research component and use directed studies to produce evidence on the cost-effectiveness of alternative approaches or to specifically identify the key factors that affect efficiency or quality and suggest remedies. The relatively simple analysis provided in the *Anuario Estadístico* 1991 was used effectively by the Minister to argue for support this year. The increasingly sophisticated and targeted analysis that the MIS system will provide in the future can be effectively complemented by

such studies to inform the policy debate and raise the level of awareness about educational finance issues.

Conclusions on BEST Logical Framework and EOPS Indicators

- The primary objectives of the BEST Project as measured by the EOPS indicators are not likely to be achieved. This level of impact on national level educational statistics is inconsistent with the number, scope, and nature of project activities.
- The current slate of activities in BEST are mainly targeted on improving quality of classroom teaching and experience. However, the scale of most activities is not national in scope.
- The imbalance between the project objectives and the project activities can only be rectified by rethinking the overall direction of the project. This would have to entail reviewing the Strategic Objective, Project Purpose, and activity mix in order to arrive at a combination that is both important enough to accomplish and yet achievable.
- The policy level objectives are not as yet fully supported by the project activities, and yet there is a real opportunity to affect the achievement of such objectives if the project moves in the right way.

Recommendations

Recommendations and Suggestions on Logical Framework and EOPs Indicators

- *Conduct a strategic reassessment of project objectives.* Review the BEST Project objectives, strategy, and activity mix as part of the midpoint reassessment. This process, incorporating both A.I.D. and GOG officials, could start from a theoretical "ground zero" position to rethink the project in the context of program strategic objectives, and then use these insights to return to what exists. This process could reassess the phrasing and measurement of the strategic objective as well as BEST Project objectives. The strategic objective team, perhaps reformulated to bring in specific expertise, might be a useful forum within A.I.D. for this exercise. This could lead to the following suggestions.
- *Establish realistic goal and purpose indicators.* On the basis of the results of the above process, the logical framework and the achievement indicators for both the Goal and Purpose level should be revised. To be consistent with the Strategic Program framework, the project goal could be redefined as the strategic objective.

At this level, both the objective statement and the indicators should clearly establish policy and achievements.

- *Increase focus on policy dialogue through several mechanisms.* As part of the above process, policy goals among the primary objectives should be established and supported with increased resources and management focus. Project activities, and particularly expansion activities, should be utilized as mechanisms for policy dialogue and GOG commitment. In general, a focus of all project actions could be to strengthen the MOE capacity to analyze problems and make compelling arguments for policy support and educational financing for project activities. This could include a series of carefully prepared seminars involving the private sector, Ministry of Finance and SEGEPLAN, education, and other influential parts of society. Such seminars could be designed to create a policy debate focused on societal commitment to education and the implications for each sector and interest. It should clearly focus the discussion in terms of Guatemala's future ability to compete with its neighbors in a common market, the economic benefits (increased productivity, reduced welfare and health expenditures, lower population), and the value of investing sooner rather than later given the demographic trends in the country.
- *Reassess the potential for the applied research activity.* The applied research process and products have the potential to be used as policy dialogue tools as well as to enable better understanding of the problems. They can be a key complement to other project activities to strengthen management use of information. Research can focus on policy issues at the government budgetary level or the level of ministry operations and policies. These studies should be used as tools in a policy and planning framework. Renewed effort can be made to involve local universities, all of whom are ready to be involved. However, A.I.D. must take a less rigid stance, recognizing their legitimate institutional interests.
- *Increase emphasis on sustainability and institutionalization.* Increasingly the BEST Project needs to assess the real capacity of the MOE to sustain these activities, in terms of administrative and management capability as well as budget support.
- *Collect and analyze system efficiency data regularly.* The data on system efficiency (dropout, repetition, years to produce a graduate, etc.) should continue to be collected and the quality of the data improved. The MIS activity should be specifically tasked with collecting and tracking these data. More appropriately, the MOE could specifically task the Computer Center with tracking these data as a Ministry, rather than as a BEST Project activity.

- *Consider the need for more precise measurements.* If USAID/G wants better quality data than the raw data being collected and not rely on mathematical models to simulate reality, an annual survey of schools could provide precise measurements of repetition, dropout, promotion, and graduation (disaggregated by gender). A properly constructed stratified random sample could provide reliable, real data that are representative of the national trends. This type of survey results could also be used as a measure of accuracy and improvement in quality of data over time, of the MOE MIS system. As the MIS system tries new approaches to collecting better information more efficiently, the survey results could provide a standard measurement of accuracy.
- *Extend the project to 1999.* However the project goals are redefined, if at all, a project extension will be necessary to achieve almost any worthwhile accomplishment. The initial project design was based on the assumption of a 10-year project. Any planning or strategic reassessment of BEST would be much more valuable without the unrealistic time pressures imposed by the current PACD. However, the end of project date need not apply to all activities. Rather, each activity should have only as much time as needed to achieve its objective.

Sustainability and Institutionalization

Among the critical issues for the remaining years of implementation for the BEST Project are be sustainability and institutionalization. It is useful to explore the parameters of these interrelated concepts to identify ways in which they can be addressed through project strategies and activities.

Sustainability is generally understood to mean the basic levels of budgetary and personnel support necessary to maintain activities at a given level of effort. In the BEST Project, the substantial degree to which project funds cover the most basic operating and maintenance costs of the activities makes this a critical issue. The budget support for such basic recurrent costs as personnel salaries, insurance and maintenance of vehicles and equipment, gasoline and spare parts, per diem, office supplies (including paper and pencils), telephone lines, rent, and insurance means that substantial detailed attention is needed to plan for basic sustainability. The 1992 financial report and planning document from the MOE Management Unit (*Información Financiera del Proyecto A.I.D. 520-0374. OAP*) does not indicate any clear relationship between the phased reductions of project funds and the increases in counterpart funds. This is, of course, an ongoing process. As the project looks to the last years of implementation, management attention must increasingly focus on planning for adequate budget levels in the future. Moreover, the level of planning must become increasingly detailed, to assure that necessary levels of line item support (per diem, gasoline, maintenance and replacement of equipment and vehicles, office supplies, paper, etc.) are being planned and committed. Increasingly, BEST Project managers should review possible financial and implementation strategies to achieve these commitments. Over the

remaining years of the project, these issues should receive as much or more management attention as the specific accomplishments and outputs of the activities.

Related to the sustainability issue is the current level of GOG counterpart contributions to the project. The Grant Agreement requires the GOG to provide counterpart resources of the quetzal equivalent of \$31,916,000, which includes in-kind costs. As of the time of this evaluation, the total proposed GOG counterpart budget for BEST according to the planning documents of the Management Unit is Q. 129,302,340.17. Using the SEGEPLAN macro parameters of an average annual dollar depreciation of the quetzal of 5 percent, this is equivalent to a GOG counterpart contribution of \$23.0 million--about 28 percent below the grant requirement. (Using the 15 percent quetzal inflation rate indicated in the Project Paper would reduce GOG counterpart equivalent even more.) The expenditures to date on the BEST Project indicate that counterpart contributions are slow. A total of \$24.8 million was budgeted for the first three years of the project (combined A.I.D. and GOG contributions). Both payments are well behind. A total of \$4.2 million, or 17 percent, was actually expended, of which A.I.D. grant expenditures totalled \$3.3 million while GOG expenditures were under \$1 million. Expenditures for the Management Unit, which were budgeted at \$30,000 per year in the master budget, have actually totalled \$495,000, of which 80 percent was A.I.D. funds. An intensive review of the GOG counterpart actual and budget should be an essential part of the reprogramming exercise.

The issues of *institutionalization* and institution building are often considered synonymous with sustainability. It may be that the distinction is primarily semantic. However, for the purpose of conceptualizing how to plan for institutionalization, manage the process, and measure the achievements, it may be useful to distinguish the two. For purposes of the midterm evaluation, the team distinguished various levels of institutionalization. The different levels, shown in Figure II.1, reflect varying degrees of permanence to the activity. The first level is essentially a snapshot of a given point in time--the existing staff have received training, and the basic budget and personnel levels are covered by the Ministry. This is the basic level of sustainability.

The next levels of institutionalization reflect the ability to maintain, utilize, and expand the organizational capacity and the establishment of institutional linkages that validate the legitimacy and need for the activity. The second level takes the activities in the "snapshot" of Level 1 and addresses them as a dynamic rather than static situation. The ongoing capacity to train new staff, upgrade existing staff, and maintain and replace equipment, and the management capability to effectively use the available resources are critical to this dynamic view of organizational development. The higher levels address issues of linkages within the organization and with other organizations, and broad issues of institutional support and effectiveness. The challenge for project planning is to identify appropriate and manageable points on these levels on which to focus activities or measure results.

FIGURE II.1

Indicators of Institutionalization

Level 1.	Basic Human, Financial, and Physical Resources
	Indicators:
	<ul style="list-style-type: none"> - Budget for salaries - professional/support - Budget for operating expenses - All existing staff trained and capable
Level 2.	Normal Organizational Operations Capable of Maintaining and Expanding Capability
	Indicators:
	<ul style="list-style-type: none"> - Continuing training to reduce vulnerability of staff changes - system and budget - Career development - key personnel - Staff salary levels adequate to retain skilled personnel - Organizational development plans and performance feedback - Monitoring and Evaluation
Level 3.	Institutional Linkages to Use Established Capacity and Create Organizational Identity
	Indicators:
	<ul style="list-style-type: none"> - Coordination and dissemination mechanisms - Demand for and use of information, capacity by various levels in and out of institution
Level 4.	Institutional Support
	Indicators:
	<ul style="list-style-type: none"> - Sharing of core development budget - Increasing MOE budget in real terms - Increasing primary education expenditures per student
Level 5.	System Effectiveness
	Indicators:
	<ul style="list-style-type: none"> - Achievement - Coverage - Efficiency - Graduation

This framework of sustainability and institutionalization may be useful in developing new design and implementation strategies for the remaining years of the BEST Project.

Recommended Design, Financial, and Implementation Strategies and Project Foci Through the End of the BEST Project

The framework for planning the last three to seven years of A.I.D. assistance to education in Guatemala should be clearly focused on what is possible to do, and to do well, in a relatively short period of time. It should also lay the groundwork for continuing improvements in the educational system. As was discussed above, the key factors for assessing any such strategy are impact on the educational system and institutionalization of capacity. The exact mixture of activities and the level of effort for each activity should be a matter of intensive review by the MOE and USAID/G. The following list provides some possible basic principles for design, financial, and implementation strategies to achieve impact and institutionalization.

Design Strategies and Focus for the Future

- The BEST Project is not an effective, efficient, or sustainable mechanism for provision of direct services to all students. Even a project as large as BEST cannot address more than a tiny fraction of the needs at the primary education level.
- A project mechanism like BEST can have the greatest and most lasting impact through a focus on policy changes at the system and institutional level. Such impact has a broad, diffuse impact throughout the system that is almost impossible to measure or attribute to project resources, but is essential to lasting change.
- In the relatively short time remaining, BEST can seek ways to solidify and strengthen existing capacity through training and policy. Institutional strengthening strategy should not rely exclusively on the Minister, but rather should reach deep within the organization to strengthen the administrative and management underpinnings of the organization.
- BEST Project activities should give priority to consolidating and strengthening existing activities before expanding. Each stage is the foundation upon which further achievement is possible. PRONEBI is a prime example of the need to complete the first job before moving on.
- BEST Project activities can help the MOE to identify cost effective methodologies and pedagogies, and to identify the critical cost and technical issues so that the minimum investment in each school that maximizes student achievement can be estimated and costed out. This approach would be supportive of the entire policy

dialogue agenda as the results provide the MOE with the information to make a clear and compelling argument about payoff to education.

Financial Strategy and Focus for the Future

- As U.S. assistance to education winds down, a clear and explicit policy is needed to encourage GOG assumption of project costs, responsibility, and authority. This policy should be based on financial and implementation strategies that explicitly require the MOE to assume the leadership and burdens of any expansion of activities or recurrent costs. If the GOG is not able or willing to assume such responsibilities as A.I.D. phases out, it is highly unlikely that it will do so in the future.

Implementation Strategies and Focus for the Future

- Hand in hand with the burdens, USAID/G should transfer the responsibility and authority of activity management. If development experience over the past 40 years has proven anything, it is that success is highly dependent on the degree of participation and ownership of the host institution. Future BEST planning and reprogramming activities should be developed in strategic planning retreats that are expressly structured to allow open exchange of ideas. The focal point of decision making, proposal development, and planning should be the implementing units rather than A.I.D. and technical assistance managers. The BEST Project should increase its support and facilitative role within the parameters of foreign assistance accountability, recognizing the legitimate role of local officials and the need for developing local capacity. Capacity building, commitment, and learning only take place when the people who are responsible for implementation have a prominent role in policy formulation and decision making.
- USAID/G involvement in the project should be centered at a higher level--on government and institutional policy and structural issues rather than on technical issues. Clearly defined project roles and responsibilities should allow A.I.D. officials to concentrate on monitoring, accountability, and policy matters.

Illustrative Logical Framework

The logical framework in Figure II.2 is an illustrative approach to adapting the current project activities and objectives to emphasize institutionalization objectives at the project level and policy measures at the goal level. The logic of the suggestion is that the project activities would be primarily focused on achieving sustainability and institutionalization rather than on achieving specific outputs. This would imply changes in the strategies and management focus

FIGURE II.2

Illustrative LOGFRAME Objectives for Institution Building

Strategic Objective: To improve basic education

Goal: To increase the efficiency, quality, and administration of basic education in Guatemala.

Policy Indicators:

1. GOG budget commitment increased to ---% of GDP by 1999. (Alternative, increase real spending per pupil)
2. Cost-effective methodologies established in MOE policy as the standard pedagogy for all Ministry activities - with any department and with any donor.
3. Specific support provided by GOG in new resources for each cost-effective approach selected as a priority.

Impact Tracking Indicators

- a. Dropout rate reduced by --% per year in each area of project innovations once they are adapted and proven.
- b. Years to produce a sixth grade graduate reduced by ---% per year in areas where methodologies are used.
- c. Girls' retention rates increased in areas where project cost-effective methodologies are used by ---% per year after the methodologies are established.

Purpose: To institutionalize the use of the most cost-effective measures to improve efficiency, quality, and administration of basic education.

Indicators:

1. **Educational Administration.** MOE decision makers regularly use MIS and personnel system for both routine and special problem solving at all levels. MOE able to effectively use all allocated budgets.
2. **Innovations.** Improved and cost-effective teaching methodologies adapted, tested, and integrated into the in-service training and supervision systems and accepted as the policy of the MOE.
3. **PRONEBI.** PRONEBI systems are expanded and fully integrated into the workings of the MOE. No fewer than 85 percent of PRONEBI schools are complete (materials, training, etc.) at any time.
4. School support services are operating in financially independent and sustainable non-profit organizations, including Interactive Radio, *canasta escolar*, and girls in development. The MOE is supporting these activities with adequate financial and personnel resources.

for each activity. The intention is to establish EOPS that are achievable, and therefore realistic, in terms of project planning and that are still important in terms of achieving the larger goals.

A wide range of approaches is possible for reviewing and revising the logical framework. This suggestion is offered only as an illustration of an institutionalization approach. The definition that is eventually used by the Mission should be an outcome of the strategic reassessment of the project. One possible way of looking at the project is that it can use A.I.D. resources to help the MOE become more efficient and effective by thoroughly researching and developing a cost-effective package of methodologies and interventions to improve quality. This would differ from the current project mainly in the importance given to research and testing of cost-impact tradeoffs of alternatives and the development of an integrated, coherent, and affordable approach for the Ministry. The eventual approach may or may not include the methodologies currently being advocated, but the result would be a clear understanding of the affordable options. The purpose could be to test and institutionalize cost-effective approaches to improve the quality, efficiency, and administration of basic education. The EOPS indicators would include measures of institutionalization of the approach and methodologies, including policy and budget commitments. The outputs would be the testing and adaptation of methodologies from a cost-impact perspective and the development of management capacity to implement them and make better decisions.

The illustrative logical framework also has a slightly different configuration with two tiers for strategic objective indicators. The first tier represents the key policy changes that the project will emphasize. The second tier represents progress toward achieving the efficiency, quality, or administration goals on a level where A.I.D. program activities may have an impact. The use of the tiered system implies the relative importance of policy (and/or institutionalization). The impact data are measurements of progress and validity of the approach rather than set targets.

This logical framework is offered in the spirit of an illustrative approach rather than a recommended approach.

Analysis of the BEST Reprogramming Proposal

The evaluation team was asked to comment on the impact of the Mission's current reprogramming exercise on the attainment of project goals and objectives. The reprogramming plan focuses on the expansion of three pilot activities and includes the cancellation of several activities that have not achieved anticipated levels of implementation. The following comments are of a general nature--specific reviews of the technical, financial, and institutional issues related to each proposed expansion are included in the reviews of each activity in Volume II of this report. In view of the recommendation to reassess the overall

objectives and strategy of the BEST Project, these comments are possibly already an anachronism.

- In terms of the potential impact on the existing project goal and purpose, which requires significant changes in national educational efficiency and statistics, the proposed reprogramming will have only a minimal impact. However, as the discussion above indicates, this is not unique to these three activities. None of the project activities as currently structured can be expected to achieve the current objectives. Therefore, the specific proposals should be considered in the overall context of a strategic rethinking of the project objectives.
- Should the Mission decide to conduct an objective and strategy reassessment of BEST, the proposed amendment would need to be revised. Even if this should not happen, the amendment will require additional work before moving forward. The reprogramming budget has not yet finalized the planning of \$3.6 million, and supporting budgets for some individual activities have yet to be revised. While the budget work has, to date, largely been a USAID activity, the scope should be expanded to revise the overall budget master for the project. This must include both A.I.D. and GOG counterpart funds, by activity and function, through the end of the project. This process would help to clarify and resolve counterpart contribution requirements as well as to update project activity budgets to show funding changes, by line item, from the original budgets. The anticipated shortfall in counterpart contributions makes this element essential.
- The final reprogramming plan will need to discuss these changes in the context of (original or revised) goals and objectives and to explain the changes in any given objectives that will affect both the objective targets and the achievement of project objectives.
- It is notable, and we believe significant, that the three activities identified as most successful in the project have been wholly managed and controlled by technical assistance. The degree of success achieved is clearly related to this fact. In the case of the one-room schools, the success is still largely rhetorical, since only the component of student government has been introduced in pilot schools, and this occurred within the last month. While this by no means invalidates the potential of these activities, it does indicate that the implementation and transfer of technology of these activities must be closely monitored.
- Participation in the reprogramming exercise to date has included A.I.D. officials, one vice-minister, the minister, the GID technical advisors, and some private sector representatives. To date, the exercise has not included any of the individuals who will be responsible for carrying out the programs--directors general, program directors, regional directors, staff, or Ministry analysts. We believe that the process

would benefit enormously if the top-down approach to project design and management were replaced with a truly participative model of collaborative planning and decision making.

- The reprogramming strategy might consider adopting clear implementation and financial strategies to increase the level of GOG commitment and involvement. This can be at the level of individual activities as well as at the macro level. For example, expansion of any given pilot activity could be directly tied to MOE accomplishment of key policy, coordination, and resource decisions.
- The reprogramming might consider adding funding for strengthening administrative and management training, particularly in relation to the MIS and personnel systems. The current basic training budgets are inadequate even to address the needs of the direct system users. Even more important is training and assistance to decision makers and staff at every level in how to use the information available. Financial support for this activity could be built into the reprogramming activity.
- The proposed expansion of the Nueva Escuela Unitaria program, the Interactive Radio program, and the Girls' Scholarships and Interventions activity should be reassessed in the context of the outcome of the project strategy planning activity. Prior to approving these activities, the feasibility of each activity should be more carefully explored, particularly as each relates to institutional and financial feasibility and the potential for replication on a large scale. The expansion of these activities also presents an opportunity for USAID/G to apply very clear criteria for MOE assumption of financial responsibility for both direct and support activities, and for MOE resolution of policy constraints. The expansion of these or any other project activity should be done in the context of researching and promoting the use of the most cost-effective, affordable methodologies for the MOE to adopt on a policy rather than piecemeal basis.

Summary of Key Recommendations for Goal and Purpose

- *Extend the PACD to 1999.*
- *Reassess the program and project goals and objectives, strategies, activities, and philosophy from the viewpoint of what is possible and what is necessary.* This project reassessment should be a collaborative exercise that includes A.I.D., MOE, and the technical assistance team. Given the size and complexity of the project, logistics of this process should be carefully planned.
- *Increase focus on policy dialogue.* Add funding for high-level seminars and targeted research to use as tools for reaching decision makers and informing better

decisions. Policy focus should include MOE institutional policies as well as national budget policies.

- *Focus all activities in remaining years on clear design, implementation, and financial strategies to increase GOG and MOE commitment, capability, and involvement.* Identify key policy, coordination, personnel, and resource commitments from MOE necessary to achieve institutionalization. Direct project resources to strengthen administrative and management capacity at all levels. Revise project master budget, with particular emphasis on developing adequate counterpart budgets for each activity undertaken.
- *Increase the level of participation, responsibility, and authority of key officials and their staffs at all levels of the MOE.* The operating philosophy of the project over the remaining years should increasingly emphasize participatory strategies, planning, and resource decisions. Roles and responsibilities of implementing units, the management unit, AED, and A.I.D. should be very clearly defined with this principle in mind. In the same context, more effort can be made to give credit to the MOE and its implementing units for project accomplishments. Identification for achievements should be given to the MOE, with material and technical assistance from A.I.D., rather than to the BEST Project. As the BEST Project, in and of itself, will not be institutionalized, the image enhancement strategies for BEST (logos, expos, pads and pencils, and press conferences) should be redirected toward the long-term support and institutionalization of those activities likely to have the most direct impact on students.

III. PROGRAM OBJECTIVES

Evaluation Task

Assess the extent to which the BEST Project is meeting AID/W program objectives (i.e., education-sector program) and USAID/Guatemala Mission strategic objectives (i.e., improved basic education).

The following chapter reviews the "fit" between the BEST Project and the strategic objective structure now used in program planning in A.I.D. The nature of the discussion and the inevitable use of program planning jargon will undoubtedly make this almost meaningless for individuals who are unfamiliar with the system. Nonetheless, as the purpose of this evaluation is not to explain the strategic objective system, but rather to analyze the relationship of BEST within that system, the discussion will make use of the A.I.D. jargon.

Findings

The BEST Project was originally designed as a project, albeit a large, complicated sector project. In the last two years, the LAC Bureau has reformulated the traditional program planning systems and required missions to focus investments on a few, well-defined strategic objectives. USAID/G responded to this new approach by reorganizing the mission portfolio and focusing on five strategic objectives. One of these is Improved Basic Education, a program that consists entirely of the BEST Project. While it is unusual in USAID/G, and for that matter in other missions in the LAC Bureau, for a single project to constitute a program, it is not necessarily either inappropriate or incorrect that it do so.

BEST is a complex project that includes a broad range of distinct activities relating to improving primary education in Guatemala. It seeks to have a broad and significant impact on the efficiency and effectiveness of the Guatemalan educational system through a combination of project activities, donor coordination, and policy dialogue. The scope of the expected changes, as measured by the EOPS indicators of the project, are systemic in nature and, if achieved, would represent a significant contribution on a national level. Moreover, these objectives are truly strategic in the sense that improvements in the educational level of the population will foster advancement in virtually all other sectors. International literature and analysis clearly show that higher levels of education contribute to improved health, productivity, and quality of life.

In terms of the scale and importance of the objectives, BEST can appropriately be considered a program. The judgment of USAID/G in framing the Improved Basic Education strategic objective around the BEST Project is accepted by officials in the education, program, and development resource offices in AID/W.

However, the BEST Project design is not truly a sector project because not all of the critical interventions are addressed. The original expectation was that the BEST Project would complement a World Bank loan of equal size and that, taken together, they would have an influence. The Project Paper argued that the World Bank investments in construction and textbook production would address the problem of access, and A.I.D. project activities would focus on efficiency and administration. However, the textbook activity was also an important factor in improving the quality of teaching in the classroom--one of the key issues identified as an obstacle to efficiency. It is also worthy of note that the BEST Project is not well structured to promote policy dialogue. The covenant addressing policy issues is relatively weak, and the project activities are not well focused on influencing policy change.

In terms of how the BEST Project fits into the specific program planning, monitoring, and control systems of USAID/G, its project structure is evident. In the USAID/G Program Objectives Document (POD), the Improved Basic Education objective is distinct from the other strategic objectives for a number of reasons. The most obvious one is that it consists of a single project. Because the program structure is designed to aggregate the impact of numerous project and nonproject interventions (including policy dialogue), the program outputs contributing to strategic objectives are generally achievements at the project purpose and EOPS level for the projects that constitute the program. In Improving Basic Education, however, the strategic objective is a general and relatively unfocused statement, the high level indicators are equivalent to the EOPS, and the program outputs are equivalent to the BEST Project outputs. This has resulted in BEST having more project outputs at a lower level of achievement than is found in the other strategic objectives.

The statement of the strategic objective itself, "Improved Basic Education," is not as focused as some other objectives. Basic education can be improved in a number of different aspects--quality, efficiency, equity, access, policy, administration--each of which would require different sets of activities and different standards of success. The BEST Project emphasizes efficiency and administration on the national level. However, the level and nature of impact envisioned is not directly related to the size and nature of the interventions.

While the BEST Project structure is awkward for program presentation purposes, it is not a serious impediment. Nor is it insuperable. If the Mission decides to revise the logical framework as part of a strategic program reassessment, the new program can be structured to conform to higher level program outcomes. In the illustrative logframe presented in the previous chapter, the program outputs are structured as a small number of focused higher level achievements of institutionalization and policy change. Another suggestion in the Mission that would work equally well is to consider each BEST component a separate project

for program planning purposes. This is also a very appealing approach, not only for presentation but also for tightly focusing the activities on discrete and easily understood objectives. The strategic objective performance indicators can be focused on key policy changes and/or system efficiency and effectiveness. The approach in the illustrative logframe is to emphasize policy change and to have secondary system measures of progress toward efficiency, quality, or administration objectives.

The project structure of the Improved Basic Education strategic objective has contributed to some degree to the slow progress of the Mission strategic objective committee for education. The Mission recently established these committees, one for each strategic objective, composed of representatives of other technical and support offices, to support the monitoring, evaluation, and strategic linkages across sectors. The purpose of these committees is to support and operationalize the expectation that strategic objectives would not have a narrow sector-based focus, but rather a focus on higher level cross-cutting objectives. As might reasonably be expected with the initiation of new multi-office coordination structures, the format works better for some objectives than others. Some of this is growing pains, and some is related to the nature of the programs. The education committee has met three times and has yet to clearly define its role and potential contribution to the strategic objective. The BEST Project, which has established objectives and indicators, is naturally more difficult than evolving programs to adapt to this process. Nonetheless, the process has potential for coordinating and developing mutually reinforcing activities that might be fruitful with some creativity and flexibility. Potential linkages between the objectives of democratic initiatives and educational outreach mechanisms, and the mutuality of interests of private sector firms and educators in developing a literate/numerate populace, can continue to be explored. The possible linkages between health and education have, if anything, even more potential.

However, the role and value of this strategic objective committee will be very clear if the Mission conducts a full scale strategic reassessment of the BEST Project. The committee would play the core role of defining the directions to explore. As the reassessment gradually expands, in ever widening concentric circles, to include the MOE, contractors, and other stakeholders in the project, the committee will continue to have a vital role in establishing linkages to the rest of the A.I.D. program.

The coordination among the education sector projects to support the strategic objective is also awkward, because the other projects have not been considered part of the strategic objective. The PRONEBI Project has, of course, a close relationship to the expansion planning that is part of the BEST project, but activities in higher education really constitute a different subsector. In any case, the linkages are as close as can be expected, and the question is becoming moot as the other education activities are phased out.

The relationship between the education activities and the other USAID/G strategic objectives is very strong. Basic education clearly contributes to the overall goals of USAID/

Guatemala. It is noteworthy that all of the other strategic objectives are ultimately dependent on the success of the educational system. The linkages between the level of education, as measured in the percentage of the population that has completed sixth grade, and such goals as industrial and agricultural productivity, health, smaller, healthier families, and the establishment and understanding of democratic processes is directly associated with educational levels. In particular, the achievement of the health and population goals is very much linked to education.

The current strategic plans of USAID/G are to reduce the number of strategic objectives from the current five to three or even two within the next several years. The arguments and reasoning of the Mission are clearly and carefully thought out, and are based on the reality of decreasing overall resource and staff levels. The arguments based on relative comparative advantage, willingness of other donors to invest, and potential impact given the expected level of resources are thoughtful, but ultimately unpersuasive, at least to this evaluation team. The reasons are the following:

- The current Government of Guatemala appears to be deeply committed to the improvement of education. The current leadership in the MOE is impressive in its vision and nonpartisan views of improving education. The President of Guatemala appears to be committed to education also, although the rhetorical goals he has set may not be fully integrated into the budget planning process. To the extent that these goals and expressions of commitment are realized, they argue for a continuing USAID commitment in response.
- While other donors are willing to support education, the needs of Guatemala will increase, not decrease, in the coming years. Success at each primary grade will increase the burden at the next level as greater numbers of students remain in the system. The resource levels and timing of other donor support in Guatemala are unknown, and as the World Bank experience of the past three years has shown, somewhat uncertain. A.I.D. support may be neither more certain nor reliable, but it can be offered in forms that effectively complement the assistance of development banks in unique and valuable ways.
- Should future A.I.D. strategies include education, it would not be unreasonable to establish new standards and prerequisites for such support. The traditional strategy of A.I.D. investments has been to use project funds to get a foot in the door, leverage new resources, and agitate for improvement. This strategy has not met with unqualified success. An alternative strategy, a strategy for the future of foreign assistance, might be to offer support only after, and in lockstep with, major GOG commitments and budget support to education. This approach would place A.I.D. in the position of supporting GOG initiatives and commitment rather than attempting to leverage such change.

This argument represents the views of the evaluation team. We recognize the complexity of programming foreign assistance resources in the future and the need to carefully focus resources in critical strategic areas. We would see education, under certain circumstances, as being a priority candidate for such a focus.

However, we would emphasize that this is simply our opinion for consideration within the USAID/G mission only. The current mission decision and strategy for future programming must be understood among the GOG counterparts as clear, unequivocal, and binding. The single most important objective for USAID/G education programs in the immediate future is to assist the GOG to plan seriously for a future without A.I.D. support. The dependency of many BEST activities on A.I.D. funding is a serious concern. It would be a disservice to Guatemala and the educational system to postpone the hard decisions and commitments necessary to reduce this dependency.

IV. IMPLEMENTATION EFFECTIVENESS

Evaluation Task

To assess the effectiveness and recommend strategies for improving Project implementation through an analysis of obstacles and bottlenecks as well as achievements in project management and administration.

The BEST Project is a complex management challenge that is expected to create and implement new management and contracting approaches that strengthen local institutions while implementing 16 independent activities. This is a formidable challenge. It is made even more formidable by the lack of specified management structures, defined roles and responsibilities, and in-depth institutional analysis in the design stage. The pressures of attempting to implement a project that was designed for 10 years in a 6-year period have added to the implementation challenge.

The evaluation team found project managers and technicians in AID, the MOE, and the contractor who are dedicated to making the project work. They have created systems and procedures for planning and administration and have worked hard to develop strategies that will meet the targets for project outputs. The project managers and technicians from all agencies are unquestionably dedicated to making the BEST Project succeed, and assuring that benefits of the activities reach Guatemalan school children. It is not uncommon in projects as daunting as the BEST Project that managers get so involved in the day-to-day requirements of making the process work that they lose sight of the larger goals. *This is a particular problem in development work because true success is usually determined by the process rather than the product.* One of the most common problems in development projects is that the slow but essential process of institutional strengthening is sacrificed in favor of producing outputs on time.

To an extent, this is what has happened in the BEST Project. The following assessment of management effectiveness and implementation procedures is a management review. It is designed to describe the system as it really works, and as it is perceived by the participants. It is presented as formative feedback to AID, the MOE, and the contractor to enable them to make the kind of mid-course adjustments this evaluation was intended to facilitate. It is not intended to assign blame for mistakes, or even to categorize actions or procedures in those terms. Rather, it is intended to discuss the management processes in the context of the larger program objectives, and to assess the degree to which these processes are contributing to or detracting from achievement of these objectives.

The evaluation of management systems was conducted through interviews, meetings, and observations using a highly structured process based on the theory and practice of public administration. The evaluation team believes that this represents an accurate picture of the management process--a picture that has been corroborated by many project participants. The evaluation team hopes that this report will be a useful diagnostic tool for management effectiveness.

Findings

Measures of Implementation Effectiveness for BEST

The topic of project implementation covers a wide range of issues from details of scheduling and bookkeeping to institutional relationships and management structures. Each issue can and does influence the achievement of project success in some way. Each of the specific evaluation questions dealing with specific issues is answered in Volume II. This section will seek to answer the broad question of the effectiveness of project management in terms of complying with design principles and achieving the objectives of the project. This approach is different from being a sum of the parts, the answers to each specific question, in that it places each activity in a broader and more relevant context.

Assessment of implementation effectiveness depends on the yardstick used for measurement. For example, the importance of the BEST Project achievements in meeting the original project implementation schedules (timelines) and the schedule of planned disbursements as measurements of effectiveness depends on the context. If BEST Project implementation is judged against the inflexible yardstick of meeting deadlines for producing outputs or spending money, it would have to be considered a problem project. Most of the activities are six months to a year behind schedule and expenditures halfway through the project are approximately \$3.5 million, only 26 percent of the \$13.2 million projected in the Project Paper to be spent by this time.

However, this approach is neither appropriate nor useful. It is not appropriate because the objectives of the project are neither to meet deadlines nor to spend money--these are poor proxy indicators of achievements. It is not useful because it ignores the realities of implementation in foreign assistance, where projects are dependent on the coordinated functioning of huge, unwieldy, and independent bureaucracies--the GOG and the MOE, the USG and A.I.D., and contractors such as AED. A reality-based implementation and disbursement schedule would build in a contingency factor--give or take a year. Within the lifetime of almost any project, almost all of the bureaucracies will undergo major changes--elections, budget crises, replacement of key individuals, etc. These kinds of changes are not exceptions; they are the norm and should be recognized as such.

Rather, the more appropriate criteria for implementation effectiveness is the purpose of the project--what it was designed to achieve. The BEST Project was designed around the philosophy of putting innovations into practice. It sets out to implement the lessons learned in basic education over the past several decades. The BEST Project design and implementation philosophy rest on several pillars.

- *Utilization and strengthening of local rather than international capacity.* BEST was designed to strengthen the Guatemalan education sector by using local advisors, short term technical assistance (TA), and the private sector both in delivering services and for conducting small experiments. In particular, several nontraditional, technically complex and innovative activities (i.e., standardized testing, applied research, one-room school, radio, and social marketing) were to be implemented by Guatemalan universities and private sector organizations. This mechanism was not to transfer skills to the Ministry or to leverage private contributions, but rather to take advantage of centers of capability that the Ministry could utilize and not have to duplicate.
- *Management and implementation flexibility to adjust to changes in political priorities and to cope with the potential that some activities and institutions will work better than others.* This flexibility is, in part, facilitated by the contracting principles and the independence of the different components.
- *Concentration of project implementation responsibility and authority in existing institutions to strengthen decision making and management capacity.* BEST was designed to avoid creation of project implementation units that eventually rival or even supplant national structures. Rather, BEST was designed to assist the MOE in setting its own priorities, to improve rational decision-making and efficiency, and to make more credible claims to a share of GOG resources. The project is explicitly designed not to create or restructure organizational units.
- *Minimal interdependence of project activities to avoid the bottlenecks that occur when problems in one activity affect implementation in others.* At the same time, BEST seeks to facilitate coordination (not interdependence) of activities to achieve greater impact.
- *Improved donor coordination to ensure more efficient use of resources.*
- *Coordination at the central level.* BEST works through a coordination office in the Ministry called the Management Unit. Despite the title, the purpose is clearly the completion of coordination rather than management tasks. The Project Paper states that the management office is to "coordinate donor activities and to promote quick and effective implementation...[it is] not an 'implementation unit,' but rather a coordinating and liaison unit for this project and other donor projects."

In short, the management philosophy of the BEST Project is to implement project activities through existing structures, strengthening them both technically and administratively in the process. The intention is clearly to implement project activities without creating dependence on transitory project resources and structures that can assume implementation responsibility and then fade away leaving the target institution (e.g., MOE) no more capable than it was at the outset. Stated in the positive, BEST seeks to enable Guatemalan institutions to develop and to eventually do things for themselves. These concepts are clearly reflected in the organizing principles. To accomplish this, the project management structures must be appropriate and supportive of such empowerment.

The institution building mechanism in the project is technology transfer. This includes the primary technologies of equipment, skills, and abilities (e.g., computers, data base management, mapping, curriculum revision) and the secondary technologies of administration and knowledge creation (e.g., decision making, communication, formal training, research). Accordingly, BEST Project management must accomplish two things. First, it must transfer project innovations to the user (technology transfer). Second, the transfer must be done in a way that leads to the continued use and support of these innovations by the user (institutionalization).

While these design philosophies are clearly an appropriate measure of the effectiveness of BEST management and administration, it should be recognized that this is a demanding standard. BEST is an enormously complex project being implemented within the context of public sector institutional politics and weak administrative structures. At the same time, it is subject to the pressures of A.I.D. implementation standards of timelines and pipelines when even the original project schedule was ambitious. In the best of circumstances, the creation of innovative management structures that empower local organizations while maintaining project accountability would be a real challenge. To accomplish this within the BEST Project is even more of a challenge. It should not be surprising if the management challenges have not yet been fully accomplished. Indeed, it would be surprising if they were entirely successful on the first attempt. Good management is formative--it adapts and changes based on experience and feedback. This midterm evaluation of the BEST management structure and process is offered in this spirit--as feedback that can be used to strengthen the process. The success of BEST in accomplishing its objectives will depend to a large degree on how successfully this innovative management approach is carried out.

While the Project Paper is clear on the principles, it is less detailed about how these are to be put into practice through administrative structures. In fact, the project paper does not specifically lay out an administrative structure for the project outside of brief mentions of the MOE's Management Unit (*Unidad de Gerencia*), and the specification of several project committees.

Review of the BEST Project implementation and management structures focused on the following framework of research questions. These questions respond to the SOW and implicitly define "effectiveness of implementation" in terms of the principles and objectives of the project.

- What are the actual BEST management structures and processes (decisions, communication), both formal and informal?
- Is BEST Project management completing the purposes outlined above?
 - How successful is BEST in *not creating* a Project Implementation Unit?
 - BEST administration is intended to be decentralized, with each activity independent and separate. Is this achieved and what is the role of coordination in this context?
 - BEST administration is charged with the institutionalization of the project. Is the Project Coordination structure training MOE managers to take over decision making about the project in keeping with the concept of TA as training and transfer of technology?
- How well are management structures functioning to empower the MOE to make key decisions and to be its own advocate in the GOG?

The BEST Project management was evaluated in terms of accepted management functions and practices that are related to the variable of empowerment. These variables provide a qualitative measure of institutional empowerment. The variables reviewed are:

- Management structure and function variables
 - Decision-making authority and power
 - Roles and responsibilities
 - Committees
- Management Process Variables
 - Communication Practices
 - Shared meanings of concepts

Management Structure and Function

Decision-making Authority and Power

The review of decision making attempted to distinguish between perceived authority to make decisions on a range of issues and the actual power to implement them. The decision issues reviewed were identification of organizational and unit needs, organizational and unit priorities, human resources, material resources, knowledge, and timing of activities. The actors identified were USAID, the MOE management unit, MOE executing units, and the contractors (AED, Juárez, and IDEAS).

The analysis indicates that a discrepancy exists between the perceived authority and actual power to make decisions. The MOE executing units are generally viewed as having primary responsibility for identifying organizational needs and priorities, as well as human and material resource needs, for their units. The timing of activities is seen as more of a shared responsibility among all of the actors. However, the actor with the power to actually make decisions in these areas is understood to be the USAID Office of Health and Education (OH&E), followed by the Management Unit in most areas. The Executing Units are perceived to have the least actual power to influence these decisions. The contractors are not seen to be involved in decision making on needs and priorities, but are seen as being influential in decisions about technical assistance, material resources, and timing as they relate to the AED technical services contract.

The close relationship between OH&E and the Management Unit and the importance of the project paper as a guide to action partly explains these perceptions. Individuals in the Executing Units see the project paper as establishing fixed priorities that are enforced by A.I.D. through the Management Unit. The lack of power of the Executing Units can be seen in a number of specifics. For example, all technical assistance is identified and approved by OH&E working with the appropriate contractor. The Ministry Executing Units are not involved in this process at all--they do not even review curriculum vitae. OH&E's participation at every stage is directive, even requiring that meetings between TA and MOE to make decisions be cleared with A.I.D. first.

Roles and Responsibilities Definition

The review of roles of each unit in the BEST Project focused on how all of the actors view their roles with respect to the other actors. The factors analyzed were *process of role definition* (written definition, formal process to clarify roles); *perceived autonomy to carry out its role*; *role clarity* (is the role understood even if not defined); *active exercise of responsibility* (actions take place at the implementing unit's initiative rather than at the initiative of others); and the *degree of conflict with other roles* that the unit has (social, cultural, professional, or organizational). The results are shown in Table IV.1.

Table IV.1
Role Definition
Perceived BEST Management Role Factors
by Institution

Role-set Factors	Units					
	USAID		MOE		AED	
	Manager	Staff	Coordinator	Executing	Field Office	TA
Written Definition	Agreement & Contract	Agreement & Contract	Agreement	None	Contract	Contract & Agreement
Formal Definition Process	None	None	None	None	None	Agreement
Perceived Autonomy	High	High	High	Low	Low	Low
Perceived Role Clarity	High	High	High	Low	Medium	Medium
Active	High	High	High	Low	Low	Medium
Conflict	Low	Low	Low	High	Medium	Medium

The most striking thing this table illustrates is that all the "High" ratings are clustered to the lower left. This indicates that USAID/OH&E (Manager and Staff) and the Management Unit Coordinator are very clear about what they are to do, perceive themselves as unhampered in doing it, and are willing to initiate action. In addition, these units do not experience conflict with other roles they play. One A.I.D. representative explained the roles this way: "The grant agreement determines clearly all roles, and the contract and terms of reference define everything." It is interesting that the Management Unit ratings closely mirror those of USAID rather than those of the other MOE offices.

The Executing Units' perceptions are in sharp contrast to those of USAID and the Management Unit. The Implementing Units do not believe that they have a written definition of roles. Although they understand the grant agreement, they do not seem to think that it defines the important things. They are unsure about their roles and seem unable to take the lead in implementation. It is clearly difficult to exercise authority unless the roles and responsibilities are clearly understood.

Role conflict is more of a problem for the Executing Units than for the other actors. For example, some people in SIMAC don't know when to respond to USAID, UNESCO, or the MOE. There are also problems of role conflict between the Executing Units and the Coordinator. Sometimes they want to treat that office as part of USAID and other times as part of the MOE. Interestingly, the Contractors (AED Field Office and TA) also have role conflict. This is probably due to a conflict of professional norms, especially when one notes the relatively low rating on "Active" and "Autonomy." It is very likely that these people would often like to be freer to act on their professional judgment.

Another interesting observation along this line is the low "Active" and "Perceived Autonomy" rating for the AED field office. It is this researcher's evaluation that the COP has limited autonomy. In contracting personnel, one of its chief functions, this office is hampered by the AED office in Washington, which responds slowly through a cumbersome process of review and approval for scopes of work, salaries, and personnel selected. The first level of approval is in Washington, which is followed by approval in the USAID contracts office. In daily operations, it was the COP's understanding that he could not meet with MOE officials and make decisions without prior USAID approval and the presence of a OH&E technician in the meeting. However, the USAID/G COTR did not have the same understanding of roles and responsibilities.

Role Definition by Project Function

Another way of looking at roles is by the actors' perceptions of the specific managerial, technical, and operating functions of each unit. The evaluation reviewed such roles in terms of *technical functions* (expert skills); *coordination functions* (interpersonal and communication skills that facilitate collaboration); *liaison functions* (transmit information transmission and sharing) *monitoring* (mechanisms to assess movement of activities); *control functions* (information processing to identify problems); and *operating functions* (decisions about day-to-day business).

In terms of the project functions, one would expect that OH&E would be perceived as being highly involved in monitoring and control functions and much less so in technical functions. However, the opposite appears to be the case. OH&E is perceived as being heavily involved in technical matters but not in monitoring and control. The AED office is perceived as being the primary unit involved in monitoring, perhaps because of its role in submission of annual plans. The perceptions of the project actors were independently verified by the observations of evaluation team members. At one meeting, OH&E personnel spent considerable time discussing editorial policy and whether a release should be obtained from authors whose articles are changed for the *Revista del Maestro*. On the other hand, essential items for up-to-date monitoring and control functions, such as activity indicators and budgets and organizational charts, were not always readily available.

The Management Unit, headed by the Project Coordinator, is perceived by the Implementing Units as being more involved in decision making on technical issues than in the coordination function. In general, the Implementing Units believe that this is inappropriate. The Management Unit does not appear to be heavily involved in passing information to improve operations to the executing decision makers (control) nor checking on indicators for compliance purposes (monitoring). While the Management Unit was perceived as having a liaison role (although not particularly strong), it is unclear whether that role was seen as within the Ministry or between OH&E and the MOE. The evidence from communication practices and committee memberships (see below) indicates that it is probably the latter. One informant's comments captures the sentiment in many Implementing Units with respect to the role of the Management Unit:

"Key decisions should be made by the Vice Minister and the Unit Directors not the Management Unit Coordinator. [The Coordinator] shouldn't make any decisions except in consultation with the executing unit directors. [The Coordinator] should represent the executing unit directors to USAID, not the other way around. Instead, the decisions are taken in consultation with USAID and passed down."

Function by Committee

Meetings and committees are the primary management mechanism for the BEST Project. The project has a number of standing committees and regular meetings on a weekly or monthly basis. Few of these meetings last less than two hours, and some may regularly last four hours or more. The meetings observed by the evaluation team appeared to require more structure and a clear purpose. They tended not to start on time, lasted too long, had frequent interruptions, and often participants arrived half-way through the meeting. Although some participants arrived on time, they did not expect that the meeting would begin sooner than 30-45 minutes late--sometimes they were well over an hour late in starting.

The standard literature in public administration identifies three primary purposes for meetings--problem solving, decision making, and information collecting and transfer. Meetings are usually considered to be a poor mechanism for transmitting information and instructions. Written information is generally more efficient because it can be clarified and consulted at other times. The most important use for meetings is problem solving, provided that the participants have interdependent tasks that need to be coordinated and that power differentials do not lead to what has been called "Group Think" or other more open pressures. Likewise, if meetings are used participatively and consultatively, they can be useful for making certain kinds of decisions. Decisions are best taken in groups when the problems being examined are open and there is a need for information to frame a problem as well as to take a decision on it.

The BEST meetings were assessed in terms of what the primary function of the meeting was understood to be (information, decisions, problem solving) and whether they were

considered productive. The findings show that meetings in the BEST Project tend to be used primarily for information transfer. In the case of the Steering Committee, it is seen as being used for all three major functions--decisions, information, and problem solving--in equal measure. This indicates that the committee is not well focused and tries to do too much.

Meetings in BEST are overused as a management mechanism. They take up too much time. Respondents in AID, the MOE, and the technical assistance team were asked to estimate how much of their time was spent in BEST related meetings on the basis of their appointment calendars from a given two week period. The estimates ranged from 50 percent to 80 percent of their time. At the same time, estimates of how many of these meetings were productive ranged from a low of 35 percent to 100 percent (one person believed that all meetings are useful). The monthly technical assistance meetings, in which technical advisors present, or read, the monthly reports they are about to turn in, are particularly unpopular. Only one person interviewed found these meetings to be useful.

Structured Relationship of Committees

The only structures identified in the Project Paper for project management were the Executive Committee and the Evaluation Committee. During project implementation additional committees have been added, including MOE subcommittees for each activity and a committee consisting of the core management team (USAID, Management Unit, and AED) that is called different names by different people. For these purposes, it is called the Steering Committee. The Evaluation Committee, referred to in the Project Paper, was mentioned by only one person. No one else interviewed knew what it was and no evidence was found that it has met. The Monthly Meeting, where TA are delivered, reports meets regularly and thus functions like a committee.

The committees are the primary project management mechanism. They are a key as to who participates in the governance of project implementation and an indication in understanding how information changes hands. *The most notable aspect of the primary committees is that most have the same members.* OH&E is represented on every committee, even the internal MOE subcommittees. On some committees, OH&E has multiple members. Likewise, the Management Unit Coordinator is on nearly every standing committee. By contrast, the Directors General do not participate as much nor do they attend regularly, even though they are invited to the Executive Committee meeting. The Ministry upper management sits on the Executive Committee, represented by the Technical Vice Minister. The Steering Committee meets weekly and, as noted above, is active in all three functional areas--decision making, information, and problem solving. This committee is composed entirely of project-dependent individuals whose salaries are paid by A.I.D. In the case of the Management Unit Coordinator, the MOE is expected to pick up the salary beginning in 1993. However, the position will still be dependent in the sense that, without the BEST Project, the

office has no function because the larger donor coordination role is not part of the function of this office.

Management Process

Communication Practices and Effectiveness

Communication in the BEST Project is primarily conducted by meetings and reports, followed closely by memos. OH&E also uses the telephone more frequently than does either the Management Unit or AED. The quality of the local communications systems often makes the FAX a more rapid form of communication. Face-to-face communication (outside of the regularly scheduled committee meetings) and social (informal) encounters are rarely used. There is no planned socializing in the project or unplanned visits.

Communication flows in the BEST Project appear to be largely one way. That is, information and instructions are gathered from subordinates, but there is little open solicitation of opinion or input except by formal means. This is perhaps an indication of barriers to communication, and perhaps explains why, despite the almost universal unpopularity of the monthly meetings, the issue has never been raised in the project.

Shared Meanings of Concepts

The BEST Project has a number of key concepts pertaining to project implementation and management. The effectiveness of communication is not only affected by style but also by shared meanings, or use of a common vocabulary in which all actors are working from the same definitional and referential base for the concepts. Communication that is not based on shared meanings can easily be distorted or go awry. Words do not necessarily mean the same thing to different people--words do not equal concepts. This is true when dealing with only one language, let alone when dealing with key concepts in two languages. Translation can affect the way that concepts are understood. For example, accountability is often translated as responsibility, but these concepts are not necessarily synonymous. The following table illustrates the degree to which key BEST Project concepts share a common meaning within project units.

All of those involved in the project understand that BEST is for strengthening basic education. However, interviews indicate that there may be some confusion about what basic education is for the institutions involved. Also, some Guatemalan respondents expressed reservations about having a project name that was an English acronym. The terms that have the least shared meaning between USAID and the MOE are oversight, team management, and TA as training. This might be explained by the cultural differences in management practices in the two countries. It could also reflect a difficulty in translation.

Table IV. 2

Understanding of Key BEST Management Concepts by Unit

Concepts	Units					
	USAID		MOE		AED	
	Manager	Foreign Service Nationals	Management Unit	Implementing Units	COP	Technical Assistance
BEST	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH
Oversight	HIGH	LOW	LOW	LOW	HIGH	MED
Leadership	HIGH	HIGH	MED	MED	HIGH	LOW
Coordination	HIGH	HIGH	MED	LOW	HIGH	MED
Team Management	HIGH	MED	LOW	LOW	HIGH	LOW
Technical Assistance	HIGH	MED	HIGH	LOW	HIGH	HIGH
TA as Training	HIGH	MED	LOW	LOW	HIGH	MED

HIGH = meaning well known and shared; MED = known and largely congruent meanings; LOW = meaning known, but meanings not congruent or well understood; LOW = meaning somewhat known, not understood.

TA as training is a key concept in technology transfer for the BEST Project and it would be assumed from project design that it would be well known by all in practice. Also, it does not have a meaning as strongly shared by TA Contractors as some other concepts, for example, oversight. This indicates that BEST may not be creating a shared conceptual framework or it might be due to the lack of orientation procedures discussed above.

Conclusions

BEST is management by committee and meeting. USAID/G and the Management Unit are the most important actors in decision making. The key formal BEST management structure is the committee, and the meeting is the management process. BEST

Project management has become very bureaucratic. Meetings are not well focused, too long, held too often, and are consequently not highly productive. The heavy involvement of USAID/G officials in every committee indicates that they may be too involved in the daily activities of the Ministry. Because one of the principles of the BEST Project is to implement activities through existing units, existing processes should not be supplanted by project processes. The Management Unit need not be involved until after decisions are made if the purpose is liaison and coordination.

BEST Project management structures need to encourage more autonomy. The other formal process used for BEST implementation management is the planning process. Implementing Units develop global and annual plans with budgets for their activities, which form the basis for quarterly disbursements. However, approval of the plans does not constitute approval of the activity--subsequent USAID approvals are needed at many stages. This makes the planning process more of a bureaucratic requirement than a guide to action. Plans can also be more brief and focused on objectives to facilitate monitoring and then should be used as a guide to action rather than as a guide to clearances. This would not only make planning more effective, but would also be an appropriate purpose for inter-institutional committees, breeding a sense of collaboration and purpose.

OH&E is heavily involved in implementation details. It is clear to everyone involved in the BEST Project that USAID/OH&E makes the decisions in project implementation. In light of this, the most important committee for decisions about BEST implementation is the Steering Committee, rather than the Executive Committee as was intended in the Project Paper. Once a week this group, all funded by A.I.D., meets to discuss the project for 2-4 hours. From this Steering Committee meeting decisions are handed down the ladder. The participants leave that their instructions: the Coordinator returns with instructions on matters for the MOE; the FSNs have their technical decisions and administrative directives for the subcommittees that they attend; and the COP has decisions to transmit to subcontractors and TA. The level of detail addressed in the meeting observed by the evaluator was generally fairly low considering the responsibilities and salary levels of the participants. (A useful test for assessing meetings is to add up the total salaries of all participants and compare achievements with the cost. It is simplistic, but useful for putting details into perspective.) In the meetings observed and interviews conducted by the evaluator, attention on implementation details was the norm, rather than policy or monitoring issues. At the time of the evaluation, a number of important policy actions were in process, including a new Regulation of the Education Law that would reorganize the MOE and the final draft of the 1993 budget.

BEST management structures need to be more effective in coordinating independent activities. One goal of coordination would be to see that activities that need to occur at the same time or in sequence are so carried out. Very little of this is done. Review and reaction to technical decisions appear more common than anticipatory coordination or decisive action to remove obstacles. In several cases observed by the evaluation team, the monthly meetings

were used to identify needs for coordination of two or three participants, rather than to have the coordinator anticipate the needs and arrange for specific meetings around interdependent tasks.

The BEST Project management style has created a de facto Project Implementation Unit. Although BEST has not created a Project Implementation Unit (PIU) by decree, it has created one in fact. In BEST, the PIU is a three-headed entity incorporated in the "team concept of management." This already has most of the characteristics of a PIU. It is a temporary structure, funded by the project, with no future beyond BEST. Intended to serve as the link between USAID and the MOE, the Management Unit intervenes between MOE Executing Units and serves as the MOE face on the BEST Project, and A.I.D.'s representative in the Ministry. Project communication, administration, decision making, and finance is centralized in the BEST management team and focuses on BEST Project concerns. All of the members of this team are BEST Project employees. Of the remaining PIU functions (i.e., monitoring and control), the former is exercised by the AED office in overseeing implementation of annual plans and the latter by AID.

BEST Project administrative structures need to be more focused on institutional strengthening of MOE administrative capacity. The evidence points to the creation of parallel structures for project management, data processing, and management decision making. The existing MOE inventory, finance, auditing, and information systems rightly are not considered by USAID to be rigorous enough. To improve them, the BEST Project has created parallel planning, finance, auditing, and inventory systems. Some are administered by USAID, some are administered by the Contractor, and some are administered by the Management Unit. All are administered by project funded personnel. On the whole, they are not integrated into the MOE and neither use nor strengthen existing systems. This is important, because the need to strengthen the capacity of the MOE, at all levels, to plan activities, and spend money efficiently and effectively cannot be overemphasized. The inability of the MOE to spend the budget they have is a constraint to efficiently using new monies and a persuasive argument for the Ministry of Finance against increasing the MOE budget.

BEST Project management structures and processes need to better facilitate empowerment of MOE managers to take over decision making. The technology transfer that is being done in the BEST Project is largely on the technical level. At this level--test development and procedures, text revision, radio program development, MIS systems--the technology transfer is impressive. At the other level, the transfer of "soft" management technologies necessary for administrative support, BEST is not as effective. Little planning or decision making related to project implementation is delegated or shared with MOE managers, even at the Director General level. The Management Unit is seen as an A.I.D. representative that makes compliance demands on the Implementing Units rather than serving as a linkage to secure resources or technical assistance to solve problems. In a problem solving capacity, the Management Unit would play both a normative role--setting standards--

and a teaching role--providing both instruction and expert help in order to comply with standards. In short, it would ensure that learning takes place in the implementing units of the MOE.

BEST needs to develop new mechanisms to strengthen management and administrative skills. The Management Information System (MIS) has the potential to empower managers in the Ministry and substantially improve the quality of management and decision making. The MIS can now produce statistics more readily so that managers can easily track progress and budgets, and make more informed plans. The main focus of the information system budget is automating and improving databases for personnel management, educational statistics, budget and finance, and inventory. The Computer Center and technical advisors recognize that this is only the tip of the iceberg. The goal is to develop an educational information system that provides real time data to managers and, beyond that, a decision support system that will enable managers to simulate options for decision making. This is a major goal that has not been accomplished in many developing countries. However, the system is only as good as the ability of MOE managers to use it. BEST has no mechanism to enable MOE managers to use the data systems--no training in management, administration, or use of information. The project management mechanisms do not allow MOE managers to make decisions in project strategy or implementation in such a way as to strengthen these skills. Developing problem solving, analysis, management, and decision making skills in MOE managers can and should be an element of every activity. The need for improved administrative and management skills is clear--the MOE has difficulty in spending the relatively small budget for investment as it is. The ability to efficiently use larger amounts in increased budgets is suspect. This weakness is evident at the basic operational level of most activities--production and distribution systems for textbooks, contracting for equipment, distribution plans for desks, vehicle control and maintenance systems, etc. These mundane activities are the basic support upon which progress in the educational system is ultimately dependent.

The lack of support for administrative and management skills is a design weakness. The Educational Administration Component includes no specific support for management skills, and the project management systems do not encourage participation. In a difficult work environment, Ministry managers are not being given the tools to gain acceptance of the changes brought about by the project. As one top-level MOE official pointed out:

"There have been some changes in the project as it progressed, for example social marketing has been suspended. I don't know why. The original [project] concept was good and would help the MOE overcome obstacles and we wouldn't have to bring people in from the outside to sell changes such as those in personnel."

Beyond the specific management skills needed to utilize the information base, a range of other opportunities exists. Given the difficult labor climate in Guatemala, the MOE would be well served with better skills in negotiation, resolution of organizational conflict, or contract

preparation. In view of the lack of democratic traditions, BEST could promote participatory decision making mechanisms for MOE managers, both through training and by modeling such approaches in the project management system. The MOE regionalization process might be strengthened if BEST would encourage, provide training, or demonstrate consultative planning models for regional managers. There are many other opportunities to strengthen management styles and procedures that would contribute to the lasting institutional strengthening of MOE.

BEST needs to clearly and collaboratively define roles and responsibilities for A.I.D., the Management Unit, or the Implementing Units. The BEST Project has relatively clear role definitions for what are apparently the relationships of primary importance--those between the contractor and A.I.D. and between the Management Unit and AID. The equally important role of the Implementing Units has not been clearly defined.

Recommendations and Suggestions for Project Implementation

Project Implementation

- *Reduce the frequency of meetings and focus the remaining meetings more clearly.*
 - The monthly technical assistance meeting can be replaced by a quarterly meeting. Additionally, the COP and TA technicians should meet periodically.
 - Meetings are not appropriate or effective mechanisms to present a written monthly report. Written reports, monthly or quarterly, should be brief and concise, clearly relating achievements to plans (possibly in graphic form), and identify issues to resolve as well as proposed solutions.
 - The formal weekly meetings of the Steering Committee could be limited to a formal meeting once every two weeks or once monthly. Not enough happens in a week to require a 2-4 hour meeting of all of the key actors. More time between meetings will enable the Coordinator to work closely with the Implementing Units.
 - As a general process of rethinking project management systems, the BEST managers could reassess the purpose, composition, and expected length of every meeting. In general, short meetings with clear agendas and expectations of prompt decisions encourage participants to arrive on time.

- **Redefine and clarify ongoing role and responsibility.**
 - Roles and specific responsibilities can be categorized by function--technical, coordination, liaison, monitoring, control, and operating functions. Roles and functions should be clear for all key actors and institutions.
 - Role definitions should be developed by a subcommittee of the Executive Committee, reviewed by all actors for comment, and adopted and revised at retreats on an annual basis. Individual role descriptions would resemble job descriptions and be behavioral in nature. They should be adjusted to individual circumstances and signed by the actors. One model might be the agreement that the AED COP uses with TA.
 - Role and responsibility clarification should be a continuing, formative process--an open and participative process that involves MOE Implementing Units as well as the Management Unit and A.I.D. This group could be considered the BEST Project expanded "team."
 - A project orientation process should be developed for new people (TA, MOE, or USAID) that join the project in some capacity. This could include a packet of documents with a brief one or two page synthesis of the project purpose, design, changes, and current status; organization charts of the institutions involved; and copies of the role descriptions for executing units and individuals. The new employee could then receive a series of initial appointments with project personnel and begin the role definition process for their own role.
 - A general principle for role definition, consistent with the intent of the project, would be to expand the role and responsibilities of the Implementing Units in order to strengthen the existing systems.
 - A second general principle is that A.I.D.'s role and focus can increasingly move to higher level issues of policy and monitoring. The role of the Management Unit can increasingly emphasize the coordination and facilitative role, representing the needs and decisions of the Implementing Units to A.I.D.
 - Part of the role definition could be guidelines for technical review by A.I.D. personnel. As a general rule, the value and perceived legitimacy of A.I.D.'s technical input will increase when it is either requested or at least offered within mutually agreed parameters. There are clearly some areas in which USAID involvement is required, and others in which it is optional. To the extent that the parameters are clear and mutually acceptable, misunderstandings and resentment of perceived "interference" can be minimized.

- *Encourage and use participatory strategic planning retreats.*
 - On a bi-annual or quarterly basis, the expanded BEST Project team could meet outside of Guatemala City for a strategic planning retreat. Such retreats would be used, as needed, for role definition, flexible implementation plans, cooperation, coordination, social contacts, problem solving, and public relations. On a bi-annual basis, such a meeting might last two days. Approvals and decisions must take place in the meeting and be binding or else there would be no incentive for attendance. As a further incentive, participation in these sessions could be made mandatory for receiving project funds in the same way that the submission of annual plans are now. [Note: project planning retreats were held in 1990 and 1991. The evaluation is suggesting that these retreats be regularly scheduled as a critical part of standard project implementation.]
 - A key objective of the retreats could be to review or discuss action plans for the project units. However, if action plans are to be discussed, it is important that the roles of A.I.D., the MOE, and technical advisors be clearly defined. These retreats would be work oriented, but would also provide time for socializing. It would be advisable to use a professional facilitator for the first several retreats. As the BEST Project participants become familiar with this process, the facilitative role for some of the small group sessions could be shared with USAID and MOE personnel, thereby strengthening their interaction, knowledge, and leadership skills.
 - The suggested planning process would be strategic in nature, starting from an assessment of opportunities and threats in the educational environment (political, social, economic, professional) and the capability (strengths and weaknesses) of the MOE and Implementing Units to confront these problems. This would support the project in its concentration on flexibility designed to meet the challenges of Guatemalan life. It would also provide current information to USAID on potential problems and policy developments that ought to be tracked.
 - Planning for retreats would provide training opportunities, using TA as training in the preparation of the strategic plans. As an ongoing process, there would be opportunities for improvement through formative evaluation. Learning and employing these techniques would be a genuine transfer of secondary technology. The highly participatory and process-oriented activities would increase feelings of responsibility and ownership of the action plans that are made.

- Participation in this process would lead to better communication and clarification and understanding of key terms, thereby creating a useful project jargon. By being centered around planning for separate units, the retreats could help to clarify roles and responsibilities and could highlight opportunities for coordination.
- *Make implementation schedules more flexible.*
 - Flexible scheduling can be accomplished by frequent updates or the rescheduling of project activities. This rescheduling and the tracking necessary to make it happen should be among primary tasks of the USAID staff.
 - Contingency or alternate scenario planning, rather than fixed path planning, can be used. In this approach, multiple paths (with different time constraints) are selected or multiple scenarios with different plans are used. These are strategic in nature and are consistent with the flexible implementation principle of the project.
- *Develop a linking-pin committee structure.*
 - One approach to monitoring and implementing the project plans and clarifying roles would be to restructure the standing committees to develop a linking-pin network among the participating institutions. For example, one way of organizing a governing structure by committees would be to have a governing committee, to include the USAID Project Manager, the AED COP, and the Project Coordinator (or other ministry representative) each representing their respective institutions. Prior to these meetings, each of these actors would meet with the key actors in their own institutions (i.e., the USAID Project Manager with USAID FSNs, the AED COP with subcontractors and the technical assistance team, and the MOE's Project Coordinator with the Directors General, the Directors of Dependencies, and the Vice Minister). In this way communication could be maintained within and among institutions. Real problems that actually require the participation of USAID and AED for resolution could be brought to the table in these meetings, and decisions could be communicated to each institution.
 - If formal committee meetings are to be used in BEST Project management, it is probably for the making of decisions. To assure that decisions are openly discussed and freely made, however, procedures should be instituted to minimize the impact of power differentials among participants. Any meeting where one participant has direct power over the others run the risk of constraints to open exchange of opinions. Claims to consensus decisions are

tainted by the peer differential unless procedures and experience indicate that frank opinions are valued.

- *Concentrate on policy and develop the monitoring function*
 - The suggestions above would provide USAID managers some relief from day-to-day operational oversight and would free them to use their talents to concentrate on the key areas of policy and project monitoring. Using clear and concise plans, carefully selected indicators, and good information USAID personnel could develop a real time monitoring system for project activities. This would allow tracking of the project on intermediate indicators of accomplishment rather than on either global impact measures or specific output ones. This can and should be integrated into the formative evaluation process. Indeed, the strong skills of the USAID project manager in formative evaluation make this an ideal area for her active management participation.
 - This would also provide more time to examine the political landscape of the ministry and to form contingency plans for dealing with anticipated policy changes. One area that would be worthy of time and attention at the moment would be the expected impacts of the new Regulation of the Education Law. This would be a genuine strategic and policy focus. In addition, USAID could begin to take a longer view on education policy and look for ways to influence the rationality of political decision making about education as expressed in those laws governing the Ministry, the teaching profession, and educational access.

Absorptive Capacity

The issues of absorptive capacity deal with both the ability to implement the activities during the life of the project and the ability to continue using technology after the end of the project. In the BEST Project, there are real issues of absorptive capacity in both the MOE and USAID that must be more fully assessed and addressed in future planning.

As was discussed above, the ability of the MOE to effectively utilize new resources is limited. The basic administrative and logistics capabilities are weak in most of the activities. While these activities are mundane and easily overlooked when managers are seeking strategic solutions and policy dialogue, they constitute the real underpinnings of progress. The highest quality texts will not have an impact on teaching quality if the production and distribution network does not get the books to the schools on time or in sufficient quantity. Attractive and well-designed student desks serve little purpose when they are piled up in a regional warehouse. The best student achievement tests cannot be used unless enough vehicles, gasoline, and per diem can be made available when and where they are needed to administer the test. Broadcasts of interactive radio programs cannot be heard unless batteries

regional warehouse. The best student achievement tests cannot be used unless enough vehicles, gasoline, and per diem can be made available when and where they are needed to administer the test. Broadcasts of interactive radio programs cannot be heard unless batteries are available, and they are less valuable if the teacher guides and student materials have not arrived. Dramatic increases in the investment budget are worthless if the Ministry cannot spend the money.

The BEST Project is designed to be flexible enough to respond to the needs for all types of training and technical assistance as might be needed in the implementing units. To date, the primary focus of such assistance has been at the technical level. As the project focus moves to address the real issues of sustainability and absorptive capacity, greater attention can be given to the basic administrative and management technologies needed to maintain capacity in the future. For each activity, the real bottlenecks can be identified and technical assistance or consulting provided. For the great majority if not all of these needs, there are Guatemalan firms capable of providing the planning and organizational support training. The management training can be provided on both a TA as training modality and in short training programs. The specifics of the training will depend on need. The important aspect is to recognize and respond to the management and administrative dimensions of development as well as to the technical.

The BEST Project poses some issues of absorptive capacity for USAID/G also, in terms of the management burden on the Mission. The education office is staffed by one US direct hire education officer and three capable foreign service national technicians. Until recently, the project also employed a personal services contractor to assist in project management. This position was eliminated at the end of July for a number of reasons. The personnel needs of the office should be reassessed in the context of the larger rethinking of project activities and project management structures. In the current configuration with sixteen independent activities and numerous committees, sub committees, and regular meetings, the BEST Project is exceedingly management intensive. Dealing with the sheer detail of keeping the project moving is very time consuming and limits the opportunities for the project manager to direct her attention to the broader policy, strategy, and formative monitoring issues that require her attention.

The issues of management burden and absorptive capacity in both the MOE and USAID need to be addressed in the future implementation of the project.

- Administrative and management support issues can be identified and specifically addressed for each activity.
- The management burden on the USAID education office can be reassessed. The staff numbers, roles, and responsibilities must be balanced with the complexity of the project and management structures used. Adjustments may need to be made on both sides--project complexity and office capacity to respond.

Summary of Key Recommendations

- *Increase the use of participative and collaborative management styles and systems in planning and implementing the BEST Project. All project management processes should be structured to empower MOE managers to make better management and administrative decisions.*
- *Review and revise the definition of roles and responsibilities for each participating organization, committee, and actor using participative processes. Clarify responsibilities and authority in specific terms for technical, coordination, liaison, monitoring, control, and operating functions. Committee responsibilities should be defined using a linking pin structure.*
- *Encourage and use participatory strategic planning retreats on a regular, if infrequent basis to strengthen participation, coordination, problem solving, and implementation linkages among the actors. These retreats should be strategic and formative in nature, to help maintain project flexibility to respond to key issues.*
- *USAID/G should increasingly concentrate on policy issues and more fully develop the monitoring function, based on improved and structured formative evaluation procedures.*
- *Increase opportunities in the BEST Project for technical assistance, consulting, and training to develop management and administrative skills and systems as well as technical skills. Increase the focus on basic administrative, logistical, and management support aspects of institutionalization.*

V. PROJECT IMPACT

Evaluation Task

Determine the effects of the project to date on primary and secondary beneficiaries and the adequacy of project procedures and instruments for monitoring impact in each of the project activities.

Findings

The questions posed relating to Project Impact cover a range of issues and project activities. These include the establishment and use of measuring systems, the achievement of impact to date, and the use of systematic monitoring and evaluation systems designed to have a formative impact on the project design and activities.

The midterm evaluation is, in a very real sense, part of the formative evaluation process for the BEST Project. The Ministry of Education and USAID/G have invested a very considerable amount of time and money to complete this evaluation. The timing of the evaluation makes it particularly appropriate for use as a formative instrument, or as a source of data for formative decision making. The project is involved in a reprogramming exercise and is in a very different position in terms of the overall Mission strategy with respect to education than was envisioned at the time the Project Paper was authorized. This would, in any case, necessitate a rethinking of project strategy and a "stocktaking" exercise. The midterm evaluation can be one facet of this exercise.

The BEST Project has just completed its third project year and its second year with a functioning technical assistance contractor in country. In that period of time, the Government of Guatemala, along with the most important posts in the MOE, changed hands, replacing virtually all of the people who had been involved in the original project design and negotiations. The national supervisory system, a significant part of the project, was disbanded and then recreated. The new corps of supervisors was officially hired in the summer of 1992. A series of negotiations with various private sector institutions and universities fell through, requiring the project to find alternative implementation mechanisms for the testing, school materials, research, and one-room school activities. Within A.I.D. itself, changes in Mission management and office directors have also occurred. All of these factors and delays, none of which are unusual in a development project, have worked to slow the progress and impact of the project. Therefore, in the beginning of the fourth year of the project many of the major activities--one-room schools, PRONEBI expansion (by original timetable), MIS system purchase and installation, and supervision--are only just beginning. Others have been suspended.

Given the broad scope and ambitious nature of the overall project targets, it would be unreasonable to expect to be able to find measurable progress at this point. As discussed in the section on Goal and Purpose, the actual set of activities that comprise the BEST Project have little direct influence, in the short-term, on the overall project targets of national level changes in repetition, dropout, and achievements. The same very much holds true for other national trends, such as per-capita income, caloric intake, and health/population statistics. While there is a clear relationship between population levels of primary education and such numbers, the time lag between the use of an improved textbook or a teacher training course and such impact indicators is very extensive. The impact of any given number of sixth grade students that graduate on national income statistics is invisible. Therefore, there is no feasible means of relating such changes to the extent to which the project has met projected targets.

The monitoring and evaluation of specific project activities is intended to be done as a summative tool for measuring and as a formative tool for tracking and improving project processes. On the impact level, the primary mechanism for measuring and analyzing the differential impact of various interventions, both project and nonproject, will be the achievement tests developed by the BEST Project. These tests, which will be able to be disaggregated and analyzed by project activity (radio, PRONEBI, one-room school, etc.) and by gender are potentially an important formative tool to better understand and refine interventions and strategies. At this point, the first tests have just been administered, and the system will be under development for several more years until it is fully validated.

The project monitoring and evaluation system, as described in the Project Paper and in various project documents, is to include formative evaluation procedures for each activity and for the project as a whole. The intention of the system is not only to track the major activity milestones of each activity, but also to track the accomplishments in terms of progress toward a goal. This is an ambitious undertaking and one that cannot rely on other Mission or even A.I.D. experience to learn from. The expectation was that the project Formative Evaluation expert would serve as a resource for the other project personnel in developing and using these formative processes. The monitoring and evaluation procedures are the responsibility of a Monitoring and Evaluation Committee, or formative evaluation committee comprised of A.I.D. and Ministry officials. Some of the project personnel have attended a workshop for training in formative evaluation planning and procedures. All of the activities were expected to develop a formative evaluation plan.

At the time of the midterm evaluation, the potential for using formative processes in monitoring and evaluation had not yet been realized. Despite the rhetoric of support, there has been no consistent management focus on monitoring and evaluation. The Monitoring and Evaluation Committee had not apparently met--there were no project records available relating to activities of this committee, and only two people apparently knew that the committee exists. The interest in and commitment to formative evaluation appears to coincide with the arrival of the formative evaluation specialist. When he leaves, the topic is dropped. The Mission and contractor recognize the situation.

Of the current 16 BEST activities, seven have some form of formative evaluation procedures in place, or at least are conducting monitoring activities analogous to such evaluation. The actual use of such information in making adjustments to schedules, processes, and products is difficult to judge. The tracking of milestones--achieved versus planned--is not regularly or consistently recorded in monthly reports. In fact, the lack of a consistent reporting format for the project makes such tracking difficult in any case.

Considerable potential exists for the effective use of formative evaluation procedures in the BEST Project. However, in order to realize this potential, monitoring and evaluation must become more of a management priority for the BEST Project. Moreover, this priority must be expressed in terms of both control and tracking toward targets: whether activities are being accomplished on time, what results are being achieved, and whether learning is taking place. It is the latter two levels--results and learning--that are currently the weakest links in the process. It is necessary to establish a carefully thought through plan and continually revise and upgrade this plan with experience. The plans must identify the critical milestones and indicators of achievement of the purpose of the activity and the project and then identify some appropriate measures of such achievements. In some cases, this will require rethinking what the overall purpose of the activity is and finding new conceptual frameworks for measurement. Finally, and most importantly, the information and insights collected must be shared with the various participants. For any activity to be truly formative, it is necessary for the learning to be used by everyone in the process to improve their own work.

The standard of formative evaluation is different for each of the BEST activities. Some have reasonably solid practices even if the process is not well recorded. For example, the MIS activity systematically and regularly reviews staff activity and takes corrective action as needed. Despite the systematic review, however, plans are not revised to reflect such actions. Other activities have elements that look like formative evaluation but fail to incorporate the broader objectives into process. An example is radio, where extensive classroom observation and reporting are used on a regular basis and incorporated into the new materials development. However, the focus of the observations is geared toward materials development rather than toward the actual results of the activity in terms of pedagogical objectives or variables.

Conclusions

If the formative evaluation process is to become a valuable tool, it will require several changes in the way it is currently being done.

- *Formative evaluation procedures must be given real management attention and importance.* Tracking against milestones, accomplishments, and results need to be included as a standard element in monthly or quarterly reports. Equally important,

the reporting can include response to the findings, implications for cost, timing, or technical approach, and revised milestones as appropriate.

- *Formative evaluation planning, reporting, and action must be given importance and supported by the monitoring and evaluation committee.* The committee should receive much more training and occasional additional technical backstopping in order to strengthen their ability to serve as a resource to all project activities.
- *Each activity needs to develop its own clear objectives and expected results and define milestones for achieving them.* Activity personnel should be encouraged and assisted to think creatively beyond the specific contractible actions to the results and accomplishments, and further to the relationship to the larger objectives of the project. This process can be integrated into the strategic rethinking of the overall project, with each activity and implementing unit redefining its contribution in terms of desired outcomes and developing new measures for institutional strengthening as well as activities.
- *An effort to truly initiate such evaluation procedures based on outcomes would offer the potential to utilize and combine formative and summative evaluation data to actually draw informative conclusions about the factors that affect educational improvement.* Traditional thinking about formative and summative evaluation puts them into separate categories--for example testing of student achievement and on-going qualitative monitoring of classroom innovations. To the extent that they can be combined, one can relate test outcomes to specific variables and interventions at the classroom level. This would then allow for multivariate analyses, such as regression, factor, and discriminant to analyze the impact of such factors as teacher quality, types of activities, time on task, or availability of materials on test scores. From a factor analysis point of view, we would be able to see which factor or groups of variables have the greatest influence on test scores. This type of analysis would be required to help the MOE identify the most cost-effective package of activities that improved education. It would provide much better information than the one-variable analyses currently being used. The challenge would be to link quantitative and qualitative information together in a meaningful way.
- *The decision to develop and integrate effective formative evaluation procedures into the BEST Project along the lines discussed here would have very real budget implications.* From a project management point of view, the question is whether the value of much improved information and improved management procedures are worth the use of project resources. In part, this will depend on how the project objectives are defined and understood--in terms of activities, validation of cost-effective approaches, and institutionalization.

- *To the extent that the formative evaluation process is incorporated into the working procedures of the Ministry, rather than as a project requirement, it will be a useful and lasting contribution to improved management practices in the MOE.* In order to integrate this into the ministry, the process will have to be focused on the Ministry's priorities and objectives rather than simply on the BEST Project objectives. This process can be used as part of the ongoing institution building efforts to assist the MOE in making decisions based on improved information and a rational process.

It is worthwhile to consider the formative improvements in the project in terms of the larger objectives of institution building and technology transfer. The traditional view of institution building emphasizes the transfer to what might be termed "hard" technologies--professional and technical expertise in key fields. In the BEST Project, the "hard" technology transfer focuses on computer usage, GIS production, curriculum and materials development skills, publishing expertise, standardized test development and application, broadcasting program development, and information systems design and implementation. These are clearly useful and important skills that will enable the MOE to continue with the program improvements.

In addition to these techniques, however, institution building is ultimately dependent on the ability of an organization to utilize the available resources efficiently and effectively, including the professional resources of trained staff. It includes the ability to plan for achievements, identify resource needs, establish realistic budgets, revise plans based on experience, and maintain the flexibility to adapt and change. These management skills, among others, could be considered to be "soft" technologies. Ultimately, the administrative and management skills included in such "soft" technologies are a critical foundation for any institution building.

- *As with other project activities, the extent to which formative evaluation is a BEST Project activity as distinct from a MOE activity is important.* Much of this is perception and attitude, but these factors directly affect ownership and ability to use.

The potential for using formative evaluation procedures to strengthen the MOE management skills as well as to make improvements in the project activities is substantial. However, more continuity, management attention, and integration into the standard reporting and feedback systems are needed. The occasional arrival of short-term assistance does not provide either the continuity or the degree of expert assistance necessary. One option to address this would be for the A.I.D. project manager to take this role, as she has the professional background and experience necessary to do this well. It would also be an appropriate role given the interest and importance of monitoring and evaluation for A.I.D. However, this would require some degree of shifting responsibilities to other existing or new staff to allow the time to do so.

VI. PROJECT INNOVATIONS

Evaluation Task

Assess the extent to which the BEST Project is contributing to or can contribute to the state of the art in basic education, through an analysis of Project innovations in the field of basic education (i.e., bilingual education, Girls in Development (GID), Interactive Radio Instruction (IRI), and one-room school programming (*Nueva Escuela Unitaria*).

Background

As called for in the SOW, this chapter describes, analyzes, and makes specific recommendations for innovative project activities. For the most part, these activities were set forth in the original Project Paper, but some have since been modified and others have been added. At the time of the midterm evaluation, each of the four innovative activities-- expansion of bilingual education, interactive radio learning, Girls in Development (GID), and the one-room school--were in various stages of planning and implementation.

More specifically, the objectives of this part of the evaluation are to assess the use and impact of the innovations at the individual student and classroom level and determine the knowledge, acceptance, and participation by teachers and local community members. During the time of the field research in response to the SOW, July and August 1992, the only activities being implemented in the classroom were two interactive radio interventions, *Español, Mi Segunda Lengua* and *La Familia de los Números*. As a result, the major emphasis of this chapter will be on interactive radio.

Because of personnel problems and the process of being incorporated into the MOE, the expansion of bilingual education has been delayed, and the planned curricular changes, the modification of texts, the production of material in four new languages, the selection of additional schools, and the training of teachers had not been started. Although the use of new materials could not be observed, teachers and parents were asked a series of questions about their knowledge and attitudes about bilingual education, and observations were made in classrooms using bilingual methodologies.

The GID component was not contemplated in the original project design as a distinct activity but has become a major part of the reprogrammed activities as described in the Project Paper Supplement. The newly established GID office at the MOE has been charged with monitoring all project activities related to gender, holding workshops for MOE and project personnel, training teachers, and implementing fundraising to sustain activities beyond

the EOP. As a response to the need for information regarding teacher and parent attitudes toward gender issues, a large number of questions was included in the teacher questionnaire and the parent focus-group protocol. In addition, classroom observations were made in the context of identifying possible gender bias in terms of teacher behavior and in the content and use of the interactive radio lessons.

The one-room school component, *La Nueva Escuela Unitaria* (NEU), had established an office in Cobán, selected participant schools and teachers, and carried out initial teacher training, but no classroom activities had begun. Nevertheless, a number of questions were added to the teacher interview protocol for teachers who had received the initial training, and five NEU schools were included in the sample.

Methodology

All the data collection and analyses for this part of the evaluation were conducted using qualitative procedures; all questions asked were open-ended and ethnographic field notes have been transcribed for all classroom observations. In this chapter, the most important data and their implications for the project are discussed, but more extensive data presentations and analyses can be found in the Annexes to this report.

Sampling

The sample of schools for teacher interviews, classroom observations, and parent focus-groups were selected using a purposive strategy to assure the inclusion of as many important variables as possible. This meant getting a balance of urban and rural schools using radio, both for math and Spanish instruction, and bilingual education. An adequate number of control schools where no innovative activities were taking place was also selected (i.e., no bilingual education and interactive radio.)

A total of 34 schools were visited: 20 rural, 10 suburban, and 4 urban; 17 schools were part of PRONEBI, 11 were using *Español, Mi Segunda Lengua*, and 4 were using *La Familia de los Números*. A total of 45 teachers and school administrators were given in-depth interviews, and 104 students, mostly pre-primary, were given relatively short interviews. Eight groups of parents participated in focus group discussions.

Classroom Observations

The 13 classroom observations were made using established ethnographic methods, including the recording of setting, the number of students, and the classification and description of specific events/activities. In order to detect possible influences or effects, a special effort was made to record the activities over an entire school day to place innovative activities in their proper context; the times and duration of activities were recorded for both

overall class exercises as well as for individual student time spent doing specific tasks. Careful notes were taken.

Interview Techniques and Protocol Design

All the interviews were done by the educational anthropologist and five experienced field assistants who were specifically contracted for this evaluation. All had previous experience doing ethnographic interviews, making detailed observations, taking field notes, and conducting focusgroup discussions.

Three interview protocols were designed, one each for parents, students, and teachers. Drafts of the protocols were shown to the appropriate project personnel and to USAID/G staff. Comments and suggestions for revision and additions were made, and the final instruments presented in Annex 6 reflect the cumulative input of numerous individuals, especially those involved with GID.

Analytical Strategies

The verbatim answers from the interview data were transcribed and placed in computer data files and organized by teacher worksite in the Verapaces, Chimaltenango, and Metropolitan Guatemala City. Subsequently, the data were reduced using content analyses, and the categories were counted, described, and tabulated. The sections that follow give a verbal description of the most salient findings while more detailed analyses and a data display can be found in Annex C6.

The observations made in 13 classrooms have been summarized in terms of the most important similarities and differences in the use of radio in different kinds of schools and in schools not using interactive radio. Again, more detailed accounts of activities in each of the schools observed are presented in Annex C6.

The focus groups were conducted using a moderator and an observer who took detailed notes; five of the eight groups were also tape recorded. After each group was completed, verbatim transcripts were made from the recordings and notes were examined for accuracy.

Findings

The findings are presented in four segments: classroom observations, teacher interviews, student interviews, and parent focus groups. Because classroom observations were only made for interactive radio, those are the only findings to be reported.

Classroom Observations

Thirteen classes were visited and observed for varying lengths of time--some for the radio lesson and the time just before and after, and others for the entire schoolday to determine the effect of interactive radio on other classroom activities. For descriptive and comparative purposes, the observations have been divided into those made in Alta and Baja Verapaz, and those made in the Metropolitan Guatemala City Area.

Alta and Baja Verapaz

Four schools were visited for observation purposes: three for the entire school day and one for part of the day. Three of the schools were using Radio Spanish, and the fourth was selected as a control. One of the radio schools and the control school belonged to PRONEBI, and two of the radio schools were being used for formative evaluation while the third was using Radio Spanish on a volunteer basis.

Tontem

This school, which was the first of the three radio schools visited, was located on a main road some five kilometers outside Cobán. On the day of the visit attendance was relatively low; out of a total of 60, only 16 boys and 26 girls were present. The teacher said that many boys were absent because it was the time of year to help their fathers clean the cornfield, which is a very labor-intensive activity. Although the school day was supposed to start at 7:30 a.m., the teacher did not initiate any activities prior to the beginning of the radio lesson at 9:00 a.m. Most of the students arrived between 8:00 and 8:30 a.m., and a few stragglers came in just before the program started.

The radio was turned on and the station tuned in just prior to the broadcast; reception was excellent, and the program began with an initial segment in Q'eqchi. Although the teacher drew a machete on the board and repeated the Q'eqchi word for it followed by the Spanish term, only a few of the students paid any attention. The lesson began in earnest with the singing of "Buenos Días" and about 90 percent of the class joined in. The lesson of the day was No. 102, and the class was informed as to what they needed during the lesson--a one Quetzal bill, a key chain, chalk, etc. During the lesson individual children were asked to go to the front of the class, hold up objects, and respond to questions from the radio announcer. These segments were punctuated by marimba music and songs to signal changes in activities; boys and girls were singled out to participate in an egalitarian manner.

Quite often after the radio asked the students a question, the teacher would repeat it in Q'eqchi taking up the time allowed by the program for students to answer; the result was that students would answer while the next question or instructions were being given. The net effect was to throw everything out of phase, drastically reducing participation, sometimes to no more than 20- 25 percent of the students. Other segments were much clearer, and

participation was greater. One problem was excessive repetition, especially during the machete segments, and the students became visibly bored and distracted. The teacher was doing her best to help the students along, but she was doing too much, to the point of distraction, and creating real interference with the radio responses and activities.

The greatest participation was during the song segments; these children really enjoyed singing and did it with great enthusiasm. The lesson ended with the singing of "Adios, Adios" followed by a commercial message for the BEST Project and its sponsors, A.I.D., AED, and the MOE. This was followed by an 8-minute segment in Q'eqchi, very much like the opening segment. Less than 10 percent of the students paid any attention. The program finally ended with marimba music at 9:40 a.m. The teacher turned off the radio immediately.

After the program, the teacher asked the class a series of questions in Q'eqchi related to the content of the radio lesson, and the response was relatively good; over half raised their hands immediately after each question. This bilingual teacher obviously had very good rapport with her students. At 10:00 a.m. the refacción was served. This was followed by a half hour recreation period. Class began again promptly at 11:00 a.m. The last period was devoted to the students copying Spanish text into their notebooks. When finished, each student brought their work up to the teacher for correction. About 70 percent were, in fact, doing their assigned tasks. The last 20 minutes of the school day were spent sewing and embroidering; both sexes participated equally, and every student did some work prior to leaving school. The children went home at 12:15 p.m.

Siguanha

This school was chosen because the pre-primary teacher in the school scheduled for observation did not come to work; according to another teacher, this is a common occurrence. In the course of visits to 34 schools, teachers were absent on three occasions. In this particular case, it was fortunate that another school using Radio Spanish was located only 10 minutes down the road.

The situation in Siguanha was somewhat unusual in that pre- primary, first, and second grades were together in a single room, and all three grades participated in the radio lesson. The radio was turned on just as the program began, and the quality of the reception was not as good as in the school in Tontem. Once again, neither the students nor the teacher paid much attention to the Q'eqchi lead-in segment, but once the lesson began, everyone chimed in by singing "Buenos Días." For the first 15 minutes of the lesson, participation was relatively good, and the teacher did not interfere excessively during the time allotted for student responses. Instead, she moved around the room insuring participation where she noted inappropriate behavior; she had continuous problems with five boys in the front row who were disturbing other students as well.

During the second half of the lesson, student participation decreased drastically to about 40-50 percent. Furthermore, the situation was worsened by deteriorating radio reception quality, which appeared to have a negative effect on student attentiveness. Participation during the song segments was very high throughout the lesson. After the singing of "Adios, Adios", no one paid any attention to the final Q'eqchi segment. After the program, there were no special follow-up activities, but general disorder prevailed until the refacción and recreation period began, which was about 9:55 a.m. Class started again at 10:55 a.m.

For the final period, the teacher assigned separate tasks to pre-primary and first and second grades as a single group; she let the pre-primary students draw and color with crayons, and the first and second grade students did simple multiplication problems she wrote on the board. The students copied the problems into their notebooks, then wrote in their answers, and brought the books to the teacher for correction. A number of children were excused and allowed to leave school in order to go to work on a nearby finca where they got paid for filling sacks with coffee or cardamum. The teacher explained that if she did not allow them to leave, their parents would not send them to school at all; she emphasized that partial attendance was better than none, especially if they were able to participate in the radio lessons.

During the math exercise three boys in the back row were observed over a 10-minute period to determine how much time they actually spent on the assigned task. One spent 7 minutes, another 6, and the third only 4. Periodic observation around the classroom gave the clear impression that most of the students were doing their assigned tasks considerably less than 50 percent of the time. In addition, all of the conversation among the children at all three grade levels was in Q'eqchi. (As it turned out, this was a pattern observed in all the schools in Alta and Baja Verapaz.) The last activity of the day consisted of all the remaining children coloring images of animals, people, and houses, using individual sets of crayons handed out by the teacher.

After school, the teacher said that she was hoping that radio math would be available soon to assist her in teaching badly needed numerical skills. She felt that math was one of the most important subjects for all three grades and that she often assigned math homework. In general, she seemed to be a capable and well-motivated teacher.

San José La Colonia

Located on the road to San Pedro Carcha, about two kilometers outside Cobán, the *Escuela Rural Nacional Aida Martínez* had two pre-primary classes using interactive radio, and the entire schoolday was observed in one of the classes. Class activities began about 8:10 a.m. with the teacher drilling the students on the day of the week, date, and year; she spoke only in Spanish and all the children spoke Q'eqchi amongst themselves; this was not a PRONEBI school, and the teacher could only speak Spanish.

The next activities included singing some songs, saying a prayer, and reciting a poem, "the Monja Blanca," written on a wall poster. At about 8:30 she started handing out notebooks and asked the students to get out their pencils. At this point a couple of tardy girls arrived. The teacher asked why they were late, and then went on to write letters on the blackboard. The children were asked to find a word for each letter. Between 50 and 75 percent of the students did as they were told. About 8:35 a.m., the class started getting restless, and there was frequent mention that the radio program would be starting very soon, and even fewer were doing the assigned task. Over a 10-minute period from 8:40 a.m. to 8:50 a.m., two girls and a boy spent 4, 3, and 2 minutes, respectively on the assigned task to be done while sitting at their desks.

At 8:50 a.m. the teacher turned on the radio, turned the volume down, and told the class to put away their pencils and notebooks. Everyone was waiting for the program to start, and the children were walking around talking to each other; the noise-level was quite high, approaching pandemonium. Just before nine, she shut the door, told the kids to sit down, touch nothing, and pay attention to the program. At this point, a man and a woman, the formative evaluators from the Radio BEST office in Cobán walked in, and without a word sat down in two chairs on each side of the room in front of the class.

The radio lesson began promptly at 9:00 a.m. with the segment in Q'eqchi, and as before, no one paid any attention. After five minutes, lesson 104 got under way with the singing of "Buenos Días." Reception was very good, and most of the class joined in. The first 15 minutes contained segments about a toothbrush, a quetzal note, and a coin. At varying points, children were asked to go to the front or the back of the room and hold up the objects for identification and questions from the announcer; about two-thirds were paying attention and participating. After the first half of the lesson, attention decreased drastically, and disorder was beginning to predominate. The teacher was having real problems keeping order, and the children were paying very little attention. Only about half of the students joined in to sing during the last half of the program. The lesson ended at 9:30 a.m. with the singing of "Adios, Adios", and again no one paid any attention to the final Q'eqchi segment; the class became disorderly, children wandered around, and many went out to the bathroom. The formative evaluators got up and left the room.

After the radio lesson was over, the teacher asked some questions about what they had learned, but no more than 15-20 percent were paying any attention; they were all anticipating the refacción and the recess at 10:00 a.m. The teacher then handed out crayons and asked the students to sit at their desks and work with their coloring books until it was time for the refacción. Observed time on task from 9:45 to 9:55 a.m. was about one minute for three girls sitting together near the front of the class. At 10:00 a.m. a bell rang, and it was time for the recess.

At 10:45 a.m., the children began coming back, and the bell rang at 11:00 a.m. The next half hour was used for coloring in books with outlines made by the teacher; she said they

were the same objects mentioned in the radio lessons, and the exercise would help the students remember what the lesson was about. At 11:30 a.m., the teacher told the students to take out their math notebooks and proceeded to draw three circles, three triangles, and three squares on the board; she then wrote numbers inside each figure. The object was for the children to identify the form and the number inside and make copies in their notebooks. About half did as they were told. The school day ended at noon.

Nisnic

This suburban school, located outside San Cristóbal Verapaz, was an incomplete PRONEBI school with a male pre-primary bilingual teacher using Poqomchi and no interactive radio. On the day of the visit, there were seven boys and four girls in attendance out of a total of 22. The teacher explained that absentee rates were very high at that time of year because children have to help their parents in the fields.

Class activities began at 8:23 a.m. with recitation of the day and the date in Poqomchi; next he began a lesson in Spanish using a standard text, *Idioma Español Expresión Oral*. At 8:50 a.m., he drew three circles on the board, one containing two trees, the other four pieces of gum, and the third five cups. The children were relatively quiet and well behaved, and they dutifully copied everything into their notebooks. He then asked the class to name the contents of each circle and the number of items; first, he called on individual children and then preceded to have the class answer in unison. This and similar designs he got from a book called *Matemática Pre-Primaria*. The teacher made the comment that there were no bilingual materials of any kind in Poqomchi, and he had to improvise and make his own.

By 9:00 a.m., most of the students had made their own copies and were starting to get restless, but the teacher then had each child bring his book for correction and the class became more orderly. About 9:15 a.m., he drew other designs on the board, and they did counting exercises using circles with different figures inside. The girls seemed very alert and participative, and had no trouble doing the counting in Spanish. At 9:25 a.m. the teacher had the class start working with wall posters that had animal figures and Poqomchi words and syllables; they went through the sounds, and he called on individual children to recite in front of the class. After that, they sang a song in Poqomchi and another one in Spanish. The singing was very clear, and everyone participated. The verbal exercises continued until 9:50 when everyone went outside to play a game where they formed a circle with the teacher; one boy was in the middle and another on the outside. The objective was to have the outsider be a cat chasing the mouse into the hole, represented by the inside of the circle; everyone participated and got plenty of physical exercise. The refacción was served at 10:00 a.m.

After the recess ended at 10:45 a.m., the pre-primary and first grade children were told to go home while the others removed all the desks and furniture and proceeded to scrub the floors and wash the windows. This was in preparation for a parent-teacher meeting to be held on the following Sunday morning. The teacher said that normally they would have continued

held on the following Sunday morning. The teacher said that normally they would have continued with some math and then more Spanish exercises to complete the school day, which ended at noon.

Metropolitan Guatemala City

A total of five schools were visited in the Guatemala City area. Four of the schools used interactive radio to teach math in the first and second grades. The fifth school was selected as a control to facilitate a comparison of type and duration of classroom activities. The descriptions presented below are from an urban girls' school using radio math in first and second grade and a rural school in the municipality of San Raymundo. Complete descriptions of all classes observed in the five schools can be found in Annex C6. The objective here is to show how different teacher involvement and attitudes can affect student participation in the interactive radio math lessons.

Escuela José Antonio Salazar, Zone 10, Guatemala City

In a first grade class of 26 girls, there were no organized activities prior to the beginning of the first grade math lesson which began at 8:30 a.m. On the day of the visit, lesson 101 was broadcast, the same lesson as the day before. Apparently the technician at TGW mixed up the tapes, but in this class it did not matter because they had missed the previous day's lesson.

The first part of the lesson consisted of doing subtraction using fingers; about 90 percent of the girls participated. The next exercise was saying which number comes before and after a number announced on the radio; the girls had a lot of trouble with this exercise, and the teacher was running around trying to explain what they should be doing and what the correct answer should be. At one point the situation became somewhat chaotic, but things became much more orderly when the radio asked everyone to stand like trees and move with the wind. Everyone participated, including the teacher. Afterward, there was a practice segment on very simple addition: $32+1$, etc., followed by a song, *Los Cinco Deditos*. Again, everyone participated. The next segment asked the girls to do addition using objects, but instead most were doing the sums mentally. By 8:55 a.m., attention was visibly beginning to fade, but the program was almost over. The final segment was a repeat of naming the number before and after, and again, the girls were not very good at it. After the program, the teacher left the room and no special follow-up activities took place.

As a group, they were fairly quick at following instructions, and the teacher's involvement was not excessive but appropriate. She appeared to have very good rapport with her students.

At 9:00 a.m., the lesson for second grade began; it was also a repeat of the lesson from the previous day, but no one seemed to mind or even notice. This class had 36 girls, and a

first segment consisted of using objects for addition: pieces of candy, beads, pennies, corn kernels, and bottle caps. Everyone participated in singing "Los Números" and then went on to do addition of double and triple-digit numbers. Most of the students were not able to write down the correct three digit number in the allotted time. Student participation in this class was moderate to low, and the teacher played a very passive role. She did virtually nothing during the entire lesson.

Aldea Pachali, San Raymundo

This was one of the relatively few rural schools in the Metropolitan Guatemala City area, located to the east of the city between San Pedro Sacatepéquez and Chintla. Interactive radio math was used in the first grade only, while the traditional math curriculum was used in the second grade. The first grade consisted of 53 students (23 girls, 19 in *traje* and 30 boys) crammed into a small dark green room with translucent, dirty windows along the top of one wall. No preparatory or other activities took place prior to the 8:30 a.m. radio lesson; a minute before the broadcast, the teacher told the students to get out their math notebooks, and she gave pencils and ballpoint pens to those who did not have them.

The program began at 8:32 a.m. with the traditional "uno, dos...", but these children did not sing along. It was announced that this was lesson 102 and the song, "Los Tres Patitos," began, but again, there was very little participation; most of the students sat very quietly and listened. The first segment consisted of finger counting and subtraction; about 40 percent of the class participated. The next activity was naming the number before and after, and in this class very few students got the right answers. Participation for counting in reverse went up to 50 percent, and the teacher tried to help some of the children, but her efforts were in vain. When asked to stand, most did so and then sat down and did an addition exercise (22+1, etc.). About 10 percent called out the answers. When objects were used, somewhat less than half joined in moving bottle caps and kernels of corn, etc. When it was time to sing, "Los Cinco Deditos," no one joined in; a few moved their lips but with no audible sound. Attention began to fall off when the lesson passed the 15-minute mark, and the teacher periodically left the room. The last segments seemed to move very slowly, and many students appeared to be very bored, as did the teacher. When the lesson finally ended at 9:00 a.m., everyone seemed relieved.

After the radio lesson, the teacher handed out notebooks and wrote a series of Spanish words on the blackboard for the students to copy. They would then bring up their notebooks for her to correct on the spot. Time on task for this activity was approximately 30-40 percent over a 10-minute period for two girls in the third row. Other individuals, observed over 4-5 minute periods of time, appeared to be doing the assigned task for about the same amount of time.

After the *refacción* and recess, which lasted from 10:00-11:00 a.m., the teacher assigned more math exercises and ended the day with the students working with crayons in their

coloring books. Participation in most of the activities appeared quite sporadic, and only a few appeared to spend much over 40 percent of their time on any one seat assignment.

Intermittent observations were also made of a second grade class held in the covered part of the patio, just outside the first grade. This teacher did not use the interactive radio lessons but spent the time between 9:00 a.m. and 10:00 a.m. teaching long division and multiplication of two and three digit numbers. She thought that there was nothing wrong with the radio lessons but felt that it was more important for her students to learn the "right" way to do more complex math. She felt the radio lessons would be more useful if they followed along with the regular math curriculum and textbooks.

Teacher Interviews

A total of 40 teachers were interviewed using the open-ended protocol described above. Thirty teachers, an equal number of men and women, were interviewed in the Verapaces and Chimaltenango, and 10, all women, were interviewed in Metropolitan Guatemala City. Their average age was 38, with an average of 15 years of experience as educators and an average of eight years working in the same school. In other words, the sample consisted of a mature group with extensive classroom experience. Ten have been trained as bilingual teachers, but a total of 28 claimed to be fluent speakers of a Mayan language. Only one of the teachers in the Verapaces and Chimaltenango lived in the community where they work.

This section presents the most important findings from a preliminary content analysis of responses. The large number of varied answers was reduced to more basic and uniform categories for the purpose of counting and tabular display.

Bilingual Education

Seventeen out of the 30 teachers in the Verapaces and Chimaltenango felt that bilingual education was a good and very effective teaching methodology essential for learning Spanish; only two teachers said that the parents were not interested in having a Mayan language used in the classroom. The rest mentioned that bilingual education is good as long as the community approves, that children want to learn Spanish, and that it also helps the community preserve its own language and helps children to get jobs. Only two teachers gave negative responses.

The most commonly mentioned problems with bilingual education were the lack of appropriate texts and didactic materials, lack of teacher training, inappropriate material in relation to age of children, and inappropriate or incorrect Mayan language materials. Three teachers also said that the parents in their communities wanted only Spanish to be used in the classroom. Some comments were that many teachers do not understand the Mayan language very well, the teacher's guides are not complete, and some teachers absolutely do not want to use a Mayan language in school.

When asked what should be done to improve bilingual education, most of the teachers said that more training was needed, the texts needed to be reorganized, and more didactic materials should be supplied. Some mentioned the need to motivate and explain the purpose of bilingual education to community residents in order to gain more support, and some said that the results of bilingual education should be shown to community leaders and residents. Other suggestions included shortening the lessons, improving the quality of the lessons, and making the lessons and the texts more relevant to the everyday life of the students.

The teachers felt that, other than sending children to school and contributing some materials, the community provided little support for bilingual education. Many emphasized the need to publicize the goals and methods of bilingual education in the communities where it is or will be used. If parents do not know the program, there is very little reason for them to be supportive.

Interactive Radio

All the teachers expressed varying degrees of support and approval for using radio in the classroom to teach both Spanish and math. The most commonly expressed reasons were that the radio helps the teacher, motivates and helps students learn, and is a useful tool for effective teaching. Others said that the radio encourages shy students to participate and that other people who listen to the radio at home or at work can also learn.

The most frequently mentioned problems were that the lessons moved too fast, the parts in the Mayan language do not motivate the students, the lesson content is not appropriate for the students and their communities, and often the reception is not very good. Some also mentioned that classroom acoustics were bad and that the radio transmitter should be more powerful. Furthermore, some of the teachers working in multigrade classrooms said that all the students were forced to listen to the program, resulting in problems for both higher and lower grade levels.

Only eleven teachers said they received teacher guides on a timely basis and that they used them regularly. Most of the remaining teachers said they never received any guides or that they received them sporadically. One teacher said he got the guide but did not use it because there was already too much to do. Those who received the guides said they were useful in preparing for the lesson and in helping the students understand specific questions and activities during the radio lessons.

Very few teachers said they did anything prior to the lessons other than get the necessary materials, turn on, and tune in the radio. Seven teachers said that they review the lesson afterwards, and a few said that they go over the lesson in the Mayan language to make sure the students have understood. The rest simply said that they went on with their regular activities, or that they let the children go out and play for a while.

A majority of the teachers, in both Spanish and math, said that the lessons did not affect any of their other activities. However, many said that the timing was bad; it would be better to have the programs at the beginning or the end of the school day, not in the middle as was the case for Spanish and second grade math. Some others said the lessons were too long and that they interfered with other classes and activities. Virtually all of the teachers who use the Spanish lessons felt that changes should be made to improve the programs.

When asked what changes should be made to the lessons, many of the teachers who use Spanish said that the lessons should be made more relevant to community issues, contain less repetition, have more opportunities for the children to interact, and improve the beginning and ending Mayan language segments. Two teachers who used the math lessons said that the programs should be speeded up and that the content should be made more challenging, another said the time should be changed, and the rest said that no changes should be made.

Eleven of the Radio Spanish teachers said they had received a very short course (*cursillo*) in how to use the radio lessons, and none of the radio math teachers had been trained at all. With only two exceptions, all the teachers who use interactive radio said they want and need more training. The type of training they want included special radio programs for teachers, workshops, correspondence courses, and better program guidelines.

Girls in Development (GID)

Three of the teachers in the Verapaces and Chimaltenango had participated in meetings or workshops concerning the education of girls; none of the teachers interviewed in Metropolitan Guatemala had either heard of or participated in anything remotely associated with the educational needs of women or girls. Unfortunately, the few who had participated were not able to provide any details about the content of the workshops, except for one who said it had to do with women's rights, marriage, and reorganizing students.

There was a very mixed set of responses to the question about what the teachers' perceptions were about how parents felt about the education of girls. The most common answer was that parents do not want to send their daughters to school when they reach the age of 14-15 because it is more important for them to work and contribute to the household. Some others said that many parents are indifferent about girls' education, while other parents come to school especially to find out how their daughters are doing. Other teachers felt that about half of the parents had some interest in having their daughters attend school. The overall tone of the answers was that general parental interest in girls' education was lacking or lukewarm at best.

With only one exception, all of the teachers interviewed said that education was equally important for both boys and girls; one teacher said it was most important for males. When asked about which sex drops out of school most frequently, the majority said females. The most common reasons given were the following: agricultural, work in the home, migration,

age (older children are ashamed to go to school), malnutrition, poverty, and absenteeism (having missed too many school days.) On the other hand, most of the teachers felt that both sexes have to repeat grades with the same frequency; the reasons included malnutrition, many absences, lack of parental interest, work (both in the home and in agriculture), and migration. The teachers' opinions about how parents felt about educating girls versus boys was that boys are given priority, and that girls do not need education as much because they will do domestic work and then get married.

Many teachers said they had made special efforts to keep their students in school and to encourage parents to enroll those who are not. The most common method mentioned was to make home visits, organize community meetings, and teach practical skills in class, such as sewing and vegetable gardening. Some teachers said encouragement and positive reinforcement, such as giving out candy, helped keep children coming to school. A few said that playing educational games was also beneficial for attendance; children like to play and run around instead of sitting at their desks for extended periods of time.

When asked if they had done anything specifically for girls, a large majority, over 90 percent, said they had not. Those few who responded positively said they taught cooking, weaving, and gardening skills, and gave motivational talks. When asked what they would like to do if given the opportunity, most said that they would teach manual skills, ask the MOE and other institutions for help, meet with mothers, and try to motivate both parents and daughters whenever possible.

As a group, the teachers felt that girls who enroll in school at age six learn much faster and have a much better chance of finishing their primary education. Many teachers said that girls are taken out of school soon enough, and it is very important to teach as much as possible while they are still attending. The most prevalent reasons given for girls to finish primary school was to work, earn money, improve living standards, and go on to higher education. Very few teachers mentioned the importance of knowledge for its own sake but saw education more in economic terms (i.e., better earning potentials for girls). Some also mentioned that it was important for girls to be literate so that they could read documents and contracts for their parents and they would not be taken advantage of or cheated out of land or other property.

Nueva Escuela Uniteria

Questions were asked, but no significant data were collected.

Other Related Issues

Revista del Maestro

Six out of the 40 teachers interviewed knew about or had read the *Revista del Maestro* produced by the BEST Project. Those who had read it felt it was very useful, educational, and instructive. Three teachers in Metropolitan Guatemala said that the *Revista* helped them prepare class lessons, especially for girls. Two felt that it could be made more instructive and should be more generally available.

Teachers' Perceived Needs to Improve Their Teaching

Virtually all the teachers said emphatically that they needed equipment, supplies, and better classrooms. All the responses, except one, concerned the need to improve the physical infrastructure and to provide an adequate amount of badly needed teaching materials, audiovisual equipment, textbooks, blackboards, and cooking utensils. One teacher said that without the basics, she cannot stimulate a child's mind, and another said that other kinds of teaching methods must be used in order for children to learn faster.

Teachers' Relations with Parents and Parent-Teacher Committees

Most of the teachers said that their contacts with parents are primarily on an individual basis. In other words, they do not hold regular meetings but discuss specific issues and problems with parents on an ad hoc basis. Most often, they discuss learning problems, lack of attendance, poor performance, and behavior or discipline problems. It was not possible to get any reliable measure of the frequency of teacher-parent meetings; the most common response was every two months, but a majority of the teachers were deliberately vague in answering this question. Many simply said never, hardly ever, or very seldom. A couple said the only way was to visit homes and that parents hardly ever came to the school, even when they are asked.

General Comments Made by Teachers at the End of the Interview

The most frequent comment was that for once it was very beneficial to talk to someone willing to listen to the teacher's opinions and problems. The teachers felt they should be visited more often and have more frequent opportunities to express themselves. Others said that the MOE does not care about them, but PRONEBI maintains better contact with their teachers; some PRONEBI teachers did not share this opinion.

Five of the teachers said that they needed more frequent supervision and more contact with the MOE in order to be more motivated, to get some positive feedback, and to solve problems. However, they expressed that supervision should not be the way it was in the past when supervisors only came to criticize; supervision should be constructive and beneficial.

Half of the teachers in Metropolitan Guatemala were emphatic about the need for more school visits to observe the radio lessons and to provide constructive supervision.

Some 15 teachers elaborated on how they thought the radio programs were meeting a real need and how much their students were benefitting, but they also said that some improvements should be made, especially in the programs teaching Spanish. Several teachers thought that interviews asking questions about the radio should be done every 3-6 months to learn about the situation in both the classroom and the community; this would be the best way to improve the lessons.

Three teachers also mentioned that efforts should be made to increase parent and community involvement with school activities; parents need to cooperate and contribute more.

Student Interviews

This section presents the principal findings from an analysis of responses to eleven general questions ranging from what children like best about school to whether or not their parents encourage them to study. A more detailed data display and analysis can be found in Annex 6. A total of 104 students were interviewed, all in the Verapaces and Chimaltenango.

Although native speaking interviewers were used, the students did not provide as much data as anticipated. Children were generally reluctant to speak to a stranger, much less answer specific questions. However, in cases where the interviewer was present for the entire school day, student reluctance and fear of answering questions was somewhat reduced.

When asked what they liked most about school, the most common answer was learning how to read and write, followed by play, the recreation period, liquid refreshment and the *galleta escolar* (the school cookie), singing, answering questions, and learning how to be well behaved. No child made any specific reference to the interactive radio lessons. When asked what they least liked about school, most mentioned that there was nothing they did not like, followed by cleaning; a few said they did not like to play, and some said they did not like to fight or be hit by others.

The most common answer to a question about whether or not the teacher motivates the child to study in school was a perfunctory yes, but many were quite reluctant to answer this question; a few said the teacher gave little motivation, and some others said the teacher did nothing. Another common answer was that they felt obligated to study in order to be promoted.

Quite obviously, the children who were in school said that their parents thought it was beneficial for them to be there. Virtually all said their parents wanted them to learn, especially reading and writing, and a few mentioned that it was important for them to speak and understand Spanish. Some also reiterated the feeling that it was important to come to

school in order to be promoted, and if they did not go and were not promoted, they would be punished by their parents. About 15 said that their parents had never said anything about the importance of going to school. When asked their own opinion about the importance of school, all the answers were positive, emphasizing the importance of reading, writing, and Spanish language skills. Some said it was very important to learn everything they could, and others said school was important, but they could not explain why.

When asked why there are so few girls in school, most said they simply did not know; a couple said there were too many, but most of the others said that girls did not like to study or that their parents did not want them to study. Some others said that many girls were not promoted and that they stopped coming to school or that they were too sick to attend. About 15 said that it was important for girls to stay home and help their mothers. A few said that many of the girls were too old and did not like to come to school.

The most common answer to the question about wanting to reach the sixth grade was an overwhelming yes. Four said that they did not, and one said that he could only go through the third grade because after that he had to go to work. When asked what they wanted to be when they grow up, most of the answers reflected what their parents do: work in the fields, work at home, or simply work. However, a significant number said they wanted to be teachers, one said doctor, another said a painter, and only one said he wanted to join the army. Twenty said they wanted to continue studying.

Virtually all of the children said that they did, in fact, have enough time for doing their chores at home; a few even said they liked doing them. About 12 said they had no time for chores because that had to work outside the home. A large number also said they did their homework first and then went about their chores because that is what their parents wanted.

There was a mixed response to the question about whether or not their parents motivated them to study. Over half said yes, with the following comments: I must go to school to be promoted; they tell me it is very important to learn how to read and write; if I miss school I will get hit with a belt; they say it is a good thing to do; my parents encourage me and help me study; or just simply yes, with no further explanation. Seven children reported that their parents felt it was more important for them to work than to be in school, and five said their parents did nothing one way or the other.

The last question was about what their schoolmates said about the school and the importance of going to school. Here their responses were very mixed in that some said yes by giving the now standard answer about the importance of literacy. The striking fact was that so many, almost a third, said that the others said nothing or could not explain why school was or was not important. Another third simply said that their friends felt that it was beneficial to go to school and to continue learning; a few mentioned that it was important for work and making a living.

Parent Focus Groups

In the course of visiting schools to observe classes and conduct interviews, a selected number of teachers were asked if they could arrange to have 10-12 parents of pre-primary students come for a focus group meeting. In several schools the teachers indicated that their relationships with their communities were strained to the point that group meetings with parents simply were not possible; one teacher said that there was open hostility between parents and teachers, and another said that parents simply do not come when messages are sent home with the students and that the only way to speak with parents is to visit homes. Despite such problems and limitations, meetings were held with eight groups: five in Alta Verapaz, one in Baja Verapaz, and two in Chimaltenango.

Because of the overall consistency and similarity of parental responses across the groups, the range of answers to each question will be described in summary terms, and important differences between groups have been identified. The moderator of each group asked a series of 25 questions, carefully probing and giving all participants an opportunity to respond. Whenever an answer was given, the respondents were asked to give more details or more specific reasons.

First, when asked about the utility of getting an education, the most common response was that their children should learn how to read and write. Most of the parents also said that it was extremely important for their children to speak Spanish in order to confront problems outside their communities, and in two groups the parents went further by saying that literacy and a good knowledge of Spanish would prevent them from being taken advantage of, especially when it came to legal contracts, business, and land tenure. Others said that literate children can help their parents and prevent them from having serious problems with outsiders. Parents in three of the groups said it was very important to speak Spanish well in order to be taken seriously, meaning that those who spoke broken Spanish would be subject to ridicule or be ignored. Others went on to say that an education was important for the future, was necessary for getting a good job, and that children who were educated would also make sure that their children went to school.

The most frequent response to the question about why children are sent to school was that parents send their children to learn how to read, write, speak Spanish, and to learn manual trades (e.g. sewing, cooking, woodworking, etc.). Some parents said that there were many things that they themselves do not know, and they do not want their children to have the same handicaps. A minority of parents said that they do not send their children to school because the school is not very good, the teacher is often absent, and the children do not learn anything; it is a waste of their children's time when they could be doing useful work or be out earning some money. A few parents said that in the past the teachers were better trained and could teach better than they do today, and some also said that the expense of sending children to school was not worth it because they were not taught very well.

Two parents in a small community outside Cobán were curious about why there had not been any radio lessons teaching Spanish in the past. These parents felt that it was a very effective way for their children to learn Spanish, the single most important thing for them to learn; a significant number of parents said they also listened to the Radio Spanish programs.

An overwhelming majority of parents said that both sexes should learn the same things. A few said boys should learn more about things that would help them work in agriculture and that girls should learn about subjects that would be useful in the household.

There was a virtual consensus that first graders should learn to read, write, and speak Spanish. Some parents expressed a real concern over the fact that their children were not learning these skills fast enough. Very few mentioned that the child was not doing the work or did not want to learn, but instead the more prevalent view was that the children were not adequately taught.

Most parents felt that it is very important for their children to finish primary school, and, if possible, continue on to secondary school and beyond. However, the vast majority said that financial limitations prevented them from keeping their children in school beyond the sixth grade, and many said they could not afford to have their children finish their primary education but have had to take them out of school.

Parents generally felt that when a girl finishes primary school, she should be able to continue her studies and learn some professional skills (e.g., accounting, teaching, etc.). Again, many said that money was the principal obstacle, but finishing primary school puts girls in a better position to work in the household and to find employment outside the home. Many parents kept emphasizing that if a girl finishes sixth grade, she should, whenever possible, try to continue. In other words, completing primary school was not seen as an end but as an opportunity for continued education. A number of parents said that there should be special scholarships for girls who had finished primary school and wanted to keep going to school. A few parents said that many girls simply did not want to finish but would rather get married and raise a family.

No parents mentioned any particular problems in getting children to do their household chores while in school. Some said that their children would have to do some work in the home before school and after coming home, especially during the time when boys need to help their fathers with agricultural work. Regarding girls, the general consensus was that their chore schedule could be adjusted to the time they spent in school and that going to school was important. No one said anything about keeping children home because they had to work.

About half of the parents felt that children needed to finish primary school in order to speak and write Spanish well, and that anything less would leave them with incomplete

knowledge and skills. A couple of respondents said that four years was enough and that those who left after two years did so because they were not able to learn any Spanish.

It was generally felt that children needed time to study at home in order to make sure that they were promoted and that parents did not lose the monetary investment they have made. Some said it was the children who did nothing at home who were the ones who most often repeated grades or simply dropped out of school. One parent said that teachers should let students take books home, so that they could practice reading and that way they would learn a lot faster.

When asked to discuss why so many children repeat grades, there was an even split between those who said children had to repeat grades because the child simply could not learn fast enough, and those who said that repetition was the result of poor teachers doing an inadequate job. A number of parents also said that when the child loses, so does the parent because of the expenses incurred for books, supplies, transportation, and fees, etc. A few parents also pointed out that children were not promoted because they did not have enough to eat and that they could not learn when they are hungry.

Concerning bilingual education, two thirds of the parents felt that it was best to teach in both languages and that this was the best and quickest way to learn how to read, write, and speak in Spanish. If the child had problems understanding something, the teacher could explain in the native language. The rest of the parents felt that the classes should only be taught in Spanish because children speak their native language exclusively at home and with their friends and classmates. A few parents went on to say that speaking only Spanish in school would facilitate more rapid learning to speak, read, and write Spanish.

Almost all the parents said they never talked with the teacher or only did so very infrequently. Some said they simply did not have the time, while a few others said they did not want to criticize how the teachers were doing their job; if parents came to the school, it would be seen by the teachers as checking up on them. Most expressed the feeling that if called in for a meeting by the teacher, they would most certainly come. The problem, they said, was that the teachers never or hardly ever asked to talk with them. A number of group participants said that many parents simply do not care about the education of their children and whether or not they go to school on a regular basis, or even enroll.

Parents from three communities said there was no parents' committee, two said it did exist but that the meetings were very infrequent and that some years there had been no meetings at all. One group of parents pointed out that when the teacher simply asked the children to tell their parent to come to a meeting, they would not go because this was not the proper way to be notified of a meeting; if formal notes were sent, they would surely attend.

With one exception, all the parents in the communities where the school used Radio Spanish knew about the programs from their children or had heard the program themselves.

The parents in one Patzún community using the radio claimed to have no knowledge whatsoever. About half the parents who knew about the lessons had listened to some of them.

An overwhelming majority felt that using the radio in the classroom to teach Spanish was very beneficial and that children do learn better and faster with help from the radio. A large number of parents said they listen themselves and follow the instructions to answer questions. Some parents went on to say that they listen regularly, and one said he takes his radio to work in order not to miss a single lesson. There were no negative or critical comments from any respondent who knew about or had heard of the radio lessons. One group of parents agreed that their children felt that the program helped them learn Spanish gradually and learn new songs and the Spanish terms for many new things. Parents also reported that their children liked following the instructions from the radio and that they are very glad to listen to the programs.

Overall, the groups felt that girls do want to go to school as much as boys but with some reservations and qualifications. They said that some girls, especially when they get older, just want to learn how to read and write, and after that they prefer to stay home and help their parents. The members of one group felt that many girls want to go to school by age five, but their parents will not let them go until they are at least 6 or 7, or even older. A sizable number of parents indicated that many young girls are afraid to go to school because the teacher uses physical punishment; this view was discussed in three of the groups. Parents in another group said that girls often do not go to school because they are sick much of the time; there was no mention of any particular disease(s).

In one group, most felt that under the age of 6 and over the age of 10 were the most problematic times for girls to attend school on a regular basis. Very young children just want to play, and children older than 10 must help their parents with completing household chores, marketing, and taking care of younger siblings. Another group felt that older girls are ashamed to be in school and do not want to stay. Another group felt the same way by saying that girls between the ages of 10 and 15 do not want to stay in school but want to work. One respondent insisted that, thanks to the MOE, girls could go to school at any age to learn both Spanish and Q'eqchi; another said that it was not good to have older girls in the same class with younger ones because they would hit the little ones.

There was a fairly general consensus among all the groups that by the time girls are 13 to 14 years old, they want to leave because they want to work with their mothers in the field and in the home where they can learn to cook and do other useful things. Many mentioned that older girls, especially those in the lower grades, feel very ashamed and want very badly to leave; most want to work and make some money for their families. Some also said that by the time girls reach 13, they want to get married or stay home and help their mothers. One group of parents felt that many girls are taken out of school after the age of 10 because they are simply not learning very much. Otherwise, most of the responses revolved around the

need to work, help in the home, and get married and have children; the most common age range mentioned for leaving school was 12 to 15.

When asked about the possibility of starting pre-primary at age five, many felt that this was much too early for girls to begin school because they would be mistreated by the teacher and the other children. Other groups felt that girls under six were afraid to go to school, and besides that, most schools would not admit children under the age of six. One group felt exactly the opposite; it was better to send younger girls because they were not ashamed of anything and at this age they would learn more quickly than their older classmates. A member of this group said that she sent her four-year-old daughter to audit pre-primary, but as it turned out, she participated, passed all the requirements, and was promoted. As far as this group was concerned, this was proof enough that children can and should enroll in school at an earlier age.

Most felt that both sexes have the same educational necessities and rights, and when it comes time to go out and look for work, both sexes must know how to read and write; those who cannot will be at a disadvantage. A few members of another group felt it was better for a boy to study because the girl would eventually get married, but the rest countered by saying that both should have equal opportunities to study.

In response to the last question about what is needed in the school to make parents more interested in sending their children, most of the groups overwhelmingly agreed that they needed good, responsible teachers and adequate supplies, and that under such conditions children would be more content and learn more rapidly. Furthermore, it is very important that teachers come to school on time, have fewer holidays, and maintain better discipline in the classroom. Parents also expressed the need for scholarships because many could not pay any of the educational expenses for supplies, fees, etc. Others expressed the need for electricity and secondary schools, so their children could continue their education without having to go to another community far away. Yet others said that they would like the school to have sewing machines and typewriters so that children could learn some useful skills--skills that can generate an income--in addition to reading and writing. Others mentioned the need for better athletic facilities such as a basketball court because the soccer field is only used by the boys, and girls like to play basketball very much.

Conclusions

The classroom observations in a wide range of schools, teacher and student interviews, and discussions with parents have generated the large amount of data summarized above, and specific patterns have been identified for the purpose of making specific recommendations to both strengthen and extend the impact of the BEST Project innovations. Each innovation has been examined and analyzed in order to provide a better understanding of relationships and processes, especially in terms of how bilingual education and interactive radio are used in the

classroom, how educational specialists have conceived and designed these specific interventions, and how students and parents have responded to their use.

As a BEST Project innovation, bilingual education has the longest history in Guatemala. Originally, PRONEBI started out as a small pilot project and later expanded to include 400 schools in the four major Mayan languages. The BEST Project planned to expand bilingual education even further by adding four more languages, more than doubling the number of schools, revising the existing texts, and writing new ones in the additional four languages. The linguistic mapping study was intended to provide data for the selection of the additional schools as well as for the development of socioeconomic community profiles.

At the time of this evaluation, none of the planned bilingual education activities had been implemented in any of the existing PRONEBI schools. The classroom observations showed that bilingual teachers improvise often and feel that their texts and teacher guides are in desperate need of revision. Many teachers who are bilingual but are not part of PRONEBI also teach in a Mayan language, improvising as they consider appropriate.

Teachers have complained about the lack of support for bilingual education and have pointed to a need for informing community residents about the importance and function of bilingual education. In other words, PRONEBI is at a very critical point in its long history, and the planned project interventions have the potential to revitalize bilingual education as an effective classroom intervention; texts need to be written and distributed, teachers need to be trained, and social marketing should be done to improve the image and acceptance of bilingual education in Guatemala.

Furthermore, the final report of the mapping study has not yet been completed, and data on rates of bilingualism and socioeconomic status are not available for use in the selection of expansion schools. Since new and revised texts are not yet available, the products of these two activities should be coordinated and made ready for use as soon as possible.

The only project innovations that are having an impact in the classroom are the interactive radio lessons for learning Spanish and mental math. As the data clearly show, these interventions are widely accepted by teachers, students, and parents. In addition, BEST Radio summative testing has demonstrated moderate gains in scores between control and experimental groups using a lapped-year design. Highly focused formative evaluation techniques have been used to examine student responses to the Spanish-as-a-Second-Language lessons in the Verapaces and to a much lesser extent in Chimaltenango and for mental math in Metropolitan Guatemala.

Observations made in the classroom, however, have identified a number of possible problems. First, the level and intensity of student participation in both math and Spanish lessons varied from high to extremely low, and the only apparent reason was the appropriate involvement and quality of the teacher. In other words, a teacher who was aloof and distant

in other classroom activities, and who appeared to have problems disciplining the students did not have high levels of student involvement in the radio lessons; other teachers were very dynamic in all of their activities and were able to involve students more and without interfering with the radio lessons. A logical question would be the following: what are the relationships between student involvement, the process of learning either Spanish or math, and the effectiveness of the teacher? The limited amount of data gathered for this evaluation cannot give a definitive answer, but it can identify problems and raise questions that can only be answered through additional research.

The prevailing view about the use of interactive radio is that as an intervention, it can significantly raise the test scores of students in many subjects, including language teaching, math, health, science, and environmental education. In addition, it is generally believed that learning gains can be achieved with relatively little or no teacher training in settings that are severely lacking in both educational supplies and infrastructure.

Under such conditions, interactive radio instruction is an important and valuable tool to be used under highly adverse educational conditions. Guatemala most certainly qualifies for all of these conditions and circumstances, but the classroom observations call into question the level of student achievement in relation to the nature of teacher involvement. These are questions that must be answered by BEST Radio in order to facilitate institutionalization of radio learning, and provide proper training for both teachers and supervisors in order to increase cost effectiveness and quality. Highly focused, applied research and an expansion of the role of the ongoing formative evaluation efforts should be able to address these important questions.

The second problem is that in some classrooms the radio lessons tended to dominate and take time away from other educational activities. When entire school days were observed and all the activities were carefully timed, the 30 or 40 minute program was the longest single activity. For example, in the case of Radio Spanish, broadcast at 9 a.m., the teacher would assign no specific tasks prior to the program and virtually nothing directly afterwards, and the students generally had a one-hour break between 10 and 11; this left an hour for activities until the school day ended at noon. In such cases, the amount of time spent on any kind of learning activities was considerably less than two hours per day, and the radio took up one-third of that time. Hopefully, this is not a widespread pattern but only occurs in a few schools. Again, the critical variable is the teacher and how she/he organizes classroom activities and makes sure that the students participate and complete their assignments.

As a consequence of the two possible problems and the questions raised above, teacher training may be a more critical factor than previously believed. For example, a modest investment in teacher training could result in greater gains in test scores, but in order to identify and measure possible gains, methodologies must be developed to combine qualitative and quantitative methodologies; test scores should be analyzed together with coded

data from classroom observations. To facilitate such procedures, the role of formative evaluation must be expanded beyond observing the radio lesson to include other classroom activities and the teacher.

Up to this point, interactive radio has been a useful and relatively successful tool to improve the quality of Guatemalan education, but it has even greater potential if efforts are made to identify significant variables affecting student learning and test achievement. More intense and frequent observation of classroom activities using qualitative methodologies will most certainly help provide some of the answers.

The GID component of the project is understaffed and has too large a mandate. The data indicate that the effect on teachers and their thinking has been negligible, but in terms of the effect on the design of the Spanish language radio lessons, the impact has been impressive. The programs are well balanced in terms of male and female activities, and there appears to be no obvious sexual bias of any kind. The GID component has a vital role to play in monitoring the content of all other project interventions and innovations; special attention should be paid to the ongoing design of the NEU curriculum and teacher training activities. Personnel involved in formative evaluation for all activities should receive special training in gender issues.

Finally, the teachers have expressed a desire to maintain closer contact with the educational system; they want to be supervised but in constructive ways. With the new supervisors, the BEST Project has an excellent opportunity to revolutionize the role of supervision in Guatemalan education. However, this will depend on adequate and appropriate supervisor training and performance monitoring.

Recommendations

- *Shorten the lessons for the Spanish-as-a-Second-Language programs.* Since the classroom observations showed that the five-minute segment at the beginning and the ten minutes in the local Mayan language at the end were not in any way interactive and played no instructional role, these should be eliminated entirely. If Mayan languages are to be used, they should be included as part of the interactive radio lesson; the native language should be more than passive introductions and endings.

The original Global Plan for the interactive language lessons envisioned 15-minute lessons. However, when they were produced they were twice that length. Pre-primary school children were observed to become quite restless and pay much less attention during the last half of the interactive lesson. Consequently, additional shortening of the lessons beyond the elimination of the Mayan language segments should also be contemplated. Another possibility would be to include more physical

exercises and songs to increase interest, reduce restlessness, and maintain involvement.

- *The speed at which the actors talk should be reduced and the length of time for children to respond should be extended.* Many teachers claimed that the pace of the language lessons was too fast, and their comments were supported by classroom observations made in both Alta Verapaz and Chimaltenango. Quite often children did not understand questions and instructions, and time is needed for the teacher to provide a brief explanation or interpretation.
- *Radio Best should fill as quickly as possible the linguist position planned for the Cobán office.* Many teachers commented that the use of both the Mayan language and some of the Spanish was not appropriate for local speech patterns in both Alta Verapaz and Chimaltenango. Furthermore, assuming that the most appropriate person is selected for the position, the morale in the Cobán office would be greatly improved. Presently, the staff feels they are passive data collectors who have no real role in program production, testing, and implementing changes as indicated by formative evaluations.
- *The scope of the formative evaluation methodology for the language lessons should be expanded and modified.* At present the formative evaluators are only concerned with the student and teacher responses to the interactive radio lessons. Observations of entire school days indicated that in some cases the radio decreases the amount of time that should be spent on other subjects as required by the standard curriculum for the pre-primary grade. It must be understood that the radio lesson is but one supplementary activity that should coexist with numerous other equally important activities, and qualitative research should be designed to determine the effect of interactive radio, not only on the activities immediately before and after, but on the structure of the entire school day. Focused observation of the radio lesson and summative testing is much too narrow a focus which may, in fact, not reveal serious deleterious effects on the educational process. The radio must be put into its proper context as an educational tool and not be considered as an end in itself. Carefully designed qualitative methods should be designed to supplement the existing formative evaluation procedures. Although this recommendation also applies to the radio math lessons, it is most important in the rural context where both teachers and students tend to arrive late and leave early, resulting in a greatly reduced school day.
- *Teacher training should be improved, and teacher responses and specific activities should be monitored more carefully.* As described earlier, the relative quality of student participation in both interactive language and math lessons appears to be very dependent on appropriate teacher responses and the general level of involvement with students. In other words, all the qualities that go into making a

"good" teacher affects how well students respond to the radio, much like every other classroom activity. The initial teacher training should be longer and more comprehensive, and teachers should receive periodic refresher courses or workshops. Part of the continual or in-service training could be done using radio programs especially designed for teachers. These programs were used during the early phases of the BEST Project and then terminated; many teachers expressed a desire for such programs, and we feel that lessons that are carefully focused to address common problems encountered in the classroom should be a regular part of BEST Radio. Results from the formative evaluations and qualitative research should provide input for both program design and content, and the teachers themselves should play an active part in program production. Teachers will generally pay more attention when they hear their own colleagues--rather than an anonymous actor or announcer--addressing common problems.

- *New supervisors should be trained to observe and identify problems with interactive radio instruction.* The new supervisors currently being contracted and trained are the only MOE personnel who will make regularly scheduled visits to schools. In the past, however, supervisors have been viewed with suspicion and not as a resource for solving problems. This must change because teachers have expressed a desire to maintain regular contact with the Region for support in terms of both supplies and pedagogy. In the case of interactive radio, the role of the supervisor is even more critical because they will be afforded the opportunity to observe teachers using radio lessons, both language and math, and should be able to help teachers become more effective users of radio as a supportive technology and as a means to motivate students and improve teaching effectiveness. If the new supervisors can be trained to observe and identify problems in classrooms using interactive radio, they will also be able to address a wide range of additional difficulties, especially those related to radio lessons using an inordinate percentage of time at the expense of other essential activities.

VII. ORGANIZING PRINCIPLES OF THE TECHNICAL ASSISTANCE CONTRACT

Evaluation Task

Determine the viability of the Organizing Principles of the technical assistance contract and the extent to which the principles have promoted efficient and effective project implementation, and to make recommendations for modifications in implementation of the principles where necessary.

The BEST Project is notable for the degree to which the project design has attempted to incorporate lessons from past experience. The attempt to build on experience did not end with the design itself, but also extended to thoughts about how to put the concepts into operation. The project design specified seven organizing principles for providing technical assistance. These principles formed an integral part of the RFP and the technical assistance contract. The intention behind these principles was to assure that capability and skills remained in Guatemala after the BEST project ended. These principles are:

- an emphasis on utilizing local Guatemalan advisors and entities;
- a focus on short-term as opposed to long-term technical assistance;
- technical assistance as training;
- flexible implementation;
- strengthening existing institutions;
- delivery of support services to Guatemalan public education by local private sector organizations; and
- decentralized implementation and technical assistance.

It should be recognized that these organizing principles in some ways represent a burden on project implementation. Innovations always do. The implication of these organizing principles is that each activity and each consultancy must be assessed in terms of the adherence to these principles. Equally important, the first approach taken to provide technical assistance for any activity should assess the degree to which these principles are being applied. This is clearly not the fast and easy approach to providing technical assistance. The

organizing principles of this contract have been taken seriously by the contractor, by AID, and by the Ministry. Some of the delays in project activities are directly related to the efforts to consistently apply these principles.

Findings

The assumptions made in establishing the organizing principles essentially continue to be valid. The organizing principles are, for the most part, still valid guidelines for what is needed to effectively transfer technology and strengthen local capacity in technical areas. A possible exception to this general statement is the idea of using short-term rather than long-term technical assistance. Despite the general validity of the principles, the project experience has been mixed in applying these principles for a number of reasons.

The utilization of local Guatemalan advisors and entities and the use of private sector organizations to provide support services has had a mixed review. In terms of numbers, the great majority of the personnel contracted for long- and short-term positions in the project have been Guatemalan. In the key personnel positions for long-term technical advisors, however, the relative presence of key American and third country advisors is greater. Nonetheless, the very significant use of Guatemalan advisors for most technical and professional positions is a real achievement consistent with the intent of the project.

It is useful to distinguish the types and uses of local advisors and institutions. First, the issues that affect contracting individuals are different than those affecting institutions. In the case of local organizations, the purpose of the consultancy is also important. Some of the anticipated consultancies are clearly intended to provide support services to the Guatemalan public sector, while others were more oriented to strengthen MOE capacity through technical assistance. The distinction is useful to keep in mind when reviewing concerns about institutional desires to maintain autonomy and decisions about locating office space. For activities intended to provide services to the GOG so that a duplicative capacity did not have to be created, the issue of location and linkages is much less important.

Among the constraints identified that have complicated the contracting of local individuals and organizations are:

- Difficulties in reconciling AID and local organization procedures for setting appropriate salary levels. These problems are, for the most part, a conflict between AID standard salary norms for local contracts and in some cases the organizational policy of the local contractor.
- Much more rigorous standards of financial solvency, recordkeeping, and bookkeeping review when contracting for technical assistance, and/or subcontracting

for technical assistance to AED. Many universities and nonprofit organizations are much more familiar with grants or cooperative agreements than with contracts.

- Occasional delays with AED and A.I.D. contracting procedures because the contract approvals must go through several stages, including the local office, the Washington office, and then back to Guatemala for final salary approval by AID. This process can take and has taken, months for some employees.
- Conflicts between some NGOs' that desire to centralize the technical assistance or activities in their own offices, where they had resources, equipment, and personnel at their disposal, rather than set up closer linkages to the MOE dependency that they were working with.
- Costs to consultants, which in some cases, would have required the professionals to give up the perks of association with their own institution--including security and a range of fringe benefits. This was not feasible for local advisors, particularly for short and medium-term contracts, because of the danger of losing perquisites and retirement benefits in their permanent institutions.

One of the challenges of trying to implement innovative approaches in the use of technical assistance is that the process cannot move according to the blueprint of a project design. Rather, the process requires considerable flexibility and understanding of the legitimate institutional interests of the collaborating parties. While some of this flexibility was built into the project, other aspects have been more rigid. The use of the umbrella contract approach to contracting, with the required use of subcontracts rather than grants or cooperative agreements to achieve the goals, has been an obstacle for some organizations. Equally important has been the vision of project activities and objectives as being the primary, if not only, consideration in the process. Some of the potential participating organizations believe that the rigid negotiating stance imposed by project expectations made their participation very difficult. One of the first challenges for any endeavor of this sort is substantial flexibility in terms of MEANS. The issue of OBJECTIVES AND GOALS is the place to be inflexible, but there are many alternative ways to achieve such goals, and collaborative efforts to identify those possibilities are useful.

There are also a number of areas where flexibility is not warranted or possible. Some of these are simply part of the procedures of a large bureaucracy. A.I.D. has certain parameters about contracting, bookkeeping and accounting requirements, salary guidelines, and other elements that are simply part of doing business with A.I.D. In some cases, these have been obstacles to participation. However, the degree to which these were the actual stumbling blocks is unclear. All of the private sector representatives involved, including those who had successfully negotiated BEST contracts as well as those who had not, indicated that a degree of flexibility and a real desire to solve the problems could eliminate most obstacles.

In choosing short-term and long-term contracts for technical assistance, the tradeoffs are between a degree of continuity and effectiveness. Some activities lend themselves more readily to short-term consultancies than others. Most clearly need a degree of continuity on the ground in Guatemala even though the level of effort does not necessarily require a full time long-term contract. For example, the formative evaluation specialist has come in several times on a short-term basis to help train staff and plan for evaluation procedures. However, the lack of familiarity of most of the project personnel with the concepts and mechanisms of formative evaluation, and perhaps even more the competing priorities for their attention, has limited the degree to which this issue is addressed when the specialist is not in Guatemala. The project management has clearly noticed the degree to which the topic is moved to a "back burner" after he leaves. This type of activity needs a continuing presence, as well as enough management support to increase its priority. The ideal arrangement would be for a local consultant, or another individual associated with the project, to be available to provide resources in this area to every project activity as needed.

The contractor has actively pursued the organizing principles. The project contractor, AED, and subcontractors have made serious efforts to adhere to the spirit and letter of the organizing principles. The numerous efforts to contract with local organizations to provide technical assistance reflect this dedication, despite the fact that many of these negotiations were not successful. The AED Chief of Party in particular has made significant efforts to assure that the principles are understood by all technical advisors and their counterparts. The particular mechanism for accomplishing this, the *consultaria participativa*, is an excellent model for collaborative definition of roles and responsibilities that has much potential for broader use within the project. Supporting this collaborative agreement, the contractor uses other opportunities (meetings with technical advisors, memoranda, etc.) to emphasize and reinforce the idea of technical assistance as training. Scopes of work are carefully crafted to emphasize training as well as activities. These actions represent a clear improvement over the traditional use of technical advisors.

The flexibility and responsiveness of the contract would be improved if the AED home office could reassess the balance of oversight and delegation of authority to the field office. The home office contracts division might consider which contract actions or discussions can be usefully delegated to the field, in the interests of efficiency, without unduly exposing AED to uncontrolled liability. While it is clearly an internal corporate decision, it would appear to the evaluation team that excessive home office oversight affects the timely provision of services and resolution of problems at the local level. An example of this oversight is the fact that the COP may not make contact with the RCO without the express permission of the AED contracts office. More timely resolution of small problems would be possible if the COP were delegated more authority for field level day-to-day actions and for periodic intervention with the RCO. In fact, the RCO is a valuable resource to the contractor in the field, and it would be beneficial if the COP were better able to use this resource.

contractor's office and technical advisors shared this view. The primary exception to the rule of successful technology transfer was a consultant who is no longer working in the project. The observations of the evaluation team supported the positive impressions of the counterparts. The level of professionalism, professional capacity, and attention to training and technology transfer in the activities are impressive. A range of different training and technology transfer mechanisms are used, including training, instructional advice, technical apprenticeship, directed apprentices, participative training and development of new methodologies, indirect transferal of skills, and professional training.

The most effective technology transfer and skill development were seen in the mapping, MIS, testing, and personnel activities. Moderate levels of success in technology transfer, enrichment, and dynamism were found in the supervisor's program, radio, and the GID program. The least amount of technology development was seen in the textbook development. The supervisors have just recently been appointed, and to date only two workshops have expedited transferal of techniques and methodology actions. The one-room school activity, despite having only been started this year, has been successful in transferring enthusiasm and commitment as well as some skills through strategies of participation, adaptation, and decentralization. It is expected that the technology transfer mechanisms being used in the NEU activity will be highly successful.

The issue of technology transfer, however, cannot be assessed in isolation from the broader issues of sustainability and institutionalization. At the present time, a significant proportion of the recipients of technology transfer are contracted with project funds. This is particularly true for PRONEBI, radio, and testing, and to a lesser degree true for the other activities. In the case of supervision and NEU, it is useful to distinguish between the training of MOE employees (teachers, supervisors) and the technology transfer to counterparts to plan and implement training programs. In the future years of the BEST Project, it will be important to clearly identify not only what skills are being taught, but how these skills are being institutionalized within the MOE.

The strengthening of local institutions has been partly achieved. To the extent that individuals working in the MOE have been trained with advanced technical skills, the institution has been strengthened. However, the issue raised above about the employment status of many of the recipients of technical training clearly applies to institutional strengthening as well. The weakness of the BEST Project technology transfer as an institutional strengthening mechanism is rooted in the fact that so many of the trainees do not have permanent employee status or budgets.

The concept of strengthening an institution can also be broadened beyond only training technical staff to include the organizational capacity to utilize, retain, and upgrade technical staff. In terms of training technical staff, the BEST Project has done well--some of the technology transfer for specific technologies is impressive. The next stage in technology transfer and institutional strengthening--an emphasis on management, sustainability, and institutionalization of the skill base--has not yet been part of the BEST focus. Part of

The concept of strengthening an institution can also be broadened beyond only training technical staff to include the organizational capacity to utilize, retain, and upgrade technical staff. In terms of training technical staff, the BEST Project has done well--some of the technology transfer for specific technologies is impressive. The next stage in technology transfer and institutional strengthening--an emphasis on management, sustainability, and institutionalization of the skill base--has not yet been part of the BEST focus. Part of institution building must ultimately be found at the levels of management, administration, and planning. To the degree that the technical assistance contract not only provides specialized expertise, but also involves unit management in decisions about needs, qualifications, and personnel selection, the larger capacity of the institution is strengthened. In many cases, the process is fully as important as the achievement of specific tasks.

One of the potential areas for consultancy on management and administration that has not been fully utilized in the BEST Project is the interaction between the COP of the technical assistance contract and the MOE managers and administrators. The COP's ability to effectively, and informally, interact with the MOE counterparts to identify issues, plan responses, and make project decisions has been limited for a number of reasons. The nature of the skills needed in many of the activities are very much the skills that the COP brings to the project--administration, planning, and logistics. It would be useful to encourage and facilitate a broader role for this position as more of a technical counterpart role to the higher level MOE managers. This role can and should include the function of policy dialogue.

In addition, if the BEST Project accepts the argument that more specific attention and support is needed for the policy, management, and administrative functions in each activity, it provides opportunities for use of local firms and individuals on a short-term, intermittent basis. In some cases, the administrative support can be development of detailed plans for distribution or production of materials, or training in contract negotiations, or similar administrative and logistical support services. In any case, a change of emphasis to policy and management issues will entail a different range and mixture of technical assistance activities in the future. The flexibility of the technical assistance contract will be very useful in enabling BEST to respond effectively to this change of focus.

The impact of the technical assistance on achieving the current project goal and purpose is limited. As is the case with the project activities as a whole, the level of effort and impact of the consultants is very small compared to the national level changes that constitute the project goal and purpose. Whereas the technical assistance contractors have clearly contributed to improving the quality of the outputs in several parts of the Ministry, the impact of these actions on the Goal and Purpose is small.

The MOE and AID can more effectively facilitate the organizing principles. In principle and commitment, both the MOE and A.I.D. have supported the organizing principles of the contract. However, there are several possible ways in which the full potential of the contract mechanisms can be better achieved. The Ministry, for example, has not consistently

been able or willing to provide the materials, equipment, expenses, or logistical support necessary for the technical advisors to function effectively. Equally, if not more importantly, is the level of commitment of full-time personnel to serve as counterparts to the technical advisors. The future discussions with the MOE could usefully focus on the degree of real commitment and support for each activity, and determine whether the provision of technical assistance can be effective without adequate Ministry support.

On the part of A.I.D., operational emphasis on outputs (fulfillment of plans) rather than process can affect the training as technical assistance role. Equally important, A.I.D.'s heavy involvement in the selection of technical assistance is not necessarily beneficial. While A.I.D. has the final right of approval for any such contract, this approval process need not exclude participation by the implementing agencies or more autonomy for the contractor. It would be beneficial for the BEST project if a new process for identification and selection of contractors can be found that reserves A.I.D.'s right of approval to avoid abuses of the system and yet allows full and open participation of the implementing units. A.I.D.'s involvement is most appropriately and usefully on the level of monitoring and assuring fairness in the process. The implementing units should have a major role in planning for and selecting technical assistance, and their choice should not be lightly overruled.

In general, the case for more autonomy and authority also applies to the relationship between A.I.D. and the contractor. To the degree that A.I.D. can accept more of a monitoring and oversight role, the contractor can be delegated more authority to pursue solutions to project problems with the MOE counterparts. Whereas A.I.D. does have a technical role, this is most appropriately exercised in oversight rather than daily implementation. The contractor needs to meet more easily and frequently with counterparts to resolve implementation problems to make the process more effective and streamlined--resolution of confusion over roles and responsibilities should achieve this. If the A.I.D. Contracts Office and the AED Contractor Office can jointly develop working guidelines on salary and benefit levels that will facilitate and streamline the approval process, the cumbersome and time consuming approval procedures might be improved. Authority can be better delegated to support personnel, technicians, and professional staff.

Conclusions

The organizing principles of the BEST Project represent much of the best of lessons learned in AID implementation of projects over the years. In general, the organizing principles of the technical assistance of the BEST Project have been respected and carried out in the selection and performance of the technical assistance. The principles that have been most difficult to put into operation have been the emphasis on short-term versus long-term assistance and the ability to contract with local Guatemalan organizations to provide support services to public education.

As a guide to future project activities and approach, the organizing principles remain a reasonable approach. Experience has indicated that the choice of long- and short-term approaches is not necessarily one of philosophy but rather of need, nature of the work to be accomplished, and need of continuity. Local technical advisors are probably most appropriate for short-term intermittent work.

While the principles have generally been proven valid, the procedures for implementing them can be streamlined.

Recommendations

- *Revisit the feasibility of working through local organizations for major components as the need arises.* The need to maintain flexibility in negotiating positions and to recognize the legitimate organizational interests of the other parties needs to be recognized.
- *Explore alternatives to the subcontract mechanism under the umbrella contract to obtain the services of Guatemalan institutions.* In some cases, this works well, but in many others the option of a grant or cooperative agreement might be more appropriate and feasible.
- *Encourage greater involvement by the implementing units in the selection of technical advisors.* Redefine AID's role in contractor approval to assure compliance with appropriate procedures and to avoid abuse.
- *Within the confines of AID's need for accountability and AED's internal control procedures, all parties should seek ways to streamline the processes to enable the contractor to respond more quickly and effectively to requests and to solve problems.* To a significant degree, the solutions will require finding mechanisms that enable the AED local office to resolve problems directly.

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**IMPROVING BASIC EDUCATION
IN GUATEMALA:**

A Midterm Evaluation of the BEST Project

Volume II: Findings by Project Activity

Prepared for:

**U.S. Agency for International Development
Guatemala City, Guatemala**

Prepared by:

**Creative Associates International, Inc.
5301 Wisconsin Avenue, NW
Washington, DC 20015**

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1992

101

TABLE OF CONTENTS

	Page
Introduction	vi
COMPONENT I: BILINGUAL EDUCATION	1
I. Socio-linguistic Mapping	2
Summary Findings and Conclusions	2
Achievements	2
Intermediary Effects and Impact	3
Problems and Constraints	3
Sustainability	3
Recommendations	3
II. Revision of Texts and Teacher Guides for PRONEBI	4
Summary Findings and Conclusions	4
Achievements	4
Intermediary Effects and Impact	13
Problems and Constraints	13
Sustainability	13
Recommendations	15
III. Expansion of PRONEBI	18
Summary Findings and Conclusions	18
Achievements	18
Intermediary Effects and Impact	19
Problems and Constraints	19
Sustainability	20
Recommendations	20
COMPONENT II: TEACHER SERVICES	22
IV. In-service Distance Teacher Training	23
Summary Findings and Conclusions	23
Achievements	23
Intermediary Effects and Impact	23
Problems and Constraints	23
Sustainability	24

	Recommendations	24
V.	Teachers' Magazine	26
	Summary Findings and Conclusions	26
	Achievements	26
	Intermediary Effects and Impact	27
	Problems and Constraints	27
	Sustainability	27
	Recommendations	28
VI.	Supervisors	29
	Summary Findings and Conclusions	29
	Achievements	29
	Intermediary Effects and Impact	30
	Problems and Constraints	30
	Sustainability	31
	Recommendations	31
VII.	School Materials	33
	Summary Findings and Conclusions	33
	Achievements	33
	Intermediary Effects and Impact	33
	Problems and Constraints	34
	Sustainability	34
	Recommendations	34
VIII.	Social Marketing	35
	Summary Findings and Conclusions	35
	Achievements	35
	Intermediary Effects and Impact	35
	Problems and Constraints	35
	Sustainability	36
	Recommendations	36
	COMPONENT III: ALTERNATIVE METHODOLOGIES	37
IX.	Radio Math	38
	Summary Findings and Conclusions	38
	Achievements	38
	Intermediary Effects and Impact	41
	Problems and Constraints	44

	Sustainability	45
	Recommendations	47
X.	Nueva Escuela Unitaria	49
	Summary Findings and Conclusions	49
	Achievements	49
	Intermediary Effects and Impact	51
	Problems and Constraints	52
	Sustainability	52
	Recommendations	54
XI.	Radio Spanish-as-a-second Language	56
	Summary Findings and Conclusions	56
	Achievements	56
	Intermediary Effects and Impact	58
	Problems and Constraints	58
	Sustainability	59
	Recommendations	59
XII.	Girls and Women in Development (GID)	61
	Summary Findings and Conclusions	61
	Achievements	61
	Intermediary Effects and Impact	62
	Problems and Constraints	62
	Sustainability	64
	Recommendations	65
	Comments on GID Reprogramming Proposal	66
	COMPONENT IV: EDUCATION ADMINISTRATION	68
XIII.	Achievement Testing	69
	Summary Findings and Conclusions	69
	Achievements	69
	Intermediary Effects and Impact	70
	Problems and Constraints	70
	Sustainability	71
	Recommendations	72
XIV.	Management Information Systems	73
	Summary Findings and Conclusions	73
	Achievements	73
	Intermediary Effects and Impact	78

- 104 -

	Problems and Constraints	78
	Sustainability	79
	Recommendations	81
XV.	Applied Research	83
	Summary Findings and Conclusions	83
	Achievements	83
	Intermediary Effects and Impact	83
	Problems and Constraints	83
	Sustainability	84
	Recommendations	84
XVI.	Personnel Management	85
	Summary Findings and Conclusions	85
	Achievements	85
	Intermediary Effects and Impact	85
	Problems and Constraints	85
	Sustainability	86
	Recommendations	86

INTRODUCTION

This volume includes 16 chapters to address the 16 BEST Project activities. These activities are organized into four components as follows:

Component I: Bilingual Education

- Socio-linguistic Mapping
- Revision of Texts and Teacher Guides for PRONEBI
- Expansion of PRONEBI

Component II: Teacher Services

- In-service Distance Teacher Training
- Teachers' Magazine
- Supervisors
- School Materials
- Social Marketing

Component III: Alternative Methodologies

- Radio Math
- Nueva Escuela Unitaria
- Radio Spanish-as-a-second Language
- Girls and Women in Development (GID)

Component IV: Education Administration

- Achievement Testing
- Management Information Systems
- Applied Research
- Personnel Management

To facilitate review, chapters are organized into the four components. Each chapter includes summaries of findings and conclusions, achievements, intermediary effects and impact, problems and constraints, sustainability issues, and recommendations for that particular activity.

COMPONENT I: BILINGUAL EDUCATION

Socio-linguistic Mapping

Revision of Texts and Teacher Guides for PRONEBI

Expansion of PRONEBI

I. SOCIO-LINGUISTIC MAPPING

Summary Findings and Conclusions

The socio-linguistic mapping activity of the PRONEBI component was included in the BEST Project specifically to develop an adequate information base to inform the selection of schools for the expansion of PRONEBI. The activity is expected to produce a final report in December 1992 or January 1993.

The success of the mapping activity will depend entirely on whether it produces information of the type, quantity, and quality, and in a useable form, to select schools. In order to assure that the final report responds to the specific needs of USAID/G and PRONEBI, a precise description of what is needed should be provided to the contractor as soon as possible.

Achievements

The mapping component is approximately eight months behind schedule and according to the proposed reprogramming budget will require additional funding of \$142,000 (32 percent of original budget). The activity delay was due partly to delays in contract approval.

The activity has conducted surveys and produced data in a number of areas, including statistics of school enrollment; patterns of seasonal migration by region; maps of schools, municipal political divisions of the country, and linguistically divided areas; a scheme of the implementation and data processing with the ATLAS GIS program, DBASE, and SPSS; a brief description of the Iztapa 1991--Socio-linguistic Mapping; a brochure of the socio-linguistic mapping activity; and the training in system data processing and use of the mapping software. It has determined the bilingualism levels in 700 communities directly and in another 2,600 through proximity analysis.

As far as the transference of technical knowledge, the personnel of PRONEBI have been receiving instruction in linguistic dexterity, handling of electronic files, and directed field investigation where a permanent transference of technical knowledge and its application were accomplished.

Intermediary Effects and Impact

There are no intermediary effects or impact of this activity on the achievement of project goals or objectives. The contribution of mapping to the achievement of the larger objectives will come through the use of the information for the expansion of PRONEBI.

Problems and Constraints

There are no significant problems in this activity at this time beyond the delays in producing the final report.

Sustainability

The future of the socio-linguistic mapping activity in PRONEBI is uncertain. The transfer of technical knowledge to the Guatemalan counterpart is currently estimated at 60 percent of capacity. Once the technical personnel are fully trained, there is a possibility that they will be absorbed by other organizations. At this point, it is unclear whether the mapping component will be continued, or even whether it would most appropriately be located in PRONEBI or in some other GOG data collection, analysis, and mapping entity. In terms of the project, the institutionalization of this activity is not necessary. As the mapping activity has few real operational or institutional linkages to the rest of PRONEBI or significant interaction with the Ministry, the future is unclear.

Recommendations

- *PRONEBI and USAID/IG should clearly identify their data needs for the expansion activity and assure that the final report meets those needs.*

II. REVISION OF TEXTS AND TEACHER GUIDES FOR PRONEBI

Summary Findings and Conclusions

Strengths

The instructional materials produced and revised by PRONEBI represent the first time in Guatemala's history that Mayan language texts have been produced by the MOE. Each time these texts are revised, they are substantially improved. The second grade materials that have been revised since PRONEBI became part of Project BEST are still at the printers; they are the most impressive set of materials yet produced.

Weaknesses

There are three main weaknesses: the slow pace of the textbook production and revision process; the difficulty of use (both texts and teacher guides need work); and the limited number of lessons provided and, accordingly, the limited number of skills taught.

Conclusions

This activity is essential to the increased efficiency of Guatemala's system to provide education to the rural highlands as well as to the many pockets of indigenous students found elsewhere in the Republic. Unfortunately, PRONEBI has suffered during its transition to a BEST Project activity, and it currently lacks energy and direction (see below).

Achievements

The bilingual program began as a pilot program in 40 schools in the early 1980s and became a national program covering 400-800 schools in 1985. It directs its energies at providing rural, indigenous children with an appropriate education, and it is based in PRONEBI, the single MOE entity with the most knowledge and sensitivity, both linguistic and cultural, to accomplish this goal. Indigenous children constitute the largest population in the rural educational sector; at present, PRONEBI's responsibilities include the curriculum design and textbook production for about 800 schools in the country's four largest Mayan language areas. Half these schools are "complete" schools maintaining a bilingual teacher from preschool through fourth grade; the other half are "incomplete," with a bilingual teacher at the preprimary level. An additional 400 "extensive" schools are serviced at the preprimary level in an additional nine Mayan languages. The 800 "complete" and "incomplete" schools

and the 400 "extensive" schools receive bilingual curricular materials, teacher training, and supervisory training from PRONEBI.

The core of the bilingual instructional materials consist of student texts and accompanying teacher guides; many of the pages have also been produced in poster-sized flip sheets. The preschool and first grade texts in current use were revised and published in 1989 before PRONEBI's involvement in the BEST Project; the revised second grade texts are currently at the printers; third grade texts are scheduled for revision; preschool texts for the "extensive" areas are currently being revised.

Timelines

In the Project Paper, revision of the student materials and the teacher guides was scheduled to begin in the middle of year 1 and end the middle of year 4. The prototypes were to have been completed by the end of year 3, with the field testing of the materials beginning the middle of year 3 and ending by the second quarter of year 4. Final revisions of the prototypes were scheduled for the first half of year 4. Unfortunately, the team is currently six months behind in its schedule, and improvement in the production schedule is not yet in sight.

Instructional Materials

The evaluation team analyzed PRONEBI's instructional materials through two types of reviews--one by specialists (reviews by a curriculum specialist [Seelye] and a gender specialist [Valdivia]); and the other by the team anthropologist (Enge), who interviewed teachers and students in 18 bilingual schools in Alta Verapaz.

In addition to these evaluations, the raw data from a recent survey of bilingual schools were made available to the team in August 1992. PRONEBI prepared, administered, and tabulated this 36-item survey of teacher satisfaction with the PRONEBI materials in a stratified random sample of 84 "complete" schools in three of the four major linguistic areas (Q'eqchi', Mam, Kaqchikel) in two grade levels, preschool and grade 1. (A K'iche'-speaking survey taker was not available at the time of data collection.) Since teacher responses to survey questions may represent perceptions that are affected by factors other than objective reality, the analysis and interpretation of this survey by PRONEBI was still in progress in September 1992 when this evaluation report was written.

Document Review of Student Materials

The following five criteria were used to review the student-centered curriculum materials: *format* (attractiveness, clear printing, inclusion of attractive visuals, inclusion of visuals that portray males/females and adults/children, color, artistic layout, cultural appropriateness, gender appropriateness, durability, and construction); *language fit* or linguistic appropriateness

(applicability to students' communities, applicability to wider speech community, use of standardized Mayan orthography, use of standardized Spanish orthography, vocabulary development appropriate for given grade level, sentence development appropriate for given grade level); *content* (logic, clarity, motivational quality, student focus, community focus, generalization of concepts in Mayan, generalization of contents in Spanish, positive role models for both boys and girls); *focal skills development* (clarity of statements, sequence, reinforcement, second language use [oral], both genders involved); and *concomitant learnings* (organization, logical thinking, creative thinking, generalization, evaluation, and self-esteem). The findings are displayed in the following table.

Table II.1

Review of PRONEBI Student Materials

Student Materials (Grades PP-2)	Format	Language Fit	Content	Focal Skills Development	Concomitant Learnings
Spanish-as-a-Second Language	4	4	4	4	3
Mayan-as-a-First Language	2	2	2	2	2
Math	4	3	4	4	2
Natural Science	2	2	2	2	2
Social Studies	2	2	2	2	2
Mayan Culture	4	4	4	4	4

Rating scale: 0=no materials or total absence of highlighted characteristic; 1=unacceptable; 2=weak; 3=adequate; 4=above average; 5=superior.

The Spanish, math, and Mayan culture texts are the strongest to date. The Mayan culture text, available in Spanish and the four major Mayan languages, is a good example of the team's creative initiative. A creative approach is also needed to address the challenges and difficulties many children experience as they move from a monocultural world to a multicultural world. One common cause of stress is the feeling of alienation from the home culture combined with the simultaneous feeling of not being accepted fully by the second

112

culture. A booklet that validates the nature of self-identity in a bicultural person might help relieve some of the stress.

The other materials require additional improvement. Most of the instructional materials are not divided into lessons, with a beginning, middle, and end. The students on their own should be able to learn from the texts, but for the most part this is not currently true. The texts are rather brief; there is not enough material for a whole school year. Additional lessons should strive to be more creative. While both the student materials and the teacher guides represent a marked improvement over the original materials, there is still a ways to go.

The revision process, which is entirely too long even when it is on schedule (this has been documented by M. Lopez Raqued and J. B. Richards 1991), is currently months behind schedule. The contents of the texts and teacher guides need to be further revised to make them more useful to students and teachers. The instructional materials for most subject matter areas currently resemble supplementary graphics with accompanying text more than they do student texts with defined lessons. Consequently, most of the instructional materials cannot effectively be used without a trained teacher. The contents of most textual materials, with the exception of the graphics, is unimaginative. The curriculum revision team has been without a technical advisor for months.

Review of PRONEBI Materials for Gender Issues

A sample of PRONEBI instructional materials was reviewed for sensitivity to gender issues from three perspectives: balanced representation of females; nature of the role models provided for girls; and the degree to which the content is relevant to the women's universe. Each of the cells in Table II.2 represents an observation of a particular text. As can be noted, most adverse comments are based on content (graphics) that portrays males more often and in a more active roles than females. This is easily remedied. In addition, teacher guides in all subject areas need an additional sheet to address the importance of equality of attention to both girls and boys in the classroom. Classroom observations by the evaluation team suggest that boys may be called on more frequently in some classrooms.

Document Review of Teacher Guides

The following four criteria were employed for rating the teacher guides: appropriateness of the objectives (clearly stated, reflect national MOE objectives [SIMAC guides]; the variety of classroom activities suggested in teacher guides (inclusion of multi-sensory and motor activities, small group activities, hands-on activities, innovative activities, and personal/affective involvement of students); use of student materials suggested in teacher guides (use of materials indicated, clearly cross-referenced, appropriate, detailed directions for ease of application, interesting, appropriateness of visual supplements); evaluation procedures (pre- and posttests or checklists, self-scoring tests, system for unit testing, immediacy of

113

feedback to students, criteria for refinement of evaluations). The curriculum specialist's findings are shown in Table II.3.

Table II.2

Gender Sensitivity in PRONEBI Materials

50 Percent Content and Action to Females	Positive Image/Role Model for Girls	Girls'/Women's Universe Addressed in Content
Cover includes men and women, boys and girls (Guia didactica, Estudios sociales)	Shows girls and women in market only; no role models. (Math)	Uses el maestro & el niño throughout. Can be amplified with GID teacher and classroom manuals.
Includes mostly male pictures. (Math)	Shows girl at home and boy in rural setting. (Estudios naturales)	Includes 10 pictures of girls at home with baby, cooking. 19 total pictures. (Maya language)
Focuses more on males and male action. (Estudios naturales)	Includes girls on cover. (Maya language teacher guide)	Refers to padres, not padres and madres.
Includes females on cover and in book. (Estudios sociales)	Shows woman at sewing machine. (Maya language)	Shows girls feeding chickens, looking after kids; nothing modern. (Maya language)
Includes 3 pictures of boys reading, studying, and writing. None of girls. (Maya language)	Shows only men taking the initiative. (Maya language)	Includes no picture of a girl working in nontraditional job. (Maya language)
Does not include females; men eat, drink, do carpentry, build, drive cattle. (Maya language)	Shows girls going to school, boys following. (Maya language)	
Includes 13 male images, 8 female images. (Maya language)	Includes submissive girl. (Maya language)	
Includes 9 pictures of women, 30 of men. (Maya language teacher guide)	Includes girls on cover going to school. (Maya language teacher guide)	

The table suggests that while there is considerable variety in the quality of the instructional materials and for the most part the materials are adequate (an improvement from the prior edition), there is still room for improvement.

147

Table II.3
Summary of Document Review of Teacher Guides

Teacher Guides	Appropriate Objectives	Variety of Activities	Ease of Use	Evaluation Procedures
Spanish	4	4	3	3
Mayan Languages	3	2	3	3
Math	3	4	3	3
Natural Science	2	3	3	4
Social Studies	4	3	3	4

Rating scale: 1=inadequate; 2=weak; 3=adequate; 4=above average; 5=superior.

Teacher Interview Data--Alta Verapaz

The evaluation team interviewed 18 teachers in PRONEBI schools in Alta Verapaz in August 1992. The results indicated that the teachers were generally pleased with the support they had received from PRONEBI--57 percent of the teachers had received the materials in time to use them in the classroom. They also were happy with the quality of the materials--78 percent believed that the teacher training materials were good, and 89 percent rated the Mayan language in the texts as good. None of the teachers rated the materials as poor. Eighty-seven percent of the teachers said that they use Mayan language in the classroom.

Selected PRONEBI Survey Results (August 1992), Preschool and First Grade

The data in the next two tables were taken from a stratified (by linguistic area) random sample of PRONEBI schools in three linguistic areas: Kaqchikel (10 preschool and 10 first grade classes); Mam (14 preschool and 6 first grade classes); and K'iche' (22 preschool and 22 first grade classes). The teachers in these 84 schools teach 2,360 preschool and 1,809 first grade children. The data were collected as part of PRONEBI's ongoing formative evaluation by PRONEBI interviewers working out of PRONEBI's Evaluation Unit. The data were tabulated by the Evaluation Unit. (The data presented below are raw data; the final report by PRONEBI may differ slightly because of corrections made.)

145

Table II.4

Teacher Receipt and Use of PRONEBI Instructional Materials¹

Materials	Teachers got the materials. (Item #4)		Teachers used most materials in classes. (Item #19)	
	Preschool	1st Grade	Preschool	1st Grade
Spanish as-a-second Language	54 %	55 %	35 %	35 %
Mayan as-a-first Language	78 %	65 %	78 %	87 %
Math	76 %	58 %	78 %	66 %
Natural Science	n/a	18 %	n/a	42 %
Social Studies	n/a	53 %	n/a	39 %
"Applied Areas"	n/a	29 %	n/a	13 %
Reading Readiness (Aprestamiento)	74 %	18 %	80 %	10 %
Civics	59 %	18 %	24 %	3 %

¹ Data from PRONEBI Survey, August 1992

Data presented in the above table suggest that between 22 percent and 82 percent of the teachers did *NOT* get the instructional materials in a given subject area. Of those teachers who did receive the materials, only 28 percent of the preschool teachers and 16 percent of the first grade teachers received adequate quantities of materials in each subject. It also appears that the teachers may not be using all the texts they do have (although this conclusion is only tentative because it is not clear whether only teachers who received the texts responded to this item).

The next table, Table II.5, reports responses to selected items from the PRONEBI survey that address the student and teacher materials and the training in their use.

A number of interesting observations can be drawn from the table:

- The preschool teachers are much more positive than the first grade teachers. In some cases the differences were striking. For example, preschool teachers were far more

Table II.5
Teacher Assessment of PRONEBI Materials and Training¹

Rating	The materials have been good auxiliary aids (Item #15)		The materials have been very useful in making classroom activities more effective (Item #22)		It's good for the children to take the books home for review (Item #23)		The teacher was trained to use the materials (Item #33)		The teacher guides have been useful (Item #28)		Along with the texts there should be an exercise booklet for each lesson (Item #24)		Training in the use of the materials is necessary (Item #34)	
	PS	1st	PS	1st	PS	1st	PS	1st	PS	1st	PS	1st	PS	1st
Totally in agreement	74 %	50 %	59 %	45 %	26 %	21 %	56 %	37 %	74 %	55 %	87 %	89 %	93 %	74 %
Partially in agreement	24 %	32 %	15	31 %	13 %	18 %	n/a		4%	13 %	2 %	-	n/a	
Disagree	-	5 %	2 %	-	22 %	8 %	n/a		6 %	-	2 %	-	n/a	
Totally disagree	-	-	2 %	-	33 %	42 %	37 %	42 %	4 %	5 %	2 %	-	2 %	8 %
No response	2 %	13 %	22 %	11 %	6 %	10 %	6 %	21 %	12 %	27 %	6 %	11 %	5 %	18 %

¹ Data from PRONEBI Survey, August 1992

positive about the value of materials as auxiliary aids and the usefulness of teacher guides than were first grade teachers.

- Few, if any, classroom teachers allow children to take the instructional materials home. This is not surprising considering the numbers of teachers without sufficient numbers of the texts. However, most teachers (61percent) are not even in partial agreement with the idea that the children take the materials home for review (Item 23 in the above table). The reasons for this can be probed in future surveys.
- Seventy-four percent of the teachers agreed that the materials were very useful in making classroom activities more effective (Item 22), but almost all--93 percent--felt that training in the use of the materials was necessary. Most of the teachers also believed that student texts should be accompanied by an exercise booklet for each lesson.

Separate from the survey items reported above, but as part of the same PRONEBI survey, teachers were asked to rate each of the texts on a five-point scale. They rated eight components, six of which dealt with format issues (binding, color, overall printing quality, print size, illustrations, and gender equity in illustrations). Many teachers made the same comment concerning the physical appearance of the texts: there should be more colors used (or at least brighter colors); and there should be more gender equity in the illustrations. The body of the books currently employs one color per sheet. Although the color that appears on each sheet varies, the colors are too pale to appeal to the students and teachers.

The other two components--contents and suggested learning activities--are summarized below.

While most of the respondents rated the contents as either very good or good, about 14 percent of the teachers rated the contents as in need of improvement. Few respondents (4.5 percent) rated the texts as excellent. (These percentages were obtained by summing across the responses for each text; omitted from these calculations were ratings of texts where the overwhelming majority--80 percent or more--of the respondents did not rate a given text.) Those instructional materials teachers rated as most in need of improvement were the preschool math and Mayan language texts and the first grade Mayan language text. The reasons for this need to be probed further.

Most of the surveyed teachers rated the suggested learning materials from the teacher guides as very good or good, but only 3 percent rated them as excellent in terms of the activities suggested. This is consistent with the above table: 87-89 percent of the teachers noted that along with the texts there should be an exercise booklet for each lesson. The academic areas rated most deficient were preschool math and Mayan language, and first grade math, natural science, Mayan language and Spanish language.

Intermediary Effects and Impact

This is probably not applicable to this activity since none of the revisions made during the BEST Project are yet in the hands of any students.

Problems and Constraints

Many events have conspired to delay the production schedule. The transition from end of the previous project status to incorporation into the BEST Project has been fraught with administrative problems. PRONEBI was without a director for a year. The worst snafu was that staff went without pay for over four months, provoking the flight of many curriculum developers (and other staff) and the demoralization of those who remained. Other demoralizing events have plagued PRONEBI: the preschool bilingual teachers are still paid at the lower "promotor" rate; PRONEBI's supervisors spent several years out of work; and over the years, a number of staff have been killed (the latest was last year). Still other reasons include the frustratingly long time it takes to get approval to expend funds and the long delays before the funds arrive. Further, the in-service training provided those responsible for curriculum development and textbook preparation has not resulted in the vision, skills, and self-confidence necessary for the textbook development teams to function on their own or with minimum guidance.

The U.S. technical advisor was not successful in providing leadership at the authoring and production stages of materials development, and the team has been without any technical assistance for some months. The production teams' requests for outside help have gone unanswered to date. They are conscientious and want to be more productive but are currently rudderless and unenergized.

The instructional materials themselves need additional revision. They are not especially innovative in their approach nor are they easy to use in the classroom without considerable teacher in-service, and half of the teachers have not been trained in their use.

The infrastructure supporting the distribution of the materials does not work well--in about 40 percent of the cases the texts have not arrived in the classroom, and in about 80 percent of the time insufficient amounts of materials arrive when they do make the journey to the classroom.

Sustainability

The sustainability of PRONEBI should be an issue of considerable concern to A.I.D. In many ways, the next several years will be the most critical period in PRONEBI's existence. The combined impact of regionalization and the phasing out of A.I.D. support will be very

important. PRONEBI was created by A.I.D. and has been supported by A.I.D. for 10 years (counting the small pilot project that preceded national expansion). The commitment of the Guatemalan government has been demonstrated by both ministerial and presidential decrees. In some ways, the GOG support for PRONEBI has grown substantially--the ordinary MOE budget resources assigned to rural bilingual education increased from 0.25 percent in 1984 to 8.4 percent of the primary education budgets. In 1991, this budget line item tripled.

A major issue is whether the political will to support continual bilingual textbook revision will last longer than the BEST Project. The area of concern is whether the MOE will absorb the cost of supporting this PRONEBI activity. PRONEBI continues to be heavily dependent on A.I.D. financing. The text revision activity continues to be financed almost entirely by BEST Project funds. A.I.D. is paying for professional and secretarial salaries, telephone lines, per diem, rent, insurance, maintenance of equipment, computers, and vehicles, office supplies and paper (carbon, xerox, folders, etc.), gasoline, printer toner, pencils, office furniture, and personnel allowances. All of these are necessary to the textbook revision process, but these items are not currently projected into future MOE budgets. The A.I.D. budget, of 1.3 million Quetzales in 1992, will be reduced to 634,408 by 1994, after which the MOE is presumably expected to pick up these costs. However, the Management Office master project budget indicates that the counterpart contribution will remain steady at 58,807 Quetzales from 1993-1995, all of which is for personnel costs (*Información Financiera del Proyecto A.I.D. 520-0374 "Fortalecimiento de la Educación Básica" que tiene bajo la responsabilidad el Ministerio de Educación. OAP*). No funding is planned for materials, supplies, or any other nonpersonnel costs. This issue must be resolved in the continuing policy dialogue between A.I.D. and the MOE.

The MOE plans to incorporate PRONEBI at the regional level. On paper, it appears that many PRONEBI activities will continue under the MOE auspices. One issue is whether these decentralized units will be able to exert real influence over the course of events in their regions; they may be absorbed into a monolingually-oriented system, their influence dissipated and/or overridden. It is unclear how future text development and/or revision will be coordinated once PRONEBI becomes integrated into the regional centers.

The retainability of trained PRONEBI staff is an issue. Earlier this year, some staff (three of the curriculum specialists who participated in the training in Los Angeles, for example) did leave because they were not getting paid and it was not at all certain that they would get paid. The wage scales assigned to PRONEBI staff are for the most part lower than similar positions in the MOE. There is no sign yet that the July 1992 MOE salary increases will affect Project BEST staff.

PRONEBI has accomplished a remarkable reform in Guatemala's educational system. Perhaps the most significant contribution PRONEBI has made to the education of rural children is that it has focused MOE attention on issues related to the quality and relevance of the rural curriculum to the needs of children, legitimized the use of the students' home

language in the school, and empowered bilingual teachers to use the vernacular language in the instructional process. In addition, respect for the students' customs has been operationalized in other ways. For example, the pervasive (and insensitive) practice of disallowing students to dress in their traditional ways is now a relatively rare occurrence. The permanence of these changes in terms of the respect indigenous people are accorded will be an important index of the sustainability of PRONEBI's efforts.

Recommendations

- *Resolve the technical assistance logjam immediately.*
 - The curriculum revision team urgently needs technical assistance. If long-term technical assistance is not immediately available, then short-term advisors can help get the process back on track.
 - A.I.D. and AED need to be more responsive to the interests and needs of the curriculum team. The team's unanimous choice for an outside advisor was rejected on the grounds that he did not have the requisite level of fluency in Spanish. However, the curriculum team had worked with the candidate in a seminar and did not see this as a major obstacle. The inability to resolve this problem simply exacerbates the demoralization of the curriculum team. The team needs to be empowered to resolve these problems.
- *Rehaul the procedures for curriculum revision to speed up the process.*
 - A possible schedule similar to that used for the radio Spanish programs could be adopted. This would require production of a draft lesson for each subject matter each week. Monday and Tuesday could be used to produce a draft, Wednesday and Thursday could be used to obtain input from outside sources (e.g., GID), and Friday could be reserved for incorporating suggestions. The lessons could then be piloted by a few schools while the team prepares the next lessons.
 - The curriculum revision tasks can be divided into much smaller tasks. Two-week tasks can be easily identified (e.g., script a lesson for natural science that gets students to launch a class project), and local people can be contracted to work with the team for the two weeks it takes to prepare the lesson. Teacher training institutions might, after a focusing presentation by the curriculum team, take on the task of drafting an innovative lesson for subsequent pilot testing by PRONEBI.
 - The task of producing quality revisions in the student and teacher instructional materials as quickly as possible should be given the highest priority in the

121

immediate future. PRONEBI's major tangible legacy to Guatemalan education will be the bilingual texts, so getting good texts into the hands of children rapidly is a critical priority.

- *A.I.D. and the MOE must directly address the institutionalization and sustainability of the curriculum revision component of PRONEBI.*
 - The recurrent costs of periodic revision of bilingual texts must be covered by the MOE if this is to be an ongoing activity after the BEST Project. The incorporation of both personnel and material costs into the MOE budget and institutionalization of the activity should be included in the policy dialogue between A.I.D. and the MOE.
 - The recurrent cost of reprinting the student and teacher materials needs to be calculated and included in the MOE budget projections.
 - Logistics and support systems for PRONEBI need to be strengthened to assure timely delivery of instructional materials, adequate teacher training, and adequate support from regional administrators.
 - The wage scale of PRONEBI staff needs to be reexamined in light of current MOE wages to avoid an exodus of trained personnel.
- *The MOE should continue to make improvements to instructional materials.*
 - Student texts should be expanded to accommodate additional objectives and lessons. The amount of material in the current texts is insufficient for a school year.
 - Instructional materials need to be easier to use. Lessons should have a clear beginning, middle, and end, and more detailed lesson plans can be prepared for the teacher guides.
 - More imaginative lessons are needed to elicit creativity and excitement from the students and to include more group-centered tasks, problem-solving activities, interdisciplinary tasks, and encouragement to work on community-centered problems. Specific, "cookbook" lessons aimed at these objectives can be developed in the teacher guides.
 - Review of texts for gender bias must be a continuing activity.
 - As indigenous communities become more bilingual and incorporate ladino practices (e.g., cooking on stoves) into their daily lives, assistance needs to be

122

given children as they evolve "bicultural" identities. This could take the form of a booklet patterned after the existing texts on Mayan culture (which are being printed). While the teaching of Spanish also helps prepare students for a bicultural world, there is little if any attention paid to preparing individual students to handle the stresses of biculturalism (e.g., identity concerns). Attention to this dynamic will balance the current PRONEBI emphasis on first-culture issues.

123

III. EXPANSION OF PRONEBI

Summary Findings and Conclusions

Strengths

PRONEBI has achieved considerable success in getting the GOG and MOE to support the concept of bilingual education for rural indigenous communities. This represents a significant reform in Guatemalan education. In terms of the BEST Project, the bilingual activity covers many more schools than all of the other activities combined. Since its incorporation into the BEST Project, PRONEBI has developed a national plan for the expansion of bilingual education to include children who speak any of the 22 indigenous languages spoken in Guatemala.

Weaknesses

The major decisions affecting PRONEBI's institutionalization into the MOE and its role in educating indigenous children are ambiguous (e.g., its role in the Regional Centers) or still remain to be made (e.g., MOE picking up the future core staff costs).

Conclusions

PRONEBI has a track record of expanding bilingual education nationwide, but the move to decentralization has placed it in a vulnerable position. The immediate future will be a critical period for the bilingual education program in Guatemala. A.I.D. and the MOE should assure that adequate support is provided to avoid losing the accomplishments of the past decades.

Achievements

The major accomplishment for this activity since its incorporation into the BEST Project has been the development of the PRONEBI plan that met the condition precedent requirement. This plan outlines three major objectives dealing with bilingual expansion: expand bilingual education to additional language areas (Jacalteca, Aguacateca, Chuj, Chorti, Achi, Pocom, Mopan, Sacapulteca, and Garifuna); study the present situation in the communities affected by this expansion; and develop strategies, in coordination with the regional centers, for creating bilingual teacher positions.

In addition to the objectives relating directly to the expansion of bilingual programs, PRONEBI proposes two other major objectives: incorporation into the regional centers (and planning for this has taken much of PRONEBI's efforts this year), and broadening bilingual programs in the current languages to reach more children through a gradual expansion.

This national plan is a good plan for extending equal opportunity to a greater proportion of the nation's rural indigenous primary school-aged population.

PRONEBI has a well developed evaluation unit that provides quality formative data. (Until last year, they also provided summative data. This latter function was assumed by the Centro de Cómputo.)

According to the Project Paper timeline, the expansion of PRONEBI was to begin in the second quarter of year 1 and end with the distribution of furniture and didactic materials by the end of Year 6, the LOP. More detailed timelines appear in the December 1991 planning document. This latter document indicates the achievement of PRONEBI's three main objectives as follows: conducting the community studies for the first five language areas between 1995-1996 and for the other four language areas between 1997-1998; incorporating the first five language areas into the bilingual program during 1995-1998 and the other four language areas between 1998-1999 (developing a more detailed plan to incorporate the remaining linguistic areas is scheduled for 1995, and its approval is anticipated within a year); and developing the plan to create more bilingual positions between 1995-1996. (Page 100 of *Plan nacional para incorporar en forma gradual y progresiva todas las areas linguisticas al sistema de educacion bilingue bicultural*, [December 1991] addresses the expansion into eight--not nine--linguistic areas. The non-Mayan language, Garifuna, appears to be left out; it is an Arawak-Caribe-based language.)

Plans for incorporation into the evolving regional structure is more or less on schedule although there is still much confusion regarding the details of how this will be done.

Intermediary Effects and Impact

Since the planned expansion has not yet taken place, there are no intermediary effects.

Problems and Constraints

After years of anticipated incorporation into the decentralized regional offices, how PRONEBI will function at the local level is still uncertain (although the Minister has moved to clarify it recently [in Antigua, July, 1992]). The MOE has often been unresponsive to PRONEBI's needs. For example, it went a year without a director, many of its staff recently went four months without pay, bilingual preschool teachers are still paid at the lower

"promotor" rates, bilingual supervisors went several years without a job, PRONEBI's staff has been reduced. The level of GOG support for PRONEBI is uncertain (the murder of one PRONEBI interviewer at the hand of a Civilian Patrol Unit has not resulted in any arrests).

The infrastructure that PRONEBI depends on to get the instructional materials to the children is still a priority issue. As can be seen from the data presented in the preceding section on Development of the Student Texts, the delivery systems have not been reliable; many classrooms do not have texts. Text delivery systems are not the only ones that need to be improved. The supervisory structure is weak, and the inservice of bilingual teachers is spotty.

Another issue is the dependence on other donors for critical parts of program expansion. For example, the anticipated funds from the World Bank to pay for the costs of textbook printing have been delayed for three years. Meanwhile, a lot of children are awaiting their books.

The projected expansion is feasible if PRONEBI's efforts are accorded reasonable support.

Sustainability

PRONEBI continues to be heavily dependent on financial assistance from A.I.D. The PRONEBI national plan (see above) indicates that the MOE will absorb the costs of PRONEBI staff. However, BEST Project master budget documents do not envision an increase of counterpart funding commensurate with the reductions of A.I.D. funding for PRONEBI core personnel and support costs. A realistic assessment of recurrent costs for both existing PRONEBI schools and future expansion, and a clear commitment to absorb these costs, is essential.

PRONEBI staff does have considerable experience in all aspects of expanding bilingual education, and the fact remains that the MOE has expanded bilingual education to between 400-800 schools on a national level (depending on how one defines a bilingual school). The MOE has absorbed the cost of bilingual teachers and this demonstrates considerable commitment to the institutionalization of bilingual education.

Recommendations

Many of the recommendations concerning the institutionalization of PRONEBI found in the previous chapter on bilingual textbook revision are applicable also to the task of expanding bilingual education. Those recommendations will not be repeated here. Other recommendations are as follows:

- *Phase in counterpart funding to replace the A.I.D.-financed core staff of PRONEBI before the end of the BEST Project to increase the probability that the MOE will continue to fund these trained professionals.*
- *A.I.D. should develop contingency plans to handle the critical lacunae left by the failure of other donors to fund anticipated portions of the expansion of bilingual education.*
- *A.I.D. should continue its policy dialogue with key officials in the Ministry (including officials at the regional level) to enhance PRONEBI's role in the future development of quality bilingual programs for all needy children.*
- *A.I.D. should assist in the strengthening of management skills of bilingual supervisors at the district and regional levels, and of the management skills of their supervisors.*

127

COMPONENT II: TEACHER SERVICES

In-service Distance Teacher Training

Teachers' Magazine

Supervisors

School Materials

Social Marketing

128

IV. IN-SERVICE DISTANCE TEACHER TRAINING

Summary Findings and Conclusions

The distance training component was designed to develop and strengthen an alternative in-service training program that would be more efficient than the expensive multiplier system used by SIMAC previously. The activity was intended to provide 20,000 teachers with self-instructional learning modules supported by organized small group discussions. The activity faltered on the inability of A.I.D. and SIMAC to reach agreement on conducting a needs assessment as well as on ideological and practical differences about training methodology, content, and approach. To some degree, this reflects A.I.D.'s reassessment of the value of the distance training approach. The activity is currently suspended, and all funding will be reprogrammed for use in other activities.

Achievements

The activity was suspended at an early stage. There have been no achievements in this activity.

Intermediary Effects and Impact

Not applicable

Problems and Constraints

Some of the difficulties in implementing these activities have been rooted in the open ideological differences between A.I.D. and SIMAC, or the advisors in SIMAC. These differences are based on both educational philosophy and donor agency management and implementation styles.

The role of SIMAC in the Ministry has yet to be fully defined or clarified in terms of its relations with the other MOE divisions. It was acknowledged by all of the MOE officials interviewed that SIMAC's origin as a UNESCO project that has become a somewhat equivalent organization to the director general-level divisions is somewhat unusual. It is expected that the relative roles and functions of SIMAC will be better defined under the new

regulation for the Education Law. A relationship of great interest will be the one between the local *orientadores* (SIMAC) and the supervisor corps (DGEE) at the local level. It is probable that their training role has remained undefined until the profiles of supervisors managed through the *Dirección General de Educación Escolar* were formalized in 1992.

An issue that is noteworthy, although somewhat moot, is related to the Condition Precedent (CP) in the Grant Agreement that required SIMAC to create, fund, and fill 16 new professional positions to produce distance education materials for in-service teacher training. The CP was met and approved with a letter from SIMAC in November 1990, indicating that 58 positions had been created and 23 professional positions were filled. The current status is that positions are not filled. However, the absence of these positions in the distance education activity does not currently affect the implementation of the project.

Sustainability

This is not currently an issue because the activity has never been initiated. However, in more general terms, the sustainability of a high quality in-service training program is and will continue to be a critical factor in improving the quality of education in Guatemala. Equally important will be the coordination of the teacher training and curriculum development activities in SIMAC with the other MOE and BEST Project activities. In particular, the coordination and, to the extent possible, integration of methodology and philosophy of the supervisor system under the DGEE and the teacher training under SIMAC are necessary if the Ministry is to speak in one clear voice to the teachers. This same type of coordination will be necessary for all of the BEST Project activities that actually reach the classroom, in particular the interactive radio and one-room school activities.

Although the relationship between A.I.D. and SIMAC has become somewhat strained, it must be kept in mind that no real impact on the educational system can be achieved if the primary organizational mechanism for teacher training is bypassed. The cost of the SIMAC decisions to A.I.D. and to the BEST Project have been large in terms of goodwill, activity coordination, and institutionalization. The evaluation team does not wish to appear to minimize the obstacles, which include institutional philosophies, donor agency conflicts, internal Ministry disagreements, and organizational priorities as well as differences in management styles and personalities. However, the costs of not achieving a productive working relationship with UNESCO and SIMAC are significant.

Recommendations

- *Develop an approach toward improving the linkages between A.I.D. and SIMAC based on the principle of participation.* Perhaps some of the tension, from the perspective of SIMAC, has been rooted in a nonparticipatory project

130

management style. The unfavorable reaction of the Director to the request that new positions for the achievement testing office be created and filled with project individuals that he had no say in selecting is understandable, if not helpful. While management style is by no means the only, or even the most important problem, it is at least on approach to improving the linkages.

- *A.I.D. must work with the Ministry to develop a consistent policy statement about pedagogical philosophy, approaches to instructional delivery, and staff development.* The relationship with SIMAC, as with all of the MOE dependencies, is crucial for focusing on the larger policy issues of the program. Such a policy statement would serve as a negotiation tool with SIMAC, DGEE, and the other units involved in staff development. The establishment of such a consistent philosophy is central to the future of all of the instructional innovations from the BEST Project.

V. TEACHERS' MAGAZINE

Summary Findings and Conclusions

The teachers' magazine has produced one prototype magazine and the first issue. Distribution of the magazine has been limited to regional directors, and the degree to which it has been used by teachers is unknown. The key issues for the magazine are the control of content and purpose and the future sustainability of the endeavor.

Achievements

The Implementation Schedule in the Project Paper estimated that regular production of six issues per year would begin in January 1992, which would mean that the activity would be producing the fourth issue at this time. This target was reduced to four issues per year in the RFP and contract. To date, the activity has produced one prototype and one issue, so the activity is approximately 6 months behind the original schedule. The prototype magazine was evaluated through a survey of 790 teachers, and the first issue reflected the feedback. The first production run of 20,000 issues was distributed to school and regional directors.

The magazine that has been produced is a glossy, attractive, and well-laid out magazine with a range of information. The original intent of the magazine was to complement distance training by providing a regular dissemination mechanism for continuing education as well as general support and motivation to teachers in the field. The magazine was to include how-to articles, Ministry information and policy, technical articles, ideas and innovations, regional/school highlights, and possibly a teacher information exchange column. The first edition of the magazine after the prototype had a mixture of articles, some of which were more directly useful to teachers in the field than others. The articles covered a range of topics --sex education, the health benefits of fruit juice, dyslexia, the problems of dropout and repetition in primary education, a how-to article about using and maintaining the blackboard, Ministry news, and two pages of a game/exercise for classes. In addition, the magazine had three major articles about BEST Project activities--the PRONEBI mapping activity, the radio activity, and girls' education.

Intermediary Effects and Impact

The field visits in Alta Verapaz, Chimaltenango, Patzún, and Guatemala City found only six out of the forty teachers interviewed who had seen and read the teachers' magazine. Those who had read it were favorably impressed with the contents and felt it would help them in their teaching activities. Three teachers in Metropolitan Guatemala said that the *Revista* helped them prepare class lessons, especially for girls. Two believed that it could be made more instructive and should be more generally available. When asked what would most help them improve their teaching, however, virtually everyone listed materials and supplies--ranging from books and chalk to audiovisual equipment.

Problems and Constraints

There are four current issues for the teachers' magazine: (1) the use of purchased equipment; (2) the content and focus of the magazine; (3) staff quality and availability; and (4) sustainability. At the time of the evaluation, the second edition of the magazine was being developed. The photo and desktop publishing equipment had been purchased but was being stored until the staff could be trained in its use. It appears to the evaluation team that this is an ideal opportunity to use technical assistance as training. This is exactly the kind of minor implementation snag that the flexible technical assistance contract was intended to resolve quickly and easily. This problem only needs the resolve to solve it quickly.

The purpose and function of the magazine needs to be clearly defined. At present, it is seen by USAID as essentially the house magazine for the BEST Project. The project committee believes that a certain number of pages in each issue should be devoted to promoting BEST activities. The magazine's future, however, is wholly dependent on whether it is useful enough to teachers that they will agree to buy it. It appears that OH&E is overly involved in the details of planning and organizing the magazine. A more appropriate level of involvement and strategy for developing local capacity would be to provide guidelines and parameters for A.I.D. funding of the activity and allow the MOE to produce the magazine within these parameters. To the extent that they need technical assistance, the project can provide it.

In the Project Paper, the MOE committed to allocate a staff of 13 people, consisting of eight technical and five support staff. This has not materialized and should be a focus of discussion with SIMAC.

Sustainability

Sustainability is an issue that has not yet been addressed in the project. The expectation is that the magazine will be continued after the project, when teachers like it enough to purchase

it. Although sustainability depends on a willingness to purchase, to date there has been no effort to ascertain whether this is likely to happen or at what price teachers might be willing to purchase it. The cost of production is an important variable that will affect not only the future viability but also the format of the magazine. The current glossy magazine format is one approach. The format used for *RAICES*, an adult literacy magazine (newspaper format) produced by Amigos del País, is another alternative that sells for only Q15 for twelve issues. The cost and marketability alternatives for the magazine should be thoroughly explored at this point to increase the potential for eventual sustainability. The issue is what will teachers actually buy, and for how much.

Of course, the potential for selling the magazine depends a great deal on teachers actually receiving copies and finding it useful. The only volume other than the prototype version was distributed to directors rather than teachers, and only 20,000 copies were produced. At this point, there is no knowledge about how many teachers actually see the magazine.

Recommendations

- SIMAC, the MOE, and A.I.D. need to agree on the purpose of the magazine and the guidelines for editorial content. Once this agreement is in place, clear guidelines can be issued that establish the criteria for reimbursement by BEST Project funds. With such guidelines, direct USAID/G involvement in the details of magazine production can be minimized.
- We would recommend that the magazine be heavily oriented toward practical assistance and tools for teachers rather than serving to promote BEST Project activities. The MOE should also ensure that future editions are widely distributed among the teachers.
- Better coordination with the MOE can result in formative evaluation procedures that systematically collect regular feedback on teachers' perceptions and reactions.
- A comprehensive analysis of the costs and marketability of alternative magazine designs is needed to determine the potential for financial sustainability after the BEST Project financing ends.

134

VI. SUPERVISORS

Summary Findings and Conclusions

This activity is intended to strengthen and revitalize the MOE teacher supervisory system. The activity was considerably delayed after the supervisory system was disbanded and then recreated in 1992. Despite the delays, however, the new system has the potential to be significantly better than the traditional form. The new concept of supervision is set in "*La nueva ley de educacion*" (Article 72) and outlines a departure from the traditional role of supervisor as inspector/administrator toward a new role as technical advisor to teachers and local school administrators. The final stages of the selection and hiring process occurred during the period of the midterm evaluation.

To date, the BEST Project has been supporting the activity and planning the system and the training programs. If the expectations for this approach to supervision can be achieved, it will represent a major improvement over the past and an important support linkage for the teachers. The scope of the changes in traditional attitudes and roles that will be needed to accomplish this is fairly extensive. This activity offers an important opportunity to establish functional formative evaluation procedures in the MOE to determine the degree to which this new vision of supervision is being achieved in the field.

Achievements

BEST began supporting this initiative in 1991. The process has moved slowly, however, due in part to the careful procedures being followed in creating a new system. BEST's involvement in this process is scheduled to be phased out in a year. While the Technical Assistant has been beneficial, most of his time has been spent in assisting in the planning phase rather than strengthening and training supervisors. The bulk of the training has yet to be developed, which may justify a 12-month extension for the technical assistance.

Procedures to select supervisors on the basis of merit through competitive examinations were initiated with the new system. This merit-based selection process represents a real accomplishment for the MOE. It is worthwhile to note that the process is not only structured to be fair, it is perceived as being fair.

One design of teacher supervision has the endorsement of the teacher's union and Ministry officials, and a salient characteristic of this is that the position of supervisor is imbued with new importance. It is designed to serve as the nerve center that drives an open,

two-way system of communication between the top administrative levels through the classroom teacher levels. This new vision of the supervisor encompasses many ambitious changes. The supervisor is involved in establishing pedagogic direction and in assuring that teaching priorities are clear, realistic, practical, and tangible. The teachers are to see the supervisor as someone who will work with them, resolve problems with them, and share successes with them. The supervisor becomes, through in-service training, transformed into a technical/curricular generalist. The new supervisor will master the language of the communities in which he is working. The mistrust so prevalent in the past is to be replaced with admiration and respect. The intention to accomplish this vision was seen in the newly [re]instituted competitive process of selection and in the guidance coming from the upper administrative echelons of the MOE.

The envisioned intermediary deliverables are to be the programming for supervisor training, a Technical/Administration Functions Manual, the Attributes of the Supervisor, a commitment to nine new technical booklets on topics such as exercising clinical supervision and conflict handling, and the application of a system of formative evaluation and training for the achievements of learning goals in the first three grades of primary education.

Intermediary Effects and Impact

It is too early to observe any intermediary effects of the supervisory service.

Problems and Constraints

Many of the problems and constraints are those associated with the creation of a new supervisory system. With the resolution of some of these delays and the hiring of the supervisors, it is expected that the project pace and disbursements will speed up.

There are two general areas for comment in this area. The first will be the continuing need to resolve and clarify the relationships, both centrally and in the field, between SIMAC and DGEE. Any differences in approach, pedagogy, and philosophy between these two dependencies must be clearly resolved. The supervisor and the in-service training systems will be the two major lines of communication and support that reach the teacher level. The degree to which they are speaking the same language--to which the MOE has a single approved approach--will be important. The supervisor system will also be an important factor in supporting the use of BEST Project innovations in the classroom, such as interactive radio, gender sensitivity, and one-room teaching methodologies. The supervisor training in these areas should be adequate to enable them to provide useful formative feedback to the teachers.

The equipment to be provided by BEST has not yet been distributed. The motorcycles have been in storage for a year pending creation of the new system. This was an unfortunate

turn of events, but probably unavoidable. An issue has been raised by some supervisors that the motorcycles--185 cc trail bikes--are not particularly useful in the city nor are they appropriate for female supervisors. The usefulness issue was raised because the common supervisory task of carrying materials to the schools is difficult on these bikes. The appropriateness issue was raised because some female supervisors (there are not many) felt that the motorcycles would be difficult to use in working clothes. They also believe that use of these motorcycles will be dangerous in Guatemala City.

Some of these considerations had been raised earlier and resolved to the satisfaction of the project managers. The ability to use a motorcycle was established as a condition for the position and adequate training in motorcycle use was to be provided to all supervisors. However, the appropriateness, utility, and safety of motorcycles are not unreasonable issues. In some ways, the requirement of ability and willingness to use this form of transportation in the city is a gender issue--it probably affects women more than men. It is also, at least for the future, a logistics and planning issue. The various alternatives suggested by supervisors included ideas such as circuit transportation, in which a car would transport a group of supervisors with their materials, drop each off at the schools, and then return to pick them up. While there are unquestionably issues with this approach as well, the cost-effectiveness and appropriateness of alternatives should be considered for the future. This will probably not affect activities in this project.

Sustainability

The prospect of sustainability is reasonably good in most ways. As with virtually all of the other activities however, the questions of recurrent costs and adequate budgets apply to supervisors as well. The BEST funds purchased not only the motorcycles, but also the maintenance, fuel, and repair for the life of the project. Serious future planning and budget provisions need to be established to assure that motorcycles (or alternative transportation forms) can be replaced and that operating expenses (including per diem) will be adequate to enable the service to function effectively. The question of replacement and repair is particularly important--motorcycles are more likely to be badly damaged in accidents, and thus may need more replacement contingency.

Recommendations

- *Technical assistance should be extended for another year.*
- *The formative evaluation function for this activity should be very carefully planned, adequately budgeted, and carried out. To the degree possible, it should be integrated into the normal operations of the DGEE at least in terms of relying on the information to adjust the program.*

- *Supervisor training programs should be carefully coordinated.* The training programs for supervisors should continue to be carefully coordinated with the needs of the various Ministry and Best Project initiatives, including interactive radio, one-room school methodology, and gender issues. Mechanisms should be developed to institutionalize these linkages.

VII. SCHOOL MATERIALS

Summary Findings and Conclusions

This is a small but critical-mass activity with potential for expansion and measurable impact, regionally near-term and nationally long-term. Probably because of its scale, and possibly because it is a token institution (small private sector participant in a social sector activity), it gets little attention from A.I.D., the MOE, and the evaluation process. In its reprogramming exercise, A.I.D. appears likely to cut this activity significantly. It is recommended, however, that the reprogramming include a small study of impact to date, perhaps piggy-backing on the evaluation that is being planned by Fundazúcar.

Achievements

Fundazúcar initiated its activity with A.I.D. in October 1991 (its fiscal year 91/92). From an original budget of \$350,000 for the first year, it has actually spent \$243,482. A.I.D. has distributed \$98,588 and Fundazúcar distributed \$144,894. The activity is a "matching grant," subject to A.I.D. approval of eligible counterpart. Fundazúcar has thus far distributed 17,598 of the projected 25,000 *bolsas* for first grade pupils and 1,600 *valijas didácticas* for first grade teachers, in 186 primary schools in the Costa Sur (Santa Rosa, Escuintla, Suchitepequez, and Retalhuleo). In so doing, in its first year with BEST it will have a significant impact on the total public school first grade population of the region (approximately 59,000 in 1991) and expects to supply 100 percent of the regional first grade teachers. The activity is coordinated with SIMAC and MOE regional directors, although there have been substantial problems with the latter (e.g., inability to convoke the teachers).

Intermediary Effects and Impact

Given the importance of the teaching materials to learning (Bruce Fuller, "Raising School Quality in Developing Countries: What Investments Boost Learning?" World Bank, 1986), it is expected that this modest activity will yield important benefits at low cost (the *bolsa* is costed at \$6.93, and the *valija* at \$33.58; see annex to this report providing a financial summary of the budgeted activity for the three years 1992/1993-1994/1995).

To date, there has been no known attempt to evaluate the educational content (impact) of this activity, even though experience with it antedates Fundazúcar (the *Cámara de Industria*

began distributing a *canasta escolar* in Guatemala City in 1986). Nonetheless, the importance of school materials in pupil achievement is well documented (Fuller relates quality elements consistently to achievement in 17 of 25 studies). Fundazúcar plans to monitor and evaluate the impact of its activity ("Informe Final Bolsa Escolar 1992," section on "Seminarios de Capacitación"); the MOE should be encouraged to participate.

Problems and Constraints

Fundazúcar has expressed difficulty in its business dealings with both A.I.D. and the MOE. This seems to entail a variety of administrative and financial matters and could very possibly influence its continued participation, especially after BEST is completed. Fundazúcar should be encouraged to expand its activity to increase grade one pupil coverage and possibly initiate coverage of subsequent grades.

Problems with A.I.D. disbursements, including slowness in its financial review/audit practice, have been noted. Materials distribution has also been cited frequently as a problem; this is partly due to the MOE but also appears to be an organizational difficulty (e.g., lack of formalized distributors).

Sustainability

There is little doubt that Fundazúcar has the institutional capability to keep operating. In addition, it probably can generate the additional resources that would be required; Fundazúcar plans to contract two fundraisers for their numerous activities--one will be contacted to work in Guatemala, mainly with foreign and international organizations; the second would work in the United States. Fundazúcar itself is only four years old, and its education materials activity is only in its third year. Very possibly, this activity will wax and wane with the interests of the executive director, and Fundazúcar is now on its third. Thus, a small but potentially very effective activity could disappear due to the disinterest of a few key players. Institutional linkages are weak.

Recommendations

- *Fundazúcar's plan to monitor and evaluate its activity should be provided institutional and financial support from A.I.D. and the MOE.*
- *Generally weak institutional ties should be strengthened at the initiative of A.I.D.*

VIII. SOCIAL MARKETING

Summary Findings and Conclusions

The social marketing activity was suspended in 1991 due to dissatisfaction with the quality of the work provided and the recommendations that were offered. It is currently not expected to continue with the original form and objectives, but rather as minor technical assistance to the Minister. The reprogramming budget reduces this budget by 90 percent.

Achievements

There have been no achievements in this task. The initial work in this activity by two consultants, sequentially, was not acceptable to the USAID Mission. Both consultants in social marketing recommended the same approach--that the social marketing must be tied to a product or concept. The USAID Mission had an understanding of the activity as a communication strategy that was substantially different from the proposals. No alternative program has been proposed since the last consultant's recommendations.

Intermediary Effects and Impact

Not applicable

Problems and Constraints

The focus of the activity was never really clear at the design stage. The Project Paper uses a number of terms interchangeably, particularly community participation and social marketing. The Project Paper budget and implementation plan anticipate a design that is not totally reflected in the text of the Project Paper. The list of intended results of this activity is heavily focussed on education and awareness building among decision makers rather than on the community participation element activities.

The distinction between these ideas became an issue in implementation. A key obstacle in the implementation of the social marketing component was that USAID/Guatemala sought to implement a social communication program rather than a social marketing approach. USAID and the Ministry were interested in getting messages related to the education of children into the mass media. Social marketing, however, takes an integrated approach based

on the needs of the clients, or consumers. The concept is based on the idea of exchange. That is, an exchange relationship arises between product manufacturers or service providers and consumers of that service. Strategies are systematically researched to identify benefits that the consumers value and that the product can meet. The marketing campaign is then designed to promote the benefits that are related to the product. Social marketing addresses not just awareness, as would a social communication campaign, but it also focuses on issues of accessibility, quality, and price (financial and social) of the service or product. The promotion of the product, in this case primary education, is tailored to address these marketing aspects and tailor the message to different target audiences.

The failure to resolve these problems and arrive at a clear and mutually understood set of objectives indicates that this is not a high priority activity in the BEST Project.

Sustainability

Not applicable

Recommendations

There are no specific recommendations for this activity. While this type of activity might be worthwhile, the priority it should receive in terms of both financial resources and management attention can be reviewed in the context of a strategic reassessment of the project. In this context, the social marketing activity may not be a priority relative to the other needs.

142

COMPONENT III: ALTERNATIVE METHODOLOGIES

Radio Math

Nueva Escuela Unitaria

Radio Spanish-as-a-second Language

Girls and Women in Development

IX. RADIO MATH

Summary Findings and Conclusions

Strengths

The Radio Math program is a pilot activity conducted by technical assistance. The staff of highly motivated, energetic individuals produce a professional re-recorded math script daily. Approximately 150 lessons for both first and second grades reinforce about a dozen basic concepts and provide practice in mental addition and subtraction. Virtually all of the teachers interviewed by the evaluation team, as well as selected members of MOE, thought it was a commendable activity. (Five team members conducted overlapping interviews.) Moreover, the variety of techniques employed in the broadcasts serve as a model of a pedagogical methodology.

Weaknesses

The sustainability of the radio program has yet to be adequately analyzed. The institutionalization plans to locate the activity in a private university have significant feasibility issues that need to be resolved prior to committing to this activity. The formative evaluation and research aspects of the program need to be strengthened to answer basic questions about the factors related to learning gains. The pedagogical methodology inherent in the radio program is not consistent with either that in the regular curriculum or the new methodologies being promoted in other components of the BEST Project.

Conclusions

This well-received activity is administered well and has generated enthusiasm among teachers, students, and parents. A more developed estimate of the cost-effectiveness of alternative uses of the radio materials and better understanding of the pedagogical impact of radio would improve the understanding of the contribution of this technology.

Achievements

This activity is efficiently administrated and is on schedule. While the math series was developed in Honduras, the entire first grade series has been edited to increase its comprehensibility to Guatemalan children; the first grade series also has been re-recorded by Guatemalan professionals, and marimba music has been generously included. This has been

144

quite successful. Most students are quite enthusiastic. There is a mechanism in place to get daily feedback from a half dozen classrooms so that the lessons can be revised. (They are revised during breaks in the school calendar.) The number of lessons to be used will be around 150; the precise number will be determined at the end of the school year since production is still ongoing. The series is called "La Familia de los Numeros."

The radio programs were reviewed by the evaluation team to determine their fit with MOE objectives, gender issues, and teacher response.

Document Review of a Sample of Radio Broadcasts

Broadcast Materials	Fit with MOE Objectives	Format and Presentation	Language Fit	Content	Focal Skills	Concomitant Learnings
La Familia de los Números Series	2	3	3	2	3	2

(Rating scale: 1=poor; 2=adequate; 3=superior.)

The Radio Math lessons were in general of very high quality. The format and presentation were especially good. The appropriateness of the language to the age of the children also was superior. Other comments on the program are:

- The math program does not have a close fit with MOE objectives. This is by design-it is intended to be a generic program that does not need to be tailored to fit national curricula, either national math text or the PRONEBI math texts. However, the radio experts consider the educational sequence of math concepts to be fairly standard, and the objectives of the radio math series do tend to overlap with the MOE objectives for math at grades one and two.
- The content is only rated adequate because relatively few objectives are covered and because the major emphasis on mental arithmetic is limiting. There is no provision to apply the contents in a Mayan language (the materials are currently used in Spanish-speaking schools) or to apply math skills to community problems. On the other hand, the broadcasts are logical, clear, motivating, and student-centered.
- The level of focal skills development (clearly stated, sequential, reinforcement) is excellent.

145

- Concomitant learnings did not receive the top rating due to the limited focus of the material: while it does assist the student in organization and logical thinking, it does not attempt to promote creative thinking or self-esteem (e.g., among girls or the indigenous sector).

Overall, the broadcasts do well what they attempt to do.

Looking at the Radio Math materials from another perspective, the curriculum specialist examined the materials for three additional qualities: the variety of activities employed by the radio teachers; the ease of use from the students' and teacher's point of view; and the clarity with which the listeners can evaluate the student responses. The first two qualities were judged to be superior, the third (ease of evaluating one's responses) to be average. The lower rating for clear evaluation procedures is because the evaluation team noticed many wrong answers in student notebooks that went uncorrected by the teachers. The activity's formative evaluation checklists neglect to check whether the students are getting the right answers. On the other hand, the lessons do provide correct reinforcements for each student response.

Review of a Sample of Radio Broadcasts for Gender Issues

Due to the nature of the subject matter, gender issues are not prominent. It is difficult to achieve gender parity in mental arithmetic drills. Nonetheless, sensitivity to gender issues was in evidence. The alteration between male and female voices on the radio was carefully done. The generic *alumnos* was used, however, instead of *alumnos* and *alumnas*.

Field Interview and Teacher Responses

The team anthropologist and a researcher observed a small sample of classrooms using the Radio Math program in the Guatemala City area and interviewed the teachers. Teacher responses indicate that the eight teachers interviewed were unanimously supportive of the radio program. (This observation was also made by four other members of the team who independently observed radio broadcasts and who also interviewed teachers.) However, more than half had not received a teacher guide, and none of the eight said that they had received training in using the program. Other members of the evaluation team did speak with teachers who had received the half-day training session. The teacher training was not extensive or effective enough, though, to get teachers to motivate those students (15 percent-33 percent) who tune out of the radio lessons or who delay their responses until they hear the correct answer. (In fairness, however, this was not a focus of the training.) The great majority of the teachers believe that training is necessary. The responses on training received were not entirely clear as to why so few of these teachers had received training.

Two suggestions were made by teachers more frequently than any others: change the hour of the broadcasts (because of conflicts with the teaching schedule); and quicken the pace of content coverage. The first suggestion is being probed by the activity's evaluation unit.

The reason for the second suggestion also needs to be probed. Were the teachers concerned with student boredom or with the slow pace in covering their math objectives for the year? This second suggestion may reflect a teaching philosophy of covering a wide variety of objectives somewhat thinly rather than of mastery learning of fewer objectives, which the radio math series exemplifies. At any rate, the suggestion needs to be explored further.

The two courses, radio and regular curriculum, are envisioned by the activity staff to work in tandem, one reinforcing the other. Increased formative research is needed in this area. One area that the in-house evaluation neglects to examine is the presence or absence of any effects the radio programming may have on the rest of the school day. Does it, for instance, increase math time-on-task at the expense of other subjects?

Document Review of Teacher Materials

There are two 12-page booklets designed to orient the teacher, one for each grade level. As a first draft document these are adequate. To improve instruction, the documents need to be much clearer about the steps the teacher needs to follow. The utility of the teacher guides would increase if they addressed problems that arise in the classroom during the broadcasts (e.g., just what is the teacher supposed to do if some students are not paying attention or if most of the students incorrectly follow instructions?). The guides use graphics to increase their attractiveness and readability. Even more use could profitably be made of graphics to get the messages across. For example, one page could use cartoons to show what the teacher could be doing during the broadcasts (e.g., walking to the back of the class to motivate sleepy students, checking notebooks for issues to examine with the class after the broadcasts).

Adequacy of Pilot Testing Procedures

The Radio Math materials are piloted extensively, mostly in or near Guatemala City. Project evaluators observe a sample of these lessons (about six observations daily) and complete a checklist that is then returned to the script writers. They, in turn, make necessary adjustments and the scripts are rerecorded if necessary. This is a good formative evaluation procedure for program development purposes and can be expected to result in substantial improvement in the lessons.

Intermediary Effects and Impact

The Radio Math programs are just completing their second year of broadcasts in the metropolitan area. At the end of each year, summative evaluation tests are given to selected classes. The results from last year have been tabulated and analyzed. The analysis shows that there are statistically significant achievement gains in the classes that received radio programs.

While much has been made of the statistical significance of the radio achievement studies, some caution is necessary in interpreting the results for a number of reasons. First, the research model used, the "lapped year" design, is the standard approach for radio research. However, many educational experts would prefer the use of more standard approaches that provide true pre- and post-test measurements of true experimental and control groups. The Radio/BEST activity would perform a useful addition to existing knowledge if it were to test the validity of this experimental design one year with an alternative experimental design in which the same groups of comparable students (control and experimental) are given pre- and post-tests and the differences measured.

In addition to the questions about the experimental design, the analysis and presentation of the results of these studies are not consistent with standard methods of calculating achievement gains in education. The gains are measured on the difference in raw numbers rather than as a difference in percentage scores, which is a misleading calculation that overstates the actual gain. The analysis of the summative evaluation produced statistics that show that a year's intervention of radio math produces statistically significant changes in math scores. The Radio staff and MOE Management unit have used these numbers to prove that math scores have increased by 30 percent, which is correct as a difference in raw scores but misleading as a measure of achievement scores. The test contains 25 items. The average score, for all test schools, rose from about 10 to 13, which is a 30 percent gain ($3/10 = .30$) in raw numbers. However, percentage differences in raw numbers are meaningless outside of the context of knowing the total number of questions. As a percentage score, 10 is a score of 44 percent correct and 13 is 60 percent correct, which actually indicates a 16 percent gain in achievement scores. Another perspective is that after a year of daily math programs of 1/2 hour each, the students were able to answer three more arithmetic questions correctly than were students who had not heard the Radio Math. All of these calculations use the same raw scores. The radio component should be encouraged to use standard measures of achievement.

Radio studies are usually highly focused, and success is measured in their own terms. A range of other pertinent questions are not yet being asked why some schools do better than others, what factors are necessary for success, or whether radio, as one technological instructional medium, is either superior or more cost-effective than the alternatives. The current formative evaluation procedures do not consider the effects of any teacher or student variables. At this point, there has been no real assessment of alternatives, cost-effectiveness, or factors influencing impact. The measurement of impact itself has been narrow and confined to measuring only radio. From a pedagogical point of view, there is much to learn beyond the "what" of simple measurement of average gain scores to the "why." If the formative evaluation procedures broaden the scope of inquiry and focus on the broader issues of education rather than the narrow issues of radio program development, the information would be more useful for the project.

Considerable potential exists for the BEST radio activity to aggressively use formative and summative evaluation procedures to answer real issues that pertain to the larger goals of

148

educational improvement. The existing orthodoxy is that radio as an instructional medium can be used as an intervention without any teacher support. This has not really been tested, certainly not within the context of Guatemala, and the field observations of this evaluation cast some doubt on this assumption. The formative evaluation in Radio/BEST has to date been satisfied with a direct measurement of increase in average scores. The lack of any contextual analysis in Guatemala and most other countries is a problem, and an opportunity for BEST. Among the many interesting issues on the use of radio that would directly affect program design and feasibility would be:

- Impact on teaching styles and skills
 - Does daily exposure to the more interactive methodologies used in radio wear off?
 - Does it have an impact on teacher skills? Can this, by example, effectively work as a teacher training system? Radio programs can model how to use a variety of exercises that afford students more practice and review. It is certainly possible that these broadcasts work as a teacher in-service treatment as well as an instructional medium--the radio broadcasts are quite a bit more intensive (30 minutes daily for the whole school year) than most regular teacher in-service.
 - Impact of the rest of the classroom day.
 - How does the radio math program affect the total time on task spent in mathematics?
 - Impact of other variables, such as teacher training and/or student materials.
 - What are the cost-performance tradeoffs involved in approaches that involve no training?
 - What impact can be expected if the programs are simply broadcast to the nation with no other support? If test scores only increase by 5 percent, but cost much less to achieve, is this preferable?
- Cost-effectiveness
 - what is the cost-effectiveness of interactive radio compared to alternative mechanisms to improve math ability? Is the total design, production, and recurrent cost of radio programs competitive with other approaches that might improve math scores by three more correct answers per year?

The real question for BEST radio is whether it is or should be primarily an advocacy program for the use of radio or whether it could be used more effectively to advance the state of knowledge. It has been stated that while the contextual questions may be interesting, they are not necessary because the rise in the average scores are the measure of success. However, this is not true if the primary purpose of the intervention is to learn and improve the process and to identify the most cost-effective approaches that will enable the Ministry of Education in Guatemala to achieve their goals.

In addition to broadening the scope of the formative evaluation to assess context, the evaluation system might consider involving the classroom teachers. Their observations are not currently elicited by the activity's field evaluators.

Problems and Constraints

This activity is on schedule and soundly administered. Procedures for a formative evaluation are in place.

The results of the field observations indicate that radio requires trained teachers. A single, half-day training session is probably not enough--teachers need to receive training several times and need to be reinforced by supervisors and orientadores. The impact of radio observed by the evaluators was associated with the teacher behavior, both during the radio program and in class time generally. For instance, few teachers were observed motivating students who were not participating actively in the lessons.

Radio requires teacher guides, materials, radios, and batteries for the radios. Some of these are in short supply, and at this stage the Radio Math classes are held in geographically very accessible schools. All of the teacher training and classroom support activities should, naturally, be consistent, and supportive. This includes both supervisors and orientadores. Effective training at this level will offer a challenge. Any such training must also be offered continuously, in order to assure that newly hired teachers, supervisors, and orientadores are being trained in the subject.

Finally, the issue of methodological and pedagogical consistency within the MOE should be considered. The radio programs have their own approach to methodology and teaching philosophy, which is not necessarily the same as other approaches in the Ministry. The distinction between Radio Math and the *Nueva Escuela Unitaria* pedagogical philosophy, for example, is important. At some point it will be important for the Ministry to make a policy determination about what the standard pedagogy will be and how radio will fit into this.

150

Sustainability

Sustainability and institutionalization of the radio activity are concerns. The BEST Project proposes to establish a financially viable non profit organization that will continue to produce educational radio. This is an interesting approach that seeks to avoid the problems of other countries where unsuccessful attempts have been made to sustain radio in the public sector. However, *placement in the private sector is not a panacea--it simply substitutes one set of challenges for another.* Moreover, the impression that placement of the radio production studio in a private university eliminates the need for public sector financing and support is probably erroneous. Effective use of radio and incorporation into the Guatemalan educational system will require support on both policy and financial levels. At the policy level, the use of radio must be recognized as part of the overall teaching system and be built into the curricula, planning, and standard training programs for teachers, supervisors, and orientadors. The financial burdens will include the training, production, and distribution of teaching and student materials, radios, and batteries. To the extent that these costs are not met, the radio program will be less effective. If teachers are required to pay for radios and batteries, the coverage may be reduced and the quality of the reception may be worse--which affects learning. The observation of the evaluation field researchers was that the quality of the radio used was important. To some degree, these questions can be addressed and answered through use of formative evaluation procedures with a broader mandate.

The other sustainability issues are related to the institutionalization plan for the Radio/BEST foundation. The BEST Project still needs considerable information about the financial feasibility of this activity before going ahead. Most of the basic financial feasibility questions are still not answered or fully analyzed. What are the specific recurrent costs of a foundation and how will these change at different levels of activity--from maintenance to actual new production of programs? What will air time on private and public radio stations cost for national exposure? What are the costs of teacher guides and student materials on a national level, and how will these expenses be covered? (National coverage will reach more than 650,000 children in first and second grades alone.) How will they be distributed? What are the costs of radios of adequate quality to have good reception--in remote areas as well as in the metropolitan areas? How will these be paid for and distributed? Finally, the Achilles heel of radio--how will the batteries be paid for and distributed? Will the success of the radio program ultimately be dependent on the willingness of teachers to pay these costs themselves? The basic question for the Radio/BEST foundation--who pays for production and distribution of materials, radios, batteries, and training--has to be answered. A related question is how much will it all cost?

The institutionalization plan envisions placement of the radio foundation in a local university as an independent entity. This should be thoroughly analyzed before getting too far into negotiations. It does not appear that any of the potential placements for the radio

foundation are willing or able to support it with their own funds. The institutional capability and experience in fundraising and management should be carefully analyzed.

The history of giving ongoing A.I.D. projects to other organizations in an effort to "ensure the sustainability of the activity" is not altogether encouraging. The most successful non profit relationships have always been at the initiative of the local organization. When the process is reversed and A.I.D. is simply trying to find a home for a project, the success rate is limited unless the local organizations truly share a commitment to the activity. Moreover, the relationship must be based on tangible long-term mutual benefits for both parties. Finding ways to develop the right level of mutual benefits while still protecting the basic idea of the project will require considerable flexibility and creativity. The final arrangement may not be what was initially envisioned by A.I.D. because a variety of legitimate institutional interests must be accommodated.

Nonprofit organizations must be run like a tight ship--there should be no excess staff or costs that are not explicitly covered by fundraising. If BEST Radio is to survive the transition, it may need to substantially revise its way of doing business. Whereas the current staff and procedures are appropriate for a pilot project that is developing and refining the broadcast materials and the teacher training delivery systems in order to promote the system, the project is also 100 percent dependent on A.I.D. financing. The current configuration with ample highly qualified staff is a luxury that will need to be substantially reduced and streamlined before it is to be absorbed into a foundation.

The mentality of having a businesslike approach to managing a PVO is often a critical factor of success. From the first moment, a well managed PVO operates from a perspective of self-reliance rather than dependence on a given source of funds. The nature and structure of A.I.D. support to the foundation can either strengthen or weaken this mentality. As an initial premise, a possible approach is for A.I.D. to pay for capital and program development costs--and the foundation to pay for all operating costs. Nothing focuses one's mind like the knowledge that salaries cannot be paid next month. The model of planning for diminishing levels of A.I.D. support for core costs--from 100 percent in year one to 0 in year 3 (or later) is not an ideal arrangement from the perspective of fostering self-reliance.

The fundraising goals of the foundation are ambitious. The initial planning for a fundraising strategy has started, including establishing reasonable targets for local and foreign fundraising each year and identification of priority foundations and potential sources of grants. The plans still need to be refined, however, and made more concrete before the foundation approach is approved. It would be prudent for USAID/G to require more than simply a plan, but rather to link A.I.D. financial support to achievement of targets for fundraising. A number of strategies could be used. For example, some portion of project funds could be set aside on a challenge or matching grant basis with the goal being to meet a significant portion of the needed endowment. Whatever the strategy used, it would benefit the Mission to require real evidence of feasibility in practice, rather than only in planning.

before establishing a foundation. This might require establishing a series of decision points on the road to institutional support in which A.I.D. financing is dependent on specific achievements.

An additional word of caution is needed. A common hope for nonprofit organizations is that they will be able to generate revenue from sideline business operations, selling commercial services as a spinoff to the central activity of the organization. This type of activity should be approached with considerable caution. Each sideline business is a business that requires the same amount of management attention, financial support, and increase in operating costs as any other business. Experience has shown that these efforts are seldom successful and usually significantly detract from the achievement of the core goals.

The Mission has secured the services of a contractor who is very experienced in fundraising and institutional linkages. She clearly understands the issues and the flexibility that are needed. This individual will only be available for the first year, however. The radio foundation will require the services of a very capable fundraiser and institutional thinker for several years. The feasibility of training other people to take over this position should be carefully reviewed. There are a range of skills and capabilities involved in doing this job successfully.

Recommendations

- *Increase the amount of teacher training.* A longer and more comprehensive initial teacher training session, along with periodic refresher courses or workshops, may prove effective in increasing teacher effectiveness. Part of the continual in-service training could be done using radio programs especially designed for teachers. These programs were used during the early phases of the BEST Project and then terminated; many teachers expressed a desire for such programs. They could become a regular part of BEST Radio, carefully focused to address common problems encountered in the classroom (e.g., how to motivate unengaged students; the role of correcting student notebooks). The key issues for such teacher training will be cost, sustainability, and the amount of training necessary to make an appreciable difference in student scores.
- *Assure that supervisors are adequately trained to support radio.* The new supervisors currently being contracted and trained will be the only MOE personnel who will make regularly scheduled visits to schools. For interactive radio, the role of the supervisors is critical because they will be afforded the opportunity to observe teachers using radio lessons, both language and math. Well trained supervisors should be able to help teachers become more effective users of radio as a supportive technology and a means to motivate students and improve teaching effectiveness. If the new supervisors can be trained to observe and identify problems in classrooms

using interactive radio, they will also be able to address a wide range of additional difficulties, especially those related to the issue of radio lessons that may be using an inordinate percentage of time at the expense of other essential activities.

- *Explore lower cost options in radio production and distribution.* Alternatives for a lower cost operation--including simply taking the tapes that have been produced and revised over the course of the project and using them--should be explored. An expanded effort to produce such tapes would leave Guatemala with ready-to-use math programs for years 1-3 that would not require substantial changes in the future. An alternative to radio broadcasts of these lessons is to simply the production of cassette tapes, which can be made available to schools. This would enable a teacher to integrate the program into the overall methodology of the classroom--an important consideration particularly for the NEU schools.
- *Expand research element, broaden the focus of questions, and improve the statistical methodology used to measure results.* The scope of the current formative evaluation procedures is very limited, with a narrow focus on the radio programs only. It currently fails to address many key questions about the viability of the radio approach in terms of broader educational objectives or to analyze the factors that influence different rates of success in different schools. The broader issue is whether radio is either superior or more cost-effective than alternatives. The BEST Project could usefully provide short-term technical advisors with expertise in the research aspects of educational methodology.
- *Extend pilot activity into indigenous areas.* The difference between the radio math program and the PRONEBI approach indicates that some piloting of the series would be useful to determine whether it can be used in Mayan areas without additional editing.
- *Carefully assess the feasibility of the institutionalization proposal.* The homework necessary to fully identify the costs, responsibilities, and potential of this proposal should be completed. The feasibility assessment should fully reflect the necessary degree of MOE support and resources to make the program a success.

X. NUEVA ESCUELA UNITARIA

Summary Findings and Conclusions

The *Nueva Escuela Unitaria* (NEU) methodology is a package of teaching and classroom management methodologies that have been used in many countries. Many of the techniques, such as peer teaching, have been used in schools around the world for over 100 years. The application of these methods holds enormous promise for the Guatemalan education system if they can be successfully adapted, integrated into the teaching system, and supported administratively and financially. This teaching system was included in the BEST project as a pilot activity to adapt and test the effectiveness of this innovative methodology in Guatemala.

The activity is in its first year of operation, having completed the preparatory stages of selection of laboratory and pilot schools and having initiated teacher training. Observational tours of Escuela Nueva classrooms in Colombia and in-country workshops have generated considerable enthusiasm and recognition of the potential of this methodology among teachers, regional directors, and the Minister and Vice-minister. This enthusiasm and commitment provide an excellent base from which to develop the program. The technical assistance is highly qualified with 20 years of experience in developing such schools in Colombia. The NEU activity has been well-planned and implemented during this preparatory phase.

The evaluation findings are that the NEU methodology has great potential for use in Guatemala, but the adaptation, consolidation, expansion, and institutionalization activities must be carefully paced to avoid exceeding the capability of the MOE to sustain it. The evaluation also concluded that this methodology, if appropriately adapted, can be used in other, non-unitary schools where the overall impact on educational quality and efficiency can be much greater.

Achievements

The *Nueva Escuela Unitaria* activity has been effectively underway since January 1992, when the technical advisor arrived from Colombia. Overall, the activity is over a year behind schedule, in part due to difficulties in obtaining technical assistance locally. However, considerable progress has been made since January. Offices have been established in the regional centers in Coban and Jutiapa and the technical advisors have been successful in generating participation from MOE officials at the regional level. The demonstration and pilot schools have been identified for each region and the selected teachers have begun to

receive training. The activity has generated considerable enthusiasm from MOE officials at every level, bolstered in part by observation visits to Escuela Nueva schools in Colombia. The activity has become a priority for the Minister.

The planning for the development and expansion of the NEU activity has proceeded on pace, with annual plans that include the functions, organic structure, support services, strengthening of the demonstration centers, coordination and follow-on of the pilot experience. The NEU activity is included as an area for significant expansion in the plans for project reprogramming.

The NEU methodology is based on democratic and participative "autogenaria" of teachers, students, the community, and supervisors. It is seen as a service and demonstration system in which the teachers themselves train others in the methodological strategies that encourage collaboration and participation in design and implementation. The process is intended to energize and motivate teachers even as it contributes to their professional development. This form of participation enables the teacher to be able to identify and respond to not only his own professional needs but also the needs of the school in the context of community characteristics. The methodology depends on the strategy of the functioning of the "teacher circles" that provide support and motivation at the local level.

In the first phase, a workshop was held for 110 teachers from Region II and Region IV to identify their basic needs using a participative, objective based methodology. The participating teachers and schools had been selected in a larger process in which 900 teachers developed teacher, school, and community profiles for participation and then identified the best teachers and schools to use as laboratory and pilot schools. The workshops also produced other learning and management tools, including problem trees and a process for horizontal qualification from teacher to teacher for use in future expansion. The second phase of training included pedagogic and methodological considerations of multi-grade teaching which will result in the development of a training manual. The third phase will be planning the use of NEU teachers to serve as trainers to "multiply" the methodology to other regions. In August, the teachers participated in a workshop on organizing the school government and school organization. The teachers themselves developed the plan of action, in a clear process indicating self-reliance and enthusiasm. The accomplishments to date appear to be developing a solid foundation for the program.

By any measure, the NEU activity is being developed from a sound base. The technical advisor has been careful to build linkages and relationships at the local level with all of the influential players, both in and out of the MOE. His style has been participative and collaborative, and the value of this approach is shown in the enthusiasm the activity has generated. However, it is important to stress that the technical, methodological, and operational planning must be developed first on a trial basis. The process and systems need to be adapted not only to the needs of the Guatemalan students and teachers, but also by them.

Intermediary Effects and Impact

At this point, there have been no intermediary effects or impact at the local level. As the methodology has not yet been used in any schools in Guatemala, field research to determine how it was being received in the classroom was not possible. However, the enthusiasm and commitment the activity has generated, both at the local and national level, are noteworthy.

The potential for the NEU activity to have a significant impact on primary education in Guatemala is dependent on the number of schools and classrooms it will reach. Although the one-room schools represent a sizable proportion of the total number of schools in Guatemala, they contain only about 10 percent of the students. The initial pilot phase of the program will test and adapt the methodology in 100 schools in Alta Verapaz and Jutiapa which have a total of 4,529 students. This represents 0.36 percent of the total number of children enrolled in primary school. The proposed expansion phase will add the remaining 519 schools in those regions to the program, for a total of 619 schools, with an estimated 27,855 students. This will affect a total of 2.2 percent of the children in school. Whereas these numbers are large in absolute terms, the proportion of the education problem in Guatemala that is addressed is relatively small. Therefore, even big improvements for those students will have a relatively small impact on the national educational statistics that constitute the measure of success for the BEST project. The activity is unquestionably important for the specific students in the pilot schools, but the importance in terms of the larger problem is not as great.

The potential future impact of the NEU approach, beyond the life and accomplishments of the BEST project, lies in two elements. First, *the approach must be affordable enough so that the GOG is able to expand the methodology to all of the unitary schools in Guatemala.* This will require careful adaptation of methods and identification of the most cost effective approaches. Second, *it will require that the methodology reach more students.* The teaching methodologies and classroom management techniques are not solely applicable to one-room schools. Rather, they were methods being used in a wide variety of educational circumstances that were adapted for the particular needs of one-room schools. Adaptation of these approaches would be equally valid in non-unitary schools with multi-grade classrooms or in overcrowded first and second grade classes with 40-70 students. In fact, the principles of education inherent in NEU are readily usable and adaptable in any school situation. If the teaching methodologies of NEU are viewed strictly in the context of the problem of one-room schools, the opportunity will be missed to achieve significant change in how education is done in all Guatemalan schools.

Problems and Constraints

The NEU activity is still relatively new. To date, the activity has generated considerable enthusiasm but has not been dependent on the timely provision from the MOE of any resources other than the time of the teachers.

The real tests of the appropriateness and adaptability of the methodology will come next year as the teachers face real students in the classroom. The methodology, while exciting to many teachers, represents some very real changes from teaching methods with decades of tradition behind them. Not the least of these changes are traditional and deeply rooted approaches to classroom discipline. Other challenges will be training teachers who are not fluent in the local language, integrating the instruments and programs from SIMAC, and dealing with doubts about the process approach to curriculum development.

The other significant issues about the NEU activity deal with sustainability, institutionalization, and the pace of expansion. These are all addressed in the next section.

Sustainability

The sustainability and institutionalization of the NEU methodology in Guatemala will depend in large part on the degree to which the approach is carefully adapted to the national needs; expansion is built upon solidly proven and well developed capabilities, and the overall approach is financially and institutionally supported by the GOG. To the degree that these conditions are not met, the very real danger exists that this potentially beneficial program will end with the BEST program or will expand so quickly that the quality cannot be maintained. This is precisely the problem that has occurred in Colombia with the World Bank project that is expanding the Escuela Nueva program nationwide. The challenge of any such new approach is that it must be shown to be clearly superior to existing methods, particularly given that NEU will require considerable time and effort from both teachers and parents. If the program expands beyond its capacity to assure high quality teaching, much of the goodwill and hope vested in the project will be dissipated.

The adaptation of the NEU methods is also an important element in its success. Although the methods, or at least the philosophy, have been used in other countries with degrees of success, this is not a guarantee of success everywhere. Any new idea, however good, must be adapted and developed to meet the needs of the people who are using it. Many of the ideas and educational philosophies incorporated into NEU, whole or part, have been used for a hundred years in places from India to Colombia, but usually after being adapted and mixed with other ideas. The Escuela Nueva concept itself in Colombia was an aggregation of different ideas that were then adapted to their needs. Much of the success of any innovation is dependent upon the active participation of the teachers.

Equally important, any new idea must be solidly supported by management awareness and administrative structures appropriate to the needs. In the case of educational technologies, these structures include the management ability to organize and support training and provide the necessary supplies. The institutional support should include clear institutional linkages among all of the purveyors of teaching methodology at the school level, including the supervisors, the in-service training system (educación pedagógica), and PRONEBI. This needs to be supported by a clear policy statement from the central level of the Ministry establishing this methodology as the way that teaching will be done in the country. Integration of the other teacher training and support functions needs to be accomplished through a regular, intensive, and continuing training program in the NEU schools.

The sustainability and replicability of the NEU concept after USAID support ends will also directly depend on the cost of the model being presented. Currently, the NEU activity is designed to be first class--desks, student and teacher materials, and extensive training in hotels. The design of the research and adaptation process should include some effort to find the most cost effective means of achieving improvements in teaching methodology. The design of a perfect system is not helpful if it cannot be continued and replicated by the local government. There was, after all, a reason why Henry Ford designed the Model T rather than starting with Cadillacs--no one could afford them. The same issue applies to the educational packages for the MOE--what is affordable?

Sustainability is not only dependent on whether an activity is affordable, but also on whether someone is willing to pay. In the case of NEU, the rhetorical support for the process is strong, but the actual financial and resource commitment is small. In both the original pilot project and the expansion proposal where the scale becomes "operational" for two regions, A.I.D. is financing all costs except the in-kind contribution of (existing) teacher salaries and (existing) office space in government buildings. This includes all costs of school furniture, all costs of teacher and parent training, all costs of vehicle insurance, maintenance, and operation, office supplies, and warehousing. There is no indication other than rhetorical that the government is willing, able, or likely to pick up the costs required for continuing and replicating this activity at the end of the BEST project. In the current reprogramming proposal, there is no indication that the GOG is committing any more resources to the expansion than were committed to the pilot, expect for non cash contributions of people. If the activity is to become institutionalized, it must become part of the MOE operating budget well before the end of the project. Indeed, budget alone is not enough. The administrative and management structures required to purchase and distribute furniture, train teachers, revise and update and distribute instructional materials, and maintain general support are also critical. If it cannot be expanded beyond the initial pilot and expansion schools, the methodology has no hope of being an effective instrument of change.

Recommendations

The general recommendation for the *Nueva Escuela Unitaria* activity is that USAID/G should develop a well-defined set of implementation and financial strategies that will contribute to achieving greater impact and institutionalization of the methodology within the MOE structure. The specific recommendations are:

- *The NEU activity should remain a pilot activity with 100 unitary schools.* The formative evaluation and research structure should be carefully designed to identify key issues and contribute to adaptation of the methodology to the needs of Guatemala. There is no need to make the pilot stage larger than 100 schools.
- *Any expansion of the NEU activity beyond a pilot effort should be carefully planned to avoid overextending the capability of the system to establish high quality pedagogical capacity at every school.* The stages should be clearly broken down into pilot, consolidation, and expansion.
- *Any future expansion of the NEU activity to operational scale on a departmental, regional, or national level should be directly dependent on the GOG financing of recurrent and operating costs.* The GOG commitment to this activity should be shown in fresh resources committed to the project rather than only support through in-kind funding. While A.I.D. and possibly other interested international organizations may cover some portion of the investment required for expansion, most if not all of the recurrent costs should be borne by the GOG at each stage. This will help assure that the program never develops excessive dependence on A.I.D. or other donor financing.
- *A second phase of the pilot stage should be considered to explore the applicability of the methodologies to non-unitary schools, including both multi-grade classrooms in regular schools and seriously overcrowded classrooms in grades 1-3.* This phase would not be a continuation of the current pilot effort, but rather an extension to adapt the methodologies for other circumstances.
- *The research and testing aspects of the pilot activity could include testing of alternative sets of packages to identify the most cost-effective approach.* The lower cost options could include a review of the necessity of purchasing new desks and the appropriateness of establishing a pattern of high cost training with rented hotel space rather than training in local schools.
- *Institutionalization of the pedagogical concepts and approach inherent in the NEU methodology will require acceptance at the policy level of the MOE.* It will also require that the methodology be part of all official technical or pedagogical support

from the Ministry. Prior to expansion, a clear institutional policy should be required that establishes this methodology as the accepted pedagogy in the MOE and that requires adequate training of all supervisors and *orientacion pedogogica* personnel in the methodology. Clear relationships will also be necessary at the regional level, between the regional centers, regional headquarters, and supervisors. This should also include provisions for adequate administrative and financial support to make such training possible on a continuing basis.

- *Close coordination and integration with other Ministry support activities are also necessary, in particular with the Girls in Development, Interactive Radio, and PRONEBI activities.*

XI. RADIO SPANISH-AS-A-SECOND LANGUAGE

Summary Findings and Conclusions

Strengths

Considering that the Spanish language broadcasts are in their initial pilot testing version, they are quite good. A variety of exercises are modeled, the sound effects and songs are effective motivators, and the sound quality is excellent. This activity is on schedule and produces a new radio Spanish script daily. Sensitivity to the child's home culture is demonstrated through an introduction and conclusion in a Mayan language. The staff is highly motivated and energetic.

Weaknesses

The broadcasts, which run about 40 minutes, are too long in their current draft version. Some of the questions are confusing and lack proper reinforcements. The concerns raised about sustainability and institutionalization for the Radio Math activity also apply to Radio Spanish.

Conclusions

The final version of the Radio Spanish tapes will be a useful tool to rural teachers in indigenous areas.

Achievements

This activity is on schedule in producing preschool broadcasts in Spanish as a second language. These are being piloted in schools in Alta Verapaz and Chimaltenango. Fluency in Spanish is a high priority acquisition in indigenous communities, valued as much by parents as by the monolingual people with whom the indigenous people have to interact to conduct business and daily affairs. There appears to be little direct relationship between the PRONEBI texts for teaching Spanish and the Radio Spanish lessons; this may or may not be a disadvantage.

Review of Sample of Student Materials

The overall quality of the Radio Spanish series is quite good for this first time. The formative evaluation that is in place obtains detailed information on the students' reactions to every segment of each lesson. These observations are then passed to the script writers who make the required changes. The broadcasts are then rerecorded if necessary. These procedures, and the qualified staff of the Radio unit, will insure that improvements will be made in the materials. The final version of the radio Spanish series can be expected to be of superior quality.

One practice in the current scripts that can perhaps be improved is to revert to the original way of handling pronoun forms: a consistent use of "usted" verb forms rather than "tu" forms. Although ladinos tend to address indigenous people in the "tu" form, the forms used most in rural Guatemala are "usted" and "vos." (There are socio-linguistic reasons for concentrating on "usted" and ignoring "vos" at this level of instruction in rural Guatemala.) The PRONEBI materials use the "usted" form.

The broadcast length is too long in its present version. The original Global Plan for the interactive language lessons called for 15 minute lessons, but the current lessons are over 40 minutes long (partly for technical production reasons). The classroom observations and teacher comments showed that the local Mayan language segments (K'ekchi' and Kaqchikel are currently used) of five minutes at the beginning and ten minutes at the end are not interactive and play no discernable instructional role. Therefore, this is an appropriate place to reduce the length. Another obvious place to make cuts is the advertisements for the BEST Project at the beginning (after all, Project BEST will be history in a few years). If Mayan languages are to be used as a way to express value for the students' home language (and this is a good idea), they should be limited to 30 seconds at the beginning and 60 to 90 seconds at the end. If the end segment in Maya is rewritten to review the material just learned, and the segment is truly interactive, then five minutes at the end of the Spanish lesson may be justified. (Teachers specifically complained about the Kakchiquel segments.) Overall, the lessons need to be cut by 10 to 15 minutes so that the entire length is approximately 30 minutes.

The formative evaluation is examining a host of other areas that might need improvement, such as the length of the pauses and whether instructions are understood.

Content Analysis on Gender Issues

These broadcasts (after the initial few) are especially sensitive to gender issues. Half of the time the content and the actions are about or directed toward girls, and girls, are in charge of asking questions of the whole class at several points. The constant reference to females in unconventional linguistic forms ("alumna/s," "maestras y maestros") is very effective, there is constant alteration between calling on girls and boys, instruction alternates between male and

female teachers, and there is an avoidance of stereotypes (with the possible exception of Doña Juana, a caricature who speaks through her nose).

Selected Team Interview Data

All of the teachers interviewed (n=21) were positive about the radio Spanish lessons. Three quarters of them had the teacher guides (mimeo handouts), and 84 percent of them had received the half-day training session designed to orient the teachers in how to use the Radio Spanish broadcasts; seventy-two percent percent of the teachers felt that the training was necessary.

Some of the teachers offered suggestions on how to improve the lessons. These included providing an insert containing the words of the songs and increasing the number of songs. Another suggestion was to slow down the speed of each lesson.

Document Review of Teacher Materials Accompanying BEST Radio Spanish Student Materials

Teacher guides to accompany the Spanish tapes are being prepared, lesson by lesson, in the form of mimeographed sheets. The activity has not yet decided what form the final printed version will take; it is too early, consequently, to judge its quality.

Adequacy of Pilot Testing Procedures and of Resultant Refinement of Materials and Training Efforts

The Spanish tapes are being tested in Alta Verapaz and in Chimaltenango. Six formative evaluations, tailored to each specific lesson, are gathered daily. These are then processed by the evaluation unit and the script writers. Input is invited from PRONEBI and GID. With the inclusion of data from the classroom teachers these procedures would be sufficient.

Intermediary Effects and Impact

It is probably premature to look for intermediary effects other than the positive reception this activity has had with students, teachers, and MOE officials.

Problems and Constraints

All of the issues that were identified in the section on Radio Math are relevant here, too.

Sustainability

The same issues that were identified for Radio Math apply to Radio Spanish as well.

Recommendations

- *Reduce the length of radio programs.* It is strongly recommended that the length of each lesson be shortened to approximately 30 minutes in its entirety. The local language introductions and summaries, and the advertisements for the BEST Project can both be substantially reduced in length, or eliminated entirely.
- *Add physical exercises and songs for pre-primary.* Pre-primary school children were observed to become quite restless and pay much less attention during the last half of the interactive lesson. Consequently, the inclusion of more physical exercises and songs would increase interest and maintain involvement. Consideration could also be given to changing the "mood" of each 10-minute segment of a given broadcast.
- *Slow down the pace of the lessons.* Some teachers claimed that the pace of the language lessons was too fast, and their comments were supported by classroom observations made in both Alta Verapaz and Chimaltenango; the speed at which the actors talk perhaps could be reduced slightly and the length of time for children to respond could be extended a bit. The main problem, however, may be with the radio-teacher instructions. Quite often children did not understand questions and instructions, and time is needed for the teacher to provide a brief explanation or interpretation.
- *Use model reinforcement for student response.* These lessons are aimed at preschool children who are learning Spanish as their second language. Questions that elicit patterns that have not yet been modeled, or that elicit "open-ended" responses (i.e., ambiguous responses) should be left for later years and for the classroom teacher to deal with. All student responses should be followed by a model reinforcement (just as is done in the Radio Math series).
- *Fill the linguist position to find appropriate local speech patterns.* A few teachers commented that the use of both the Mayan language and some of the Spanish was not appropriate in light of local speech patterns in both Alta Verapaz and Chimaltenango. Radio BEST should fill the linguist position planned for the Coban office as quickly as possible.
- *Reconsider the use of informal "tu" form.* The use of the "tu" form diverges from the PRONEBI practice of using "usted" instead and introduces a form that the children

165

will not hear much and that may not serve them well. The scripts should use (as they did in the initial lessons) the "usted" form throughout.

- *Expand the scope of the formative evaluation.* The scope of the formative evaluation methodology for the language lessons should be expanded and modified. At present the formative evaluators are only concerned with the student and teacher responses to the interactive radio lessons. Observations of entire school days indicated that in some cases the radio decreases the amount of time that should be spent on other subjects as required by the standard curriculum for the pre-primary grade. A broader focus for the formative evaluation would help to clarify that the radio lesson is but one complementary activity that coexists with many other equally important activities. Qualitative research should be developed to determine the effect of interactive radio, not only on the activities immediately before and after, but the structure of the entire school day. Focused observation of the radio lesson and summative testing is too narrow a focus which may, in fact, not reveal either beneficial or deleterious effects on the educational process. Carefully designed qualitative methods should be designed to supplement the existing formative evaluation procedures. Although this recommendation also applies to the Radio Math lessons, it is most important in the rural context where both teachers and students tend to arrive late and leave early, resulting in a greatly reduced school day.

The formative evaluation procedures can also be adjusted to enable the field staff in Cobán to have more substantive involvement. Currently, the staff feel they are passive data collectors who are not part of the larger effort. They can be involved more and receive more constructive feedback on the value of their work, as is appropriate in a formative evaluation process.

166

XII. GIRLS AND WOMEN IN DEVELOPMENT (GID)

Summary Findings and Conclusions

The Girls and Women in Development (GID) activity has only been an activity since 1991, but in that short time it has achieved considerable accomplishments in not only raising awareness of the challenges of girls' education, but also in addressing gender issues in numerous fora. GID is accepted as part of the BEST effort and viewed as a useful additional resource by many other activities.

Any long-term impact of the GID activity in the MOE and short- or long-term impact on teachers and children in the education system will depend on continuous regular sustained effort exercised by the staff, their ability to find time and find money to contract the technical support essential to back up needed changes with specialist work, and the continuing high-level support at Ministerial level.

Achievements

The GID activity was not explicitly included in the original project design but was added as a distinct activity in 1991. The activity was added in recognition of the differences in all educational statistics for boys and girls.

Achievements of the GID activity to date are impressive, particularly given the broad challenge of generating awareness and action on gender issues across a diverse institution such as the MOE. As a starting point, the activity had to define what gender issues are and how they might be incorporated into BEST Project activities. The unit has moved far beyond this and achieved real impact in numerous activities, including: linguistic mapping research conducted by both men and women and data disaggregated by gender; a training workshop for PRONEBI curriculum developers and researchers on sexual and cultural stereotyping; three articles on girls' education and status in society; discussion of girls' education and dropout issues in the supervisor training modules and manual; collaboration on social marketing proposals; close collaboration with the radio production staff to develop programs that address male and female teachers and students separately and present positive, non-stereotypical dramatic pieces favoring boys and girls alternately; and coordination agreements with the Nueva Escuela Unitaria activity to collaborate in training. The activity has also contributed to gender equality in the achievement testing activity, MIS disaggregation and reporting of data by gender, and support for gender equity in the appointment of teachers through the personnel system. The dedicated and talented GID staff also have developed an

effective program of consciousness raising through teacher manuals, newspaper articles and information bulletins, support for major conferences, coordination of T.V. programs and broadcasts, seminars, lobbying, and educational meetings.

The policy dialogue aspects of the GID activity are an impressive accomplishment that in many ways models the approach to developing and strengthening local forces capable of moving ahead with a policy agenda. The Commission on Girls' Education was developed through very labor intensive efforts to educate and organize influential people around this topic. The approach used by the Education Officer illustrates both the potential and the challenges of policy dialogue that rely on developing local awareness and support. The potential is now clear--with the commitment and dedication of numerous influential Guatemalans, the issues will continue to be raised through local mechanisms that can have impact. The challenge is both to fully recognize the very time intensive nature of the process, and to recognize the point for A.I.D. to pull back and provide the Commission with the opportunity to define their own agenda.

Intermediary Effects and Impact

The GID activity has had limited opportunities to date to reach teachers and schools, so the evaluation team did not expect to find much change at the school level. However, of the 30 teachers interviewed in Alta Verapaz, four (13 percent) had participated in GID activities and two others had heard of them. Of the teachers interviewed, 26 said that they had made special efforts to stimulate and motivate attendance and retention for children of both sexes. The most common activity mentioned was home visits and meetings with parents. Only three teachers indicated that they had done special activities especially for girls, but the answers were vague when asked for details. When asked what they would do for girls if they had the resources, most said they would teach them practical skills (sewing, crocheting, gardening) and try to keep them in school.

Most of the teachers and parents agreed that children of both sexes drop out of school for economic reasons. Children are needed to help at home, collect firewood, or work in the field. Whereas most parents expressed real concern over the education of their children, they also showed tremendous concern and worry over the tenuous economic situation in which most of them live. They often do not know if they can afford to send or keep their children in school.

Problems and Constraints

The activities of the G.I.D. staff and the teams with whom they work in the MOE contribute to institutional impact. The two staff provide excellent quality work and are totally

dedicated. Two factors limit the depth of their institutional impact in the MOE as a whole and on the project in particular.

First, the Director provides part-time support to the national Comision--Eduquemos a La Niña. This limits her time availability for systematic followup across all project activities and implementation of the GID work program itself.

Secondly, intervening on gender issues across 15 project subcomponents and completing the specific GID work schedule is a very complex and time-consuming task. Two people working full-time is really insufficient to complete a task that requires building up personal relationships, learning and understanding the work ethic and parameters of a large number of specialists, generating adequate suggestions on gender issues, and patiently negotiating their acceptance through continuing discussion and follow-up. The Director is constant need to choose between priorities and time pressures make even maintaining contacts with staff in each activity a challenge.

Additional work is emerging. As the BEST Project moves (late 1992) from the planning and transfer of technology stage to implementation in the field, a complex work program of training and attendance at regional and local seminars is going to emerge for GID staff. Availability of time, committed and competent specialists, and systematic followup will be essential if the gender issues are to be formulated, operationalized, and put into practice at all levels of the central administration, the project and the classroom.

Generating Attitude Change and Acceptance

Overall, generating attitude change on a visceral issue such as gender and male and female roles in society is hard work requiring considerable interpersonal skills, strong political support, and continous in-service training for the staff responsible. Added to this are the difficulties inherent in negotiating change in the technical area of another person. Tensions are inevitable the change agent is not a technical specialist in that area, comes late into the process, or, has to convince seasoned professionals to rethink their whole frame of reference to address gender issues. Examples of where such problems can occur are PRONEBI research, curriculum design, teaching Spanish as a second language, or textbook content. Either the specialists will claim the individual has no right to interfere on their territory, the agenda is too large, or there are too many costs associated with making changes. It is often difficult to distinguish these issues from real gender bias.

GID needs strong management and professional backing. The two staff working full-time for the project are contracted by Juárez and Associates and are loosely coordinated by AED. They attend monthly BEST meetings and probably have a clearer overview of the project than any other implementing unit because their activities range across all project activities. Their technical assistance counterpart is the USAID Project Manager. This relationship is an advantage and a disadvantage. The advantage is that they are well-briefed on project and

technical issues. The disadvantage is that in the worst-case scenario they can be perceived as not belonging to the MOE or even the Guatemalan coordinated effort but rather as a unit of special "occidental" and "feminist" concerns that will go away when the project goes away. In this worst-case scenario only token compliance to requests would be needed. It is to the great credit of both staff that because of their personal and intellectual strengths and their considerable interpersonal skills they have been able to make a start on overcoming this situation, have made progress and, are gaining credibility and acceptance.

The GID activity faces a classic dilemma of all successful change agents--they have created a demand that they cannot meet. In order to maintain their credibility, they need to be able to provide resources, technical backup, time, and still find time to listen to the ideas of others. Overall, the findings are typical of an institution facing controversial change. They need to be able to deliver over the next year. Future gains will require a concentrated and highly technical effort as well as much time devoted to participation in local training. There is a danger that credibility and acceptance gained will be lost because staff will not have sufficient time or resources available. Probably the greatest limitation on the GID unit reaching its planned goals within the BEST Project is the time still required of the Director by the National Commission--Eduquemos a La Niña. The secretarial support, document drafting, intellectual and personal leadership exercised by the GID Director began in 1991 and will continue for the future. Although this is an excellent investment in the constituency-building, and can potentially create a pressure group to lobby for more MOE investment in girls' education, it is highly time consuming. Time is the most precious commodity in the GID workschedule.

Sustainability

There is a tendency to dismiss the changes brought about by GID as simply "to employ more women and ensure 50-50 representation of boys and girls." The fundamental changes in attitudes, curriculum, textbooks, and professional approaches can only be addressed through persistent attention, allocation of time and money, and continuing political support. In order to be sustainable, the gender issues must continue to be raised until these issues are a standard part of any educational endeavor in the MOE.

The question of institutionalization of the GID activity in the MOE is a delicate one. In its current status as a cross-cutting project activity, its legitimacy is based entirely on the support and goodwill of the Minister and the Project Manager. At this point, the BEST project strategy is to avoid formalizing the activity.

Recommendations

These recommendations are made from the perspective of achieving impact on the classroom level. Learning at this level is what parents want for their children and what the girls themselves desperately need in order to compete in the workplace. The project currently lacks the ability to address concerns at this level and improve the quality of teaching necessary to achieve project objectives. What can be done is to provide the basic curriculum for *pre-primaria (parvularia)* first and second grade --literacy, numeracy, and good quality Spanish as a Second Language.

In order to establish the legitimacy and capacity of the GID activity to continue working for inclusion of gender issues in a structural manner, they will need additional resources. In effect, they will need to be able to leverage resources into access--to change from being a burden to implementing units to being a new and valuable resource. The rationale for this is that GID should be able to provide individual units with additional resources, which will increase their effectiveness and access. Additional GID work should be undertaken in producing model educational materials for girls and teachers. This is derived from project considerations and not from GID-specific concerns. Basically, GID can address the issue of the quality of classroom learning while at the same time innovating in preparation of materials promoting a good self-image in girls. This will require resources, time, and talent.

The following additions may strengthen the unit. (It should be emphasized that this is not a recommendation to increase the number of permanent staff positions. Rather, it is a recommendation to give the GID office the resources to provide appropriate and adequately trained people as needed to these units on a limited time basis).

- two basic literacy text writers for bilingual education (Spanish)--one for Landivar and one for PRONEBI work;
- three curriculum specialists--one for SIMAC, one for *Nueva Escuela Unitaria*, and one for PRONEBI work produce learning materials and lesson guides;
- two in-service teacher trainers to work with GID on local training for parvularia, first, and second grade teachers;
- sixteen reading material writing and production workshops producing texts to give basic literacy practice materials for girls in parvularia and first grade (PRONEBI languages Spanish, and Spanish-as-a-second Language);
- eight functional literacy and numeracy material writing and production workshops for girls in parvularia and first grade in all PRONEBI languages and Spanish;

- two female supervisors from Coban to be trained by GID and sent to conferences to acquire the following areas and skills: *Nueva Escuela Unitaria*, the development of positive role models through enlarging curriculum areas, production of good quality materials for classroom use by students and teachers, local preparation of reading and math materials for pupil use, sensitivity training techniques, and work with parents and communities; and
- an additional staff member to manage all this in GID.

Comments on GID Reprogramming Proposal

The reprogramming proposal will expand the GID activity by adding a private sector activity that will manage a set of community and school level interventions. The proposed interventions will include scholarships, community promoters, materials, parent training, and other community level support. The pilot effort will research the range of proposed interventions to identify the most cost effective package of interventions that can affect girls' dropout and school achievement rates.

The proposed intervention is based on the increasingly extensive worldwide literature on girls' education. These studies have found that girls drop out of school at a faster rate than do boys. The reasons that girls drop out are often unrelated to the quality of education in school, so improvements in the overall school system will not address all of these problems. The educational statistics in Guatemala support the assertion that such a gender gap exists.

The issues of the girls' interventions are not related to the design of the activity, which appears to offer real potential for advancing the state of the art knowledge about such interventions. The activity appears to have substantial potential for sustainability due to the quality and commitment of the proposed implementing agency, FUNDAZUCAR. Whereas FUNDAZUCAR does not have much experience in the community level operations in the highlands that this project will require, they are likely to be able to develop this capability given time. Rather, the issues are:

The primary issue is one of the potential for replication of this high cost, high impact activity. The intervention, which is planned as a research oriented pilot activity in the BEST project, will have a direct effect on 6,000 girls and an indirect impact on their families and several thousand other children in those schools. The estimated cost of the interventions is between \$19 and \$120 per child, depending on the package of services. The cost of these interventions can be compared to the national spending per primary school student, which in 1992 was about \$55. The issue is the degree to which this approach, however high the level of impact on each child or school, is a cost effective and replicable alternative that can have a significant impact on the educational problems of girls in Guatemala.

While the potential for raising private sector funds for this activity may well represent the infusion of new funds into the education sector, it is unlikely to ever serve more than 5 percent of the girls in first grade. Even reaching this target population would cost, exclusive of administrative costs, approximately \$180,000 to \$1,200,000 per year, based on the calculations in the project amendment. These numbers would in themselves represent very substantial and successful fundraising efforts.

The question to be answered by the BEST Project, and the MOE, is whether the funding for this activity can be better or more cost-effectively used in addressing institutional constraints to girls' education. Alternatively, the funds could be used to produce and distribute large quantities of gender-sensitive materials or teacher support materials.

The question is, as is true with any decision in a situation with limited resources, how to best use the funds to have the greatest impact toward achieving defined objectives.

COMPONENT IV: EDUCATION ADMINISTRATION

Achievement Testing

Management Information Systems

Allied Research

Personnel Management

174

XIII. ACHIEVEMENT TESTING

Summary Findings and Conclusions

Strengths

This activity is an exemplary instance of the successful transfer of complex technology. The project is on schedule, ably administered, and works closely with other units of Project BEST. The technical assistance is superb, and the activity's staff are motivated, energetic, knowledgeable, and self-assured.

Weaknesses

There are two main potential difficulties: institutionalization of the National Testing Center; and the uses made of the test results. Another area of concern is the SIMAC support for the unit.

Conclusions

If this activity is institutionalized in an agency that can provide the needed in-service training, logistical support, and funding--and if officials properly interpret the test results -- the activity can make substantial contributions to the urgent task of curricular reform.

Achievements

This BEST activity originally was designed to be situated in the Universidad del Valle's testing bureau. Negotiations with AED and A.I.D. dragged on for a year, however, and finally broke down, although the university has maintained its interest in taking an active role in the activity. None of the issues of negotiation are sufficient to explain why this potential linkage with the private sector was abandoned. Finally, the activity was housed in SIMAC, the branch of the MOE charged with responsibility for curricular reform. The activity began months behind schedule but through very effective management and a highly motivated staff soon got back on schedule.

The team of 10 part-time people, guided by an exceptionally effective technical advisor, has followed a sound, step-by-step process of polling teachers to identify key curriculum objectives, designing test items to measure achievement on specific objectives, soliciting input from other sources (e.g., GID and PRONEBI), revising the items, piloting the test, performing an item analysis on the results, revising the items again, training test administrators, and

supervising test administration (in September 1992) in a stratified random national sample of about 37,000 first through third graders. Still scheduled are the tasks of imputing and analysing the results, revising the items yet again, and so on through the cycle of test development.

At the initiation of the project, none of the 10 local members (5 FTE positions) of the team had any professional experience with test development; five months later they had absorbed, at a masterly level of comprehension, about 70 percent of the basic principles involved in designing standardized instruments. (Most of the remaining 30 percent are scheduled through future training sessions.)

Intermediary Effects and Impact

This is not directly applicable.

Problems and Constraints

This activity has overcome most obstacles such as lack of transportation for field testing and remains on schedule. The working conditions (one small room with no window shades to protect the computer monitors and to lower the room temperature) are not ideal.

One weak link in the cycle of test development is the way tests are scored and entered into the computer database. Currently this is done manually. Test administrators transfer responses to the 14-page test to a narrow row on an answer sheet, one row per student. These, in turn, are keyed manually into the computer. Errors inevitably creep into this procedure (the unit has plans to calculate the level of error). The process of entering 35,000-40,000 student responses into the database takes two to three months. This whole procedure could be substantially improved if the student test booklets were printed with a place for the test administrators to code the student responses on the right-hand margins opposite each test item. The test booklets could be automatically fed into an optical scanner that reads about 300 sheets per minute. Processing of 40,000 tests (560,000 individual sheets) would take about four [8-hour] days instead of the three months it takes to process the data manually. This would allow more time for thoughtful analysis and for report writing and dissemination of the results. An optical scanner is budgeted for this activity and we recommend it be purchased. In the event large-scale testing is done before the optical scanner is operational, we recommend that design and printing of the test booklets, and the test scoring be subcontracted to the Universidad del Valle where the necessary equipment is in place.

Another concern is the potential for abuse of the test results by higher authorities. There are issues to clear up before the test results are used as an accurate measure of student achievement. The tests currently being constructed will be under development for several

more years. Meanwhile, test results will provide data useful for improving the tests. Until the test properties are known through analyses, and until a stronger case for their validity is made, it will be premature to draw conclusions about the cognitive achievement of the tested children. A range of additional measures is necessary to adequately interpret the data and understand the reliability of the data, including: an assessment of the standard error of measurement and other psychometric indices of reliability; reassessment of which curriculum objectives should be tested and which objectives should survive the rigors of item analysis; the effects of degrees of Spanish fluency (in indigenous areas) on test scores; identification of school- and community-based characteristics that are associated with test achievement; the establishment of baseline data; and so on. Nonetheless, hypotheses concerning academic achievement may be drawn for the purposes of future probing; hypotheses should not be mistaken for facts. The Interagency Test Committee, reflecting the various perspectives of its members, envisions different applications of the test results. Eliciting the input of experts in testing may help to separate purposes that are not technically defensible from purposes that are. Further, to assist the committee in separating wise applications from injudicious ones, it may be helpful to invite articulate spokespersons from the ranks of those who might be directly affected by a given application to share their concerns with the committee.

The unit plans to analyze different aggregations of the data collected in September of 1992 (i.e., rural/urban; by project). One way to get at the effect of fluency in Spanish on test scores will be to perform a separate item analysis on the data from PRONEBI schools (and this is planned). A recently published linguistic profile of communities housing PRONEBI schools (Richards and Richards 1990) reveals the wide range in the proportion of the population that speaks little or no Spanish. Overall, about 35 percent of the rural population in the four major linguistic areas are barely fluent in Spanish. However, language use ranges within each language area from K'iche', where 26 percent of the parents never speak Spanish with their children, to Q'eqchi', where 85 percent of the parents never speak Spanish to their children. We recommend that rural data from indigenous areas be additionally segregated by the particular language spoken there and that separate item analyses be performed on these data.

Sustainability

SIMAC, the current MOE base for the test center, has proposed budget slots (5 FTE plus a secretary) for the activity's staff but offers no assurance that the people trained in the procedures of test development will be assigned those slots if the MOE approves the budget requests. The technology of test development is a rare skill, and few institutions contain people trained in this area (the Universidad del Valle is an obvious exception); it would waste scarce resources trained by donor funding if the unit's staff is not incorporated into the National Testing Center.

Another sustainability issue is the continued training that the activity will require after the LOP. While the expertise to supply such training exists in the Universidad del Valle, adequate budget provisions will be necessary to contract for it.

Recommendations

- *Replace the manual scoring and coding procedures with automated systems using an optical scanner.* Such a scanner is already budgeted. It should be purchased.
- *Segregate the rural data from indigenous areas by the particular language spoken in that area.* Separate item analyses should be performed on these data to differentiate the effect of fluency in Spanish on test scores.
- *Strengthen the policies on appropriate and acceptable use of test results to avoid misuse or inaccurate conclusions about cognitive development of particular groups.*
- *Identify a number of smaller, stratified random student samples so that test results can serve curriculum and system interests more cost-efficiently.* One sample might respond to one series of issues; another sample to other issues. This would also lessen the likelihood that the results would be misused to evaluate individual students, teachers, school directors, or regional administrators. The testing should be issue-oriented and exist separate from initiatives to evaluate individual people.
- *Allow the test development activity to profitably take the initiative in identifying the issues on which its standardized instruments can be brought to bear and the limitations inherent in using single measures on a given issue.* Identification of these issues can best be done with the wide collaboration of other branches of the MOE (e.g., USIPE, Centro de Cómputo, PRONEBI, Regional Centers), local universities, teacher training institutions, school administrators, classroom teachers, and parents. Accomplishing this may require a larger budget.
- *Develop linkages with La Universidad del Valle.* La Universidad del Valle de Guatemala--has for many years been a hemisphere leader in the development and use of standardized instruments, and in training teachers in testing procedures, it would be advantageous for this BEST activity to develop linkages with del Valle so that on going training can be provided after the technical advisor leaves the activity.

XIV. MANAGEMENT INFORMATION SYSTEMS

Summary Findings and Conclusions

The Management Information Systems (MIS) component of the project demonstrated its potential when it delivered the 1991 Statistical Yearbook (Anuario Estadístico 1991) at the end of the first quarter of 1992, before the 1989 and 1990 versions were available. Never in its history had the Ministry had even this level of basic statistical information available with sufficient promptness to allow it to be used in the decision-making process.

As impressive as this was, there remains the challenge of getting the information actually used by the organization. To a large degree the statistics are merely used to satisfy curiosity. There is little evidence that they have been integrated into the decision-making process, although the relatively basic analyses included in the yearbook were used in budget negotiations. The only individual in the MOE who displayed a clear understanding of the uses of information for decision making, the Vice Minister for Administration, has just left the Ministry. Information systems in the Ministry are few and relatively primitive. The extraordinary scale of the information system needs presents challenges, but perhaps the greatest challenge facing this component is the institutionalization of the use of its products.

Historically, decisions about education have been made in reaction to political pressures rather than in the context of long-term needs. There is no culture oriented toward the use of information in the Ministry; it will have to be promoted and nurtured. This orientation, which is a difficult task under any circumstances, is made even more daunting by the politically volatile environment of the Ministry. It is a challenge that must be accepted, however, because until the Ministry possesses the capacity to plan, execute, and measure results it will be impossible to substantively improve the primary education system.

The MIS activity is being designed and implemented in a highly professional manner and has the potential to provide critical information in a timely manner to the end-users. Beyond the implementation of this sophisticated system, however, one of the challenges of the next several years will be to enable the Ministry to use this powerful tool.

Achievements

The original five-year information systems Global Plan, completed in November of 1990, identified and scheduled eight activities: analysis and design of the educational information system; hardware acquisition; short-range help for existing applications; academic registry

subsystem; educational statistics subsystem; budget programming subsystem and study of human resource needs; buildings and equipment subsystem; and personal administration subsystem. The 1991 Annual Plan provided work plans and schedules for the analysis and design of the educational information system, hardware acquisition, short-range help for existing applications, and academic registry subsystem.

The 1992 Annual Plan provided detailed schedules for three activities: personal administration subsystem; academic registry subsystem; and educational statistics subsystem, generally confirming the Global Plan. As may be expected of a large, complex plan of activities to be developed in a politically volatile environment, relatively little has been accomplished exactly as planned. What has been accomplished, however, is a notable quantity of well executed work, faithful to the precepts of the project and the original plan.

Deviations from the plans are due in part to numerous immediate and high priority demands from the Ministry for information. Such requests inevitably divert resources from planned activities. While such requests clearly affect timelines, however, responding to them meets the broader need to strengthen institutional demand for information products.

Analysis and Design of the Educational Information System

The first activity defined in the Global Plan, Analysis and Design of the Educational Information System, was completed in January of 1992, approximately five months later than its scheduled date. This delay can be principally ascribed to delays in subcontracting and approvals for hiring personnel, as well as conflicting priorities placing demands on the resources of the activity. In addition, some improvements are possible in project/activity/task management, as discussed in the section, Problems and Constraints.

This activity produced several documents, among them the Global Analysis of the Ministry of Education Information System, Functions of the Regional Offices of the Ministry of Education, and the Global Design of the Ministry of Education Information System. This latter document provides a complete framework for an integrated information system for the Guatemalan Ministry of Education, including hardware, software, and data communications specifications.

The most effective way of evaluating such documents is to evaluate the quality of the work that produced them. Any design, and particularly one for such a large and comprehensive system, is easily criticized; each assumption can be questioned; every decision can be second-guessed. Direct analysis and criticism is not possible without virtually duplicating the efforts that went into their production. Evaluating the technical considerations of the system design would require a thorough understanding of local conditions, particularly with regard to data communications. Evaluating the nontechnical considerations would require a thorough understanding of such complex issues as the politics of decentralization versus the power and militancy of the (highly centralized) Guatemalan Teachers' Union

versus the intricacies of Guatemalan law with regard to civil service personnel in general and teachers specifically.

The Global Design of the Ministry of Education Information System, the document as well as the design itself, provides ample evidence of resulting from the conscientious efforts of a group of knowledgeable professionals working toward well developed standards of technical competence. Working papers and preliminary reports, such as the Global Analysis of the Ministry of Education Information System and Functions of the Regional Offices of the Ministry of Education documents mentioned above, clearly demonstrate this. The design is highly complex, but a complex design is obviously required by a decentralized entity with central offices (the Ministry) plus eight regional offices, over 10,000 locations, and over 60,000 employees, all interacting with about 1,250,000 clients (students) on a daily basis.

Hardware Acquisition

Hardware acquisition has been stalled since February of 1992 (see Problems and Constraints, below). The problems appear to have been resolved sufficiently to allow the activity to progress, but at a slower pace than originally planned.

Short-range Help for Existing Applications

The Global Plan and 1991 Annual Plan identified and scheduled five subtasks as short-range help for existing applications: installation of teleprocessing, help for the educational statistics subsystem, help for the budgeting and finance subsystem, help for the buildings and equipment subsystem, and help for the personnel administration subsystem.

It should also be noted that the information systems team is working directly in the Ministry's Computer Center (Centro de Cómputo), directly with the Ministry's personnel. This has made possible an excellent working relationship with Ministry personnel and an elevated level of technology transfer. They have also conducted a number of courses for the Computer Center personnel, including actualization of their knowledge of their current HP-3000 as well as more generalized areas such as data base technology.

Installation of Teleprocessing

This activity was delayed by factors external to the project. It is now tentatively scheduled to begin in January of 1993.

Help for the Educational Statistics Subsystem

The production of the 1991 Statistical Almanac (Anuario Estadístico 1991), by the end of the first quarter of 1992, provided the Ministry with its first accurate statistics since 1988, and its first timely statistics ever. This involved programming changes to the existing statistical

system, as well as selecting, contracting, training, and supervising temporary data entry staff. To provide a sound basis for statistical analysis and future projections, work has continued in reducing the backlog of unprocessed data for the two prior years. The 1990 data entry is now complete, and 1989 final data are fully entered.

This activity helped to demonstrate the value of information to the Ministry, as for the first time they were able to use current and accurate data in the decision-making process. This improvement both informed and helped to solidify the Ministry's resolve to lobby for a greater portion of the governmental budget. This provided the Minister with the tools required to negotiate with the Ministry of Finance.

Continuing efforts have also improved the data gathering processes, with the goal of making the process faster, more reliable, and less costly in the future. A key improvement implemented for the 1992 data collection effort was moving the level of initial enrollment data collection from the school to the individual teacher. For the final data collection in 1992, the system will use the official results reporting forms rather than a separate form. Continuing improvements in data collection are part of the overall systems design.

Help for the Budgeting and Finance Subsystem

To help the Ministry in its budgeting process, this activity evaluated and tested reports generated by the budget formulation system, created a plan for computer-aided budget formulation, and processed the budget request forms creating and actualizing the budget data base.

Help for the Buildings and Equipment Subsystem

This interim activity was canceled due to a change of priorities. The subsystem, however, will form part of the overall EMIS.

Help for the Personnel Administration Subsystem

The first of the two principal outcomes of this activity was a census of national education system personnel, conducted in October 1991. The results of this census were integrated into an interconnected system with the monthly reports from the Ministry of Finance and the *nombramiento* system in the Computer Center. The addition of advanced access methods enables the system to handle routine requests for information on school personnel or individual teachers. This system provides the Ministry with adequate decision-making information.

The second major outcome was the analysis, design, and implementation of a system for control of the selection and assignment process.

Another area in which immediate help was required and provided was hardware repair. The Ministry lacked resources in its budget, and the HP-3000 minicomputer as well as a number of microcomputers required repairs. An HP-3000 disk unit, tape unit, several terminals, and a number of keyboards, as well as several microcomputers were repaired with project funds and placed back in service.

Academic Registry Subsystem

This activity was originally intended to automate students' records that were, at the time of the project design, stored in a central site. As part of the decentralization process, however, this function was transferred to the regions for all future records. The implications of this change were reviewed in a feasibility study that raised serious doubts about the costs of implementing such a system. Additional delays have been caused by the delays in hardware acquisition. The activity was reprogrammed in the 1992 Annual Plan. Informal activities of information collection, analysis, and synthesis, completed during 1991, provided inputs that allowed the first two activities to be completed in January and February of 1992. The contractor implementation team has recommended that, given the questions about cost-benefit, the higher priority areas of personnel, educational information, budget and finance, and infrastructure be resolved first. It appears reasonable that this subsystem be assigned a lower priority.

Personal Administration Subsystem

This activity should rightfully be assigned one of the highest priorities of the project. Personnel costs consume approximately 94 percent of the Ministry's budget, and personnel matters consume, according to their own estimates, well over half of the Minister's and the Vice-ministers' time.

The acuteness and complexity of the need cannot be overstated; one need only consider the power and militancy of the Guatemalan Teachers' Union, the intricacies of Guatemalan civil service law, and the particular difficulties associated with personnel moves in the Ministry of Education to recognize that the only manner in which the Ministry can gain control over personnel management is with information systems.

The activity is proceeding, but at a slower pace than had been anticipated. Significant changes have occurred since the original Project Paper, and these have caused the entire focus of the activity to be altered. The most important of these changes has been the reality of decentralization and the delay in the implementation of the World Bank project that was intended to provide hardware for the regions. The lack of a separate hardware system has required the BEST activity to integrate the personnel management system into the rest of the EMIS.

The project has developed a conceptual and implementation plan (Personnel System Automation/Reform Options Assessment for the Guatemala Ministry of Education) that breaks down the implementation into three phases. This plan, to acquire and adapt an Oracle-based personnel management software package, may return the activity to schedule if it is rapidly and effectively implemented.

Intermediary Effects and Impact

Not applicable

Problems and Constraints

Management

There is a need for improvements in the project/activity/task management for this activity. While the MIS activity uses several management tools, such as daily activity logs and monthly/quarterly reports, they do not yet provide a useful accounting for management purposes. Although in this respect the activity is no different, and in some ways much better, than most other project activities, the management demands of implementing such a complex system are also much greater than for other activities.

The first step in each activity has been the creation of a detailed plan, complete with estimates of resource requirements and time projections. Once the activity is under way, however, little is done to control or compare progress with the plan. Thus, as the activities have progressed, most have accumulated delays, but there is no real documentation of why. There is also no true accounting for resources, particularly time, expended on a particular activity.

A case in point is the Academic Registry Subsystem, for which an unplanned activity, information collection, analysis, and synthesis, was carried out by an unspecified number of people and for an unspecified number of hours, from April through November of 1991. No activity was scheduled for this subsystem during this period. Whereas this contributed significantly to the ahead-of-schedule completion of the Analysis and Design activities, there is no manner of determining the appropriateness of the expenditure of resources or the impact on completion of other, scheduled activities.

This deficiency does not appear to have caused any specific problem or problems, nor is there any indication that it has contributed to any significant cost overruns. There is, however, no way of ensuring that problems and overruns will not occur in the future if this is not corrected.

Hardware Acquisition

Hardware acquisition has been delayed. In response to a USAID internal requirement, an analyst from A.I.D./IRM in Washington made a week-long visit to review the technical specifications for hardware and software procurement. As stated in the discussion of analysis and design of the educational information system, any design, and particularly one for such a large and comprehensive system, is easily criticized; each assumption can be questioned; every decision can be second-guessed. A.I.D./IRM fell into this trap, and has caused serious delays and increased costs to this project.

The A.I.D./IRM objections to the proposed technology and system architecture appear to be based on personal opinions and perceptions about the computer capability of Guatemalans rather than any substantive criteria for systems development or clear knowledge about the complexity of the problem to be solved. Despite concerns that the system surpasses the actual needs, IRM never identified just which needs were being surpassed. The IRM suggestion to simplify the system by using a separate system (DOS) for the regions was odd. It is highly questionable, if not impossible, that using multiple platforms will be simpler than the single-platform design proposed in the design document.

At this point, after months of negotiations, the problem seems to be resolved by use of a partial solution of implementing in stages. Whereas implementation in stages has some value from an implementation standpoint, the time and money wasted in prolonged negotiations with IRM is difficult to justify, particularly as the objectives appear based more in opinions than technical analysis. If A.I.D./IRM technical concurrence is required, A.I.D. should be prepared to dedicate the resources to allow the evaluator to spend enough time with the project to develop objective criteria of what is required and what is possible in the environment.

Sustainability

The potential for sustainability of the MIS activity appears to be strengthened by several recent changes, and proposed changes, in the Ministry. It is understood that the *Reglamento* for the new education law will restructure the Computer Center into a *Direccion de Informatica*. If this comes about, it will upgrade the classification of the center to professional levels and thus allow for professional level staffing internally. Under the recent agreement between the GOG and the Professional Civil Servant union, GOG professional salaries were increased substantially and are competitive with the private sector. Should this restructuring take place and should adequate budget provisions for the restructuring be provided, the potential sustainability of the MIS activity will be strengthened.

For any activity to be sustained, however, it must be institutionalized, and institutionalization requires that there must be a demand for the products that the activity

creates, that people be properly trained to deliver the products reliably, and that the resources be available for the timely and reliable production. There are concerns in all three areas.

A strong need for more, better, and more timely information is strongly felt throughout the Ministry, but only the recently-departed Vice Minister for Administration had a firm idea of just what information was required and how it could be used. While a demand for information is surely present, it is an unfocused demand. If the supervisory, management, and executive levels are not properly prepared to use the information as it becomes available, the Ministry will continue to suffer from the same problems as before, the information will be viewed as useless, and the demand will cease.

The project is doing an excellent job of transferring technology to the existing staff of the Ministry's computer center, and plans are in place for ensuring that the required levels of expertise are developed in the Regional Offices and other offices where it will be required. Retaining trained personnel and recruiting for new positions require that salaries are maintained at competitive levels. The current staff salaries are only a fraction of those paid for similar positions in the private sector, and the positions are occupied by persons with less than the desired levels of education and experience. The current situation is due to the nonprofessional classification of the directorship of the Computer Center. If this is changed under the new law, it will still require an adequate budget to fully staff the Directorate with professional qualified people.

The need for resources to pay better salaries, maintain equipment, and purchase supplies is well known in the Ministry, but no written evidence could be found that indicated that an adequate budget would become available for these concepts. Verbal recognition of the need was encountered at all levels, but no defined plans were found. The identified budget and personnel requirements of the director of the office were several orders of magnitude greater than the budget planning figures (although the next year MOE budget was still being negotiated).

Despite the potential ability of the MOE to pay higher and competitive salaries, the actual budget allocations to cover all costs of the operation will continue to be an important issue. The BEST Project funds are currently covering the great majority of the costs of the Computer Center. These costs include not only some personnel, but also the Yearbook printing costs, materials and supplies (paper, books, magazines, gasoline, tires), all computer supplies, maintenance, and repair. These costs are not scheduled to be picked up by the GOG according to the counterpart budget projections of the Management Unit. While these projections may well change in the 1993 budget, management attention should be directed to the issue.

Consistent with the broader project need to focus on GOG budget support and institutionalization, this activity should continue to press for adequate support in the concrete terms of line items in MOE-approved budgets. The need, at the start of the project, to use

project funds to repair the Ministry's HP-3000 minicomputer simply reaffirms the importance of focused, line-item planning.

Recommendations

Four areas appear of sufficient importance to warrant specific recommendations for attention: the Ministry should be lobbied to ensure that there is adequate budget for the information systems activities; the management of project activities requires significant improvement; A.I.D./IRM interventions in technical areas require realignment; and measures of institutionalization should be established for evaluating project results.

- *Lobby ministry to ensure budget.*
 - The Ministry must place budgetary priority on its information systems needs.
 - Salaries for professional staff must be maintained competitive with the private sector in order to attract and retain qualified staff. There must be adequate money available for equipment maintenance, both prevention and repairs, as well as for routine upgrades to keep both hardware and software current. The budget must also contain sufficient money for supplies.
- *Improve project management.*
 - Project management must be improved. Project management software is available but to date has been used only for activity planning, reflecting a generalized problem of the project. Initial planning of specific activities has generally been good, but there has been little follow-up to compare results with the plan. Plans are not updated as activities progress and conditions change. Priorities that draw resources from one area to another are often not evaluated for their overall impact, in part at least because there is no actualized, integrated plan that would allow such analysis.
 - Particularly as the project moves into the implementation phases of very complex integrated systems, project management becomes vital. Plans must be followed, as success or failure will often depend on the sequencing of independent events. Deviations from the plan must be recognized, and the plan adjusted to compensate.
 - Project reports should immediately be modified to include the comparison of what has been accomplished to the plan and to project the impact of variations. Project plans should be constantly updated to reflect what is actually being done,

and as a tool for accomplishing this, full implementation of the available project management software is recommendable.

- As tighter project management systems are implemented, the potential for completing the MIS in accordance with existing plans will be better understood and PACD adjustments can be made as needed.
- Full implementation of an improved project management system for this complex system will require considerable management attention. A.I.D. and the contractor should carefully review the management needs of the activity and determine whether the subcontract provides for adequate time of key management staff. A.I.D. and the Contractor should also resolve the management complications caused by the separation of the two activities (MIS and Personnel) and contract responsibility should be simplified.
- *Provide technical assistance on a more regular basis.*
 - If A.I.D./IRM technical concurrence is required on system designs, A.I.D./W must make the IRM expert available to the project on nearly a full-time basis. Conducting these assessments by mail is time consuming, inefficient, and counterproductive. Only by following each of the design considerations through the process of considering all of the alternatives can the IRM experts develop objective criteria of what is required of the system and what is possible in the environment.
 - A.I.D./IRM interventions should be carefully calculated to contribute to the project rather than to insert a layer of bureaucracy.
- *Expand training to enable managers to effectively use data from the MIS system.*
 - The success of the MIS system should not be determined by the production of data, but rather the use of this data for critical decision making in the MOE. The degree to which the information system is institutionalized and regularly used at many levels of the Ministry will determine the real value of the system. The effective use of EMIS data should be actively promoted through training.
 - To clearly establish the idea that using the data is critical, the activity should be evaluated in terms of indicators of institution building and utilization of data for management decisions. Objective criteria for such evaluations should be developed and included in activity plans. Indicators can include specific data on requests for and use of information from the executive levels of the Ministry, as well as the simpler indicators of numbers of systems implemented and people trained.

XV. APPLIED RESEARCH

Summary Findings and Conclusions

The applied research activity, which is part of the Educational Administration component, was intended to utilize local private sector expertise to provide research for the Ministry of Education. The activity was suspended after proposals with local organizations were not acceptable to the USAID mission. Under the reprogramming proposal, this activity will be dropped from the project.

Achievements

Not applicable

Intermediary Effects and Impact

Not applicable

Problems and Constraints

The applied research component was originally scheduled to be initiated by the middle of 1990. A MOE research committee was to establish a research agenda and a series of research studies would be contracted out to local universities working as subcontractors to the prime "umbrella" contractor. However, the BEST project failed to reach contractual agreement with any local university or research group, which has resulted in the suspension of the activity.

The original effort to contract out the research component fell through for a number of reasons. Each party in this process--USAID/G, the private sector, and AED--have a somewhat different view of the events that resulted in the failure of the activity. Each of the views probably has some element of truth, but clearly none contain the whole story. At this time, the past is, or should be a moot point. The more relevant and important points are the following:

- The private universities and organizations that the evaluation team talked to continue to be interested in participating in the project.

- These organizations clearly continue to have a lot to offer the education sector in Guatemala.
- The rationale and value of utilizing existing expertise and developing new expertise outside of the public sector continues to be compelling. The continuing need for real research data on education, both for better understanding of the real problems and also for use in policy dialogue at both the national and institutional level is evident. Moreover, continuing questions about the sustainability and potential for institutionalization of the testing activity in the government are a source of concern.

Sustainability

Not applicable

Recommendations

- *The need for applied research is greater than ever and is a necessary complement for the MIS/Personnel system.* The MIS system will provide basic data and analysis, but real use of information should lead policy makers to identify the gaps in knowledge that need to be answered. Moreover, it is the only potential tool that USAID/G has available to influence and promote the policy debate on a range of issues from educational finance to MOE institutional policies.
- *The creation of a policy research institute in the MOE, expected in the new regulation for the new Education Law, may offer a new opportunity to revisit the research activity.* The BEST Project should support and strengthen this institute as soon as it is established. Future efforts to work in research, either with the private sector or the public sector, will be more successful if the project maintains the flexibility to recognize the institutional interests of the other parties.

190

XVI. PERSONNEL MANAGEMENT

Summary Findings and Conclusions

Personnel management is the single most important issue in the Ministry. Aside from the fact that the teacher Personnel costs account for approximately 94% of the budget, and the Minister and the Vice Ministers all estimate that personnel matters consume well over half of their time. Personnel management issues, always complex, are even more so for the Ministry. The Guatemalan Teachers' Union is the largest, strongest, and one of the most militant of the country. Guatemalan civil service law has been complicated with special legislation applying only to teachers.

The only conceivable manner in which the Ministry can gain a measure control over personnel management is through the application of modern, integrated information systems. The legislative frameworks and collective bargaining agreement place Ministry management under such tight constraints that information is the only possible tool for increases in managerial efficiency in personnel administration. For these reasons nearly all of the project efforts in this area have focused on management information systems for personnel administration.

Achievements

Please refer to this same heading in the Management Information Systems section of this report.

Intermediary Effects and Impact

Not applicable

Problems and Constraints

Please refer to this same heading in the Management Information Systems section of this report.

Sustainability

Please refer to this same heading in the Management Information Systems section of this report.

Recommendations

The recommendations for the Management Information System in the previous section of this report also apply to the Personnel System.