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B R I D G E S

BASIC RESEARCH AND IMPLEMENTATION
IN DEVELOPING EDUCATION SYSTEMS

WORK PLAN FOR FISCAL YEAR 1989

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**BRIDGES ANNUAL WORK PLAN
FISCAL YEAR 1989
OCTOBER 1988-SEPTEMBER 1989**

EXECUTIVE SUMMARY

A. ORIGINS AND PURPOSE OF THE BRIDGES PROJECT

The central purpose of the Basic Research and Implementation in Developing Education Systems (BRIDGES) Project is to increase the availability--to policymakers, planners and managers in Third World countries--of relevant and timely information about policy options that can improve the efficiency and effectiveness of basic education. The Project assumes that many useful options have been developed and tried out in some developing countries, but that policymakers in other countries lack an effective means to learn of these options, and to evaluate their cost, feasibility and impact on their systems. BRIDGES is designed to help solve this problem.

The BRIDGES Project is funded through a Cooperative Agreement between the Bureau for Science and Technology Office of Education (S&T Ed) of the United States Agency for International Development (USAID) and the Harvard Institute for International Development (HIID). The Project began on October 1, 1985, and is programmed to continue until September 30, 1990. Professional staff for the Project are drawn from HIID and the Harvard Graduate School of Education, and from subcontractual arrangements with the Institute for International Research, Michigan State University, the Research Triangle Institute and Texas Southern University.

B. OBJECTIVES, ACTIVITIES, AND STRATEGIES TO ACHIEVE THEM

The central objective of the BRIDGES Project is to provide policymakers, planners and managers of education systems in developing countries and officials in international assistance agencies with improved means to assess the likely implications of

introduction of new education policies. That objective will be considered accomplished when:

- * the Project has published and distributed reviews of research that expand knowledge about and understanding of the costs, problems of implementation and effects of alternative policies for developing country education systems;
- * the Project has published and distributed reports of original research that expand knowledge and understanding about education policies; and
- * there is increased utilization by the intended audience of research-based information in the conception, planning and implementation of education policies by decision-makers and international assistance agency officials.

To accomplish these objectives, the BRIDGES Project pursues four major kinds of activities:

1. Compilation and Synthesis of existing research-based information about the cost, implementation and effectiveness of policies and programs for the improvement of education. Improvement is observed in terms of:

- * increased access of children to school;
- * increased retention in school once enrolled; and
- * increased learning of relevant material.

2. Generation of additional information through research on policies and programs that affect:

- * conditions limiting or encouraging enrollments, particularly of girls, and rural and poor urban children;
- * the instructional technologies that are employed in classrooms;
- * the management by teachers of the time, space, resources and instructional technologies available to them;

- * the physical facilities and administrative organization of classrooms, schools and districts, that influence teacher behavior and impact on student learning;
- * the relative attention given to categories of curriculum content related to performance of school leavers in the home, community and workplace; and
- * the utilization of information by managers and policymakers in the recognition of problems requiring attention, the identification of alternative policies and programs, the implementation of those policies and programs and their evaluation.

3. Design and development of systems of presentation of information gathered through the Synthesis and Generation activities. The BRIDGES Project will devote most of the resources allocated to this category of activities (about 15% of the Project) to the development of software packages for microcomputers. These packages will be designed to:

- * facilitate the execution of routine tasks such as enrollment projections and resource allocation;
- * permit consideration of the possible impact and cost of implementation of alternative policies and programs;
- * anticipate the difficulties that could be encountered in the implementation of alternative policies; and
- * permit an assessment of the likely impacts on other sectors of changes in education policies.

In addition to computer-based software, the Project will also explore alternative methods for the presentation of information through print and the use of simulation gaming techniques for the communication of complex concepts about the structure and functioning of education systems.

4. Through training of participants and other officials, BRIDGES will support efforts of ministries of education to increase their capacity to carry out policy-relevant research, and will facilitate the utilization of the software, publications, and other products of the Project.

C. ACCOMPLISHMENTS TO DATE

During Fiscal Year 88, the BRIDGES Project carried out the following:

1. Synthesis

* Six of 27 state-of-the-art reviews and three research papers in Development Discussion Paper Series were published. User manuals for STEP and for GENDER were developed and printed and training materials for the BRIDGES workshop "Model and Methods in Educational Planning and Policy Analysis" were produced.

* An annual conference that brought together researchers and policymakers in North Carolina to discuss research findings and to promote a South-South exchange of information on the BRIDGES research agenda.

* The continued distribution of BRIDGES research findings through the BRIDGES Forum, Research Review Series and brochures produced to inform potential users of BRIDGES research products of the Project's activities. Targeted audiences included ministries of education educational research centers, universities, offices of USAID and other international agencies. Over 1500 separate mailings insured a broad dissemination of up-to-date BRIDGES research findings to a selected readership.

2. Generation of New Information

* Research initiated in 1987 in Sri Lanka, Indonesia, Thailand, Pakistan and Burundi was completed and analyzed in 1988. Field research reports synthesizing much of the findings generated by these activities are being prepared for presentation at conferences which will be held in Thailand, Pakistan and Egypt early in 1989. Policy-relevant findings will be discussed and

disseminated widely to interested groups of educators throughout the developing world.

* The first three years have produced six state-of-the-art reviews and over 35 related case studies from field research information collected in six participating countries.

3. Systems of Presentation

During FY88 a final version for STEP was completed and a brochure, STEP's Tutorial and User Manual produced. The central design and conceptualization for the educational planning model (EPM) was completed, and the literature review and data base for the educational impact model (EIM) were finished. The EIM model will eventually be used to show the costs and benefits to the national systems of investments in education.

A Women in Development (WID) Data Base and Projection Model (GENDER) was also developed for AID/PPC/WID to allow users to sort the data according to user defined criteria and to display it in easy to access preformatted tables and graphs. The software also includes most of the STEP routines which enables users to analyze and project variables like enrollments, cohort analysis, population, teachers and schools.

4. Training

* Short skills-specific training courses in the use of software for research and analysis were carried out in Pakistan, Egypt, Burundi and Sri Lanka.

* A month-long course for technical personnel on using computer applications for educational planning and management was held at Harvard University to which participants from Tunisia, Burundi, Egypt, Pakistan, Antigua, Sri Lanka, Thailand and Indonesia were invited.

**D. OBJECTIVES AND ACTIVITIES FOR OCTOBER 1, 1988 THROUGH
SEPTEMBER 30, 1989 (FY 1989)**

Given the experience gained during the first three years of the Project, activities planned for the 1989 fiscal year will pursue the following major objectives:

- * The results of BRIDGES research will be widely disseminated to a rapidly growing audience of researchers through publications and attendances at national and international conferences and seminars.
- * The completion and closing out of major research activities in Sri Lanka, Thailand, Burundi and Egypt will be carried out.
- * The expansion and consolidation of research efforts in Pakistan and Indonesia will be energetically encouraged.
- * The installation in Pakistan, Thailand and Egypt of STEP for use by local educational planners will be completed and visits will be made to countries expressing an interest in using BRIDGES produced MIS systems, software and educational planning models.
- * The identification of clearly defined input-output variables from BRIDGES research which could be used to generate policy options for the improvement of education efficiency across countries will continue.
- * The completion of EPM and EIM prototype models will be carried out. These will in turn be field-tested in Egypt and Pakistan and user manuals and brochures will be produced to help in the dissemination of the software and the training of potential users.
- * Research being generated in the field will be published and more widely disseminated under the BRIDGES Research Report Series. Conferences and seminars will be held in Thailand, Sri Lanka, Pakistan and Egypt to discuss and disseminate BRIDGES research findings.

- * Upgrade and extend BRIDGES training in software applications for planning and policy analysis.

ACTIVITIES TO IMPLEMENT OBJECTIVES

Synthesis. Two more BRIDGES reviews were published in the Fall of 1987; another two Development Discussion Papers were published by January 1988; and an additional one was made available in June 1988. Information about all the reviews, including those in draft form, was disseminated through professional seminars, workshops, journals, international assistance agencies and the BRIDGES network.

One new review was being completed during the 1988 fiscal year. This was:

- * a review of existing Egyptian research on factors affecting the improvement of educational quality in Egypt.

The Project Newsletter "Forum" which was successfully launched in FY88 will continue to inform the BRIDGES Community of researchers of BRIDGES events, achievements and failures. This is being successfully distributed among fellow researchers, international agencies, institutions of higher learning and USAID Missions.

Generation of New Information. The research activities of the BRIDGES Project will, in this year, be nearing completion in five countries in which the Project is currently working: Burundi, Pakistan, Sri Lanka, Thailand and Egypt. BRIDGES has been asked by WID to prepare a proposal for expanded activities including an expansion of the GENDER data base to include all the remaining LDCs.

RESEARCH QUESTIONS BEING ADDRESSED BY BRIDGES

The following are questions which are being addressed by individual BRIDGES research projects during FY89 focus on eight common research themes: physical facilities and school construction, school system and school organizational management, teacher characteristics and training, learning technologies,

information utilization, access to schooling, policy implementation issues and the external effectiveness of basic education and its role in the labor market.

In Pakistan:

- * Are there significant differences in learning outcomes as a function of single versus double shift schools ?
- * Does the quality of physical facilities affect learning outcomes?
- * Do schools with headmasters achieve higher levels of learning than schools without?
- * What frequency and kind of supervision contributes most to learning?
- * Does learning increase with increased availability and use of instructional materials?
- * Do teaching practices vary systematically with differences in training? What kinds of training are most effective?
- * What factors influence teacher attendance, and how does absenteeism affect learning?
- * Are there significant variations in student achievement, irrespective of gender, as a function of teacher's gender?
- * How much in-service training do teachers receive, and are variations in amount linked to student achievement?

In Sri Lanka:

- * Do schools with strong school leadership receive more community assistance for school maintenance and construction purposes?
- * Are clustered schools more likely to share resources, conduct in-service teacher workshops and otherwise cooperate?
- * Do schools with progressive management practices have fewer drop-outs and repeaters, and less teacher absenteeism?

- * Do principals who have received management training implement more progressive management practices?
- * Do principals who reside close to their schools implement more progressive management practices?

In Burundi:

- * What has been the impact on learning outcomes of moving the double shift system for grades 1-6?
- * Does supervision of in-school instruction by principals insure improvements in teaching quality?
- * Has the provision of new teaching materials to teachers at the classroom level helped the Burundi government attain its ruralization objectives?
- * What are the outcomes of different methods of teacher in-service training?
- * How does children's learning vary as a function of language of instruction in the first four grades?

In the Research on Low-cost Learning Systems Area:

- * What are the most cost-effective approaches to training teachers for an acceptable level of performance?
- * How does distance education contribute to reducing the cost of making teachers more effective in the classroom?
- * Which learning technologies are most effective for teacher training and most sustainable in the contexts being addressed by BRIDGES?

In Thailand:

- * Which factors determine the quality of learning outcomes at the primary education level in Thailand?
- * Which recent reforms and innovations in Thailand's education system have produced positive learning outcomes?
- * Has the cluster movement reduced or increased disparities between different kinds of schools?
- * Do low-cost learning systems like RIT benefit small rural primary schools?

- * What kinds of school management strategies are associated with more positive teaching-learning outcomes?

I. OBJECTIVES AND ACTIVITIES FOR FY 1988

A. BASIC ASSUMPTIONS AND STRATEGY OF BRIDGES

The BRIDGES Project is based on a fundamental assumption that countries are eager to try new policies and programs in their education systems, but lack sufficient knowledge about:

1. what the alternative policies and programs are;
2. what experiences other countries have had with them;
3. requirements and procedures for implementation in their system; and
4. the effects and costs that could be expected.

The Project's designers assumed that while some of the experience of the early-industrialized countries is helpful in the design of reforms for the Third World, successful transfer of experience is most likely when it comes from a country with similar economic, political, social and cultural history.

Finally, in the design of the Project it was assumed that special attention had to be paid to the means by which information was made available. Prior research has shown low utilization of research findings by planners, managers and policymakers. The Project's strategy, therefore, is to maximize the involvement of country officials in its design, implementation, evaluation and dissemination.

CHOICE OF COUNTRIES TO PARTICIPATE IN THE BRIDGES PROJECT

The resources available to the BRIDGES Project are not adequate to permit work with the number of countries in the world likely to seek increased information about policy and program alternatives for educational improvement. In response, the Project has sought to work with officials in countries that represent the major kinds of variation in conditions that affect or characterize education systems. The conditions include:

1. the level of participation in education, particularly by groups such as rural youth and girls;

2. the level of retention of students in the system once enrolled in school;

3. the general level of resources available to the system.

In addition, participant countries are those in which the ministry of education and BRIDGES share common objectives, in which the government is able to assign significant numbers of personnel to the project, and in which the USAID mission is supportive.

The participant countries to date are Burundi, Egypt, Indonesia, Pakistan, Sri Lanka, Thailand and the Yemen Arab Republic. Some of these countries still have less than half the school-age population enrolled in school, some have large differences in the enrollment ratios of boys and girls, some suffer from high rates of wastage or low retention of students, and others have resolved these kinds of problems but are concerned about how to improve the quality of the education provided. In all cases there is interest in what other countries are doing, and an eagerness to share experiences.

MAJOR ACTIVITIES OF THE BRIDGES PROJECT

The activities of the Project can be grouped under four major headings: Synthesis of Existing Information, Generation of New Information, Development of Systems for Presentation of Information, and Training.

Each of these sets of activities is carried out in six domains drawn from a consideration of the kinds of policy or programmatic options available to countries for the improvement of education.

These domains are defined as:

1. factors that can be manipulated by governments which influence the access of children, especially girls, to schooling;
2. experiences with the use of learning technologies in developing countries, to include how they differ in ease and cost of installation and maintenance, impact on learning, and operational cost;

3. the impact on student learning of different systematic patterns of teacher use of instructional resources and time in classrooms (also known as classroom management) that can be affected by policies and actions controlled by the central system, and the relative cost of alternative policies and actions;
4. the impact on student learning (through impacts on teacher performance or directly on student performance) of school organization characteristics that can be affected by central system policies or actions, and the relative costs of alternative policies and actions;
5. the relative impact on performance out of school (in work, in the home, in the community) of variations in school experiences, understood as patterns of teacher use of instructional resources, school organization characteristics, and the relative attention given to categories of curriculum content. This is sometimes referred to as the external effectiveness of education systems. Performance out of school is to be measured in terms of employment, income, health status, and fertility; and
6. the utilization of information in the definition of organizational and system problems in education that require policy and action, in the identification of alternative policies and actions, in the implementation of those policies and actions, and in their evaluation.

The sections that follow review the objectives, activities and accomplishments of the first two years of the BRIDGES Project. From the experiences of these first two years are drawn the goals and plans for the next year.

B. SYNTHESIS OF EXISTING INFORMATION

At this date 29 reviews of existing research on education in Third World countries have been written under BRIDGES sponsorship.

This total includes five reviews covering various themes of research in Latin America, three reviews covering part of the research literature in East Africa, and five reviews from Southeast Asia, including research in Indonesia, Malaysia, the Philippines, Sri Lanka and Thailand. The other 16 reviews cover research literature across the regions.

The reviews focus on the central research and policy domains of the BRIDGES Project. They cover issues of access to education, learning technologies, classroom management, school organization, teacher training, external effectiveness, knowledge utilization, as well as the availability and utility of microcomputer software for educational planning applications, and models and methods for estimation of costs in education systems.

The Project has been concerned to use the knowledge and conceptual understanding gained through the process of producing these reviews to inform and improve the research designed in collaboration with participants in the various ministries of education. This has been pursued in several ways. First, in most cases coordinators of the country research teams also participated in the review process. Second, each country research team includes at least one review author, who is expected to contribute to research efforts gained through the review process.

C. GENERATION OF NEW INFORMATION

1. Burundi

A. FY 1988 ACTIVITIES

FY 1988 activities were designed in pursuit of the more general BRIDGES goals. The overall goal in Burundi has been to improve the quality of education (especially primary education) by achieving a better fit between education and work. This involves research on the effects of current Ministry of National Education policies, improvement of educational planning and analysis capabilities within the Ministry of National Education (and through collaboration with the Ministry of Labor and Vocational Training),

and assessing the extent to which policy priorities are oriented toward improvement of learning outcomes and an increase in the social impact of schooling.

The following activities were completed in FY 1988:

1. Evaluation of Proposals and Selection of Subcontractor; Negotiation of Scope of Work (October - November 1987)

Three organizations submitted proposals in response to our request for proposals. After evaluation of the proposals, the Centre de Perfectionnement and de Formation en Cours d'Emploi (CPF) was selected as the BRIDGES subcontractor in Burundi. In subsequent negotiations the scope of work was substantially modified to fit a timeframe more limited than originally anticipated.

2. Approval of Subcontract by MSU, Harvard and USAID/ Washington (December 1987)

The subcontract as finally negotiated was expedited through approval channels at MSU, Harvard and Washington in time for final signature in Burundi on January 15, 1988.

3. Development of Instruments and Selection of Samples (January - February 1988)

Since approval and delivery of the subcontract took two weeks longer than planned, the CPF had very limited time to finish the design work for the survey of private sector employers, the survey of rural households, and the case studies of rural schools. Nevertheless, draft instruments and draft sampling plans as well as background reports were ready by mid-February when the BRIDGES team arrived in Burundi to help put the data collection plans in final form.

4. Data Collection (March - June 1988)

Data were collected for two sets of studies to achieve a better fit between education and work in Burundi. The first set has begun with a pilot survey of private sector firms, focusing on the relationship between education and employment. The second set of studies focuses on the effects of schooling on agricultural

practice and productivity. The first year's data collection consists of parallel studies of schools and households. The survey of 120 households looks at the effects of different levels of schooling on agricultural decision-making, practice and production. This survey includes tests of agricultural knowledge and functional literacy. At the same time in the three surveyed localities, pilot case studies were carried out in local primary schools to explore the ways in which current educational policies facilitate or hinder the acquisition of agricultural-related knowledge and skill (including basic science, numeracy and literacy).

5. Analysis and Reporting (June - September 1988)

Following the end of data collection in June 1988, data have been compiled, transcribed, summarized and coded as appropriate in preparation for analysis. CPF and BRIDGES researchers are sharing responsibilities for analysis and reporting. A series of international and national reports are being prepared, as described below under Products.

B. RESEARCH RESULTS

By the end of the year, the project had accomplished most of its initial goals. Data for the first-year pilot studies had been collected, coded and summarized. Draft reports had been prepared.

The quality of work carried out to date by CPF, our Burundi subcontractor, has been for the most part good. They have a competent, hardworking staff which has made this project a high priority. They have met deadlines and produced the required deliverables (e.g., draft instruments, field notes and recordings of required classroom observations and interviews). They are quick to accept suggestions for improvement and effective in gaining access to ministries, private employers and local schools. They have exercised close quality control over the initial data collection, providing an excellent basis for improvement during the second year.

Although we have not yet had time to fully analyze the data, a preliminary reading of field notes and draft reports provides

promising leads to link our project with policy issues in Burundi. First, the research confirms a number of important constraints:

1. This is a country of very limited resources, with a heavy reliance on donors for material inputs for education. Policy options which call for additional resources are not feasible.
2. Enrollments continue to increase rapidly in primary education as the country attempts to achieve universal primary schooling. Policy options which attempt to counter this trend are not likely to be acceptable.
3. Educational policy already puts much emphasis on instructional supervision and in-service training to improve the quality of primary schooling. While the effects of this are no doubt uneven across the country, implementation of these efforts seems likely to improve without any BRIDGES input.

Within these constraints, there are several areas in which policy changes could bring about improvement:

1. changes in the use of double shifts to make more effective use of teachers' time;
2. planning for more effective use of Kirundi in fifth and sixth grade classrooms where heretofore French has been the official language of instruction;
3. possible reduction of or greater selectivity in syllabus coverage to ensure more effective learning of the most important topics (including in particular those topics of importance to agricultural practice and productivity).

C. INTENDED PRODUCTS

Memoranda of agreement assigning responsibilities for analysis and reporting for the year one efforts have been drawn up and agreed upon with our CPF counterparts. In general, there will be two sets of products for the Burundi work, one a set of international reports destined for an audience of researchers, policymakers and donors outside Burundi, and the other a more

specific set of conclusions and recommendations oriented toward Burundi alone.

Rural schools/household study. The international products to be prepared on the basis of the first year's work with joint BRIDGES and CPF authorship, to be written in English, include the following:

- * schooling's contribution to resolving dilemmas of agricultural production in Burundi (draft September 1988);
- * school versus home-based knowledge in agriculture (draft November 1988);
- * Kirundi versus French in teaching science and agriculture (draft November 1988);
- * school management to provide more time for critical subject-matter (draft November 1988).

The national products with CPF authors, to be written in French, include:

- * case studies of three schools (draft August 15, 1988);
- * policy analysis for Burundi audience (draft September 15, 1988). This will tie into specific policy issues motivating the study as well as the larger evaluation of primary education now ongoing within the Ministry of National Education. These include:
 - changes in organization and content of schooling to make double shifts more effective;
 - identifying and removing obstacles to Kirundization;
 - fostering effective teaching of agriculture-related knowledge.

There will also be an overall product on the rural schools' household studies in the form of an executive summary synthesizing the other reports, translated in both French and English, and with joint BRIDGES and CPF authorship (draft November 1988).

Survey of private employer needs. In this case three reports are being produced on the first year's work. They include:

- * feasibility study of a method to link education to employer needs (in French) (draft now under revision);
- * educational planning and the private sector (in English) (draft now under revision);
- * executive summary: private sector occupational structure in Burundi--linking education to employer needs (in English and French) (November 1988).

D. MAJOR CONSTRAINTS OR IMPEDIMENTS

The major constraints encountered include:

1. At the beginning of FY 1988, the project was somewhat delayed by the coup which led to a change of government in Burundi. Subsequent to the coup there was much personnel change in the ministries and even in CPF. Although all the new personnel had to be brought up to speed in the project, eventually the balance for all these changes was positive as it built up the BRIDGES network in Burundi. The effect of the more recent, very violent conflict on the project is as yet unknown.

2. Although CPF has some excellent general research capabilities, it has no experience in certain of the educational research activities called for. Thus, initial and follow-on training is required in the education-specific aspects of research design and analysis (e.g., techniques of classroom observation). More generally, training contributing to the professional development of CPF staff is provided in all aspects of the research undertaken.

3. Limited time and limited funds have been major constraints in this as in most projects. Because of delays in negotiating the project, the overall project has been limited to two years. This has required very tight deadlines with little time to overcome or redress shortcomings. Funds are also particularly tight because of the relatively high cost of research in Burundi. Salaries, for example, are higher than in other African countries where our team members have had experience.

4. Finally, the time required for oral and written translation has been still another major constraint. Attempts of team members to work directly in English either have not worked or have proved very time-consuming and susceptible to error. In addition, although French is the working language for the project, some data collection has taken place in Kirundi, thus requiring still more translation. It took four persons from the Ministry of National Education and two from the Ministry of Agriculture four days to translate the household questionnaire from French to Kirundi. These persons had a difficult time finding appropriate terms.

2. Indonesia

A. KEY FY 1988 RESEARCH ACTIVITIES

During this eight-month period UTRC, in collaboration with IIR, implemented a field survey of the costs and expected benefits of teacher training by the Open University. Research design and instrument construction and pretesting had been completed during the previous period. During the current period the UTRC drew the sample of respondents, finalized the research instrument, sent the instrument to the respondents, compiled returned questionnaires, coded and cleaned the data, collected supplementary data, did preliminary data tabulation, constructed scales and composite variables, and sent raw data and working files to IIR for review.

In January Kartini Widodo, a member of the UTRC research team, met with D. Nielsen at RTI North Carolina to discuss data coding and the program of work for the next few months. In late March D. Nielsen visited UTRC where he reviewed the data set, coding procedures and preliminary tabulations. He also conducted an intensive workshop on scale construction, data transformation and data analysis. Plans were laid for the collection of supplementary data, through interviews, from areas which were underrepresented in the mailed survey. Plans were also laid for the collection of census information to be used in the classification of schools

(urban/suburban/rural) and for the collection of credit-hour data on respondents from university records.

The sequence of activities was as follows:

1. Draw sample and finalized questionnaire Nov. 87
2. Send questionnaires to respondents Dec. 87
3. Compile returned questionnaires Jan.-Mar. 88
4. Code and clean data Jan.-Mar. 88
5. Do preliminary tabulations Mar. 88
6. Conduct intensive workshop on data reduction and analysis Mar.-Apr. 88
7. Collect supplementary data Apr. 88
8. Construct scales and working files May 88
9. Send data and scale files to IIR May 88

In early June, after receiving the data and working files, D. Nielsen examined the data and created variables, and prepared feedback for the UTRC team concerning recommended changes in the data/scales and approaches to data analysis. He sent those back to the UTRC staff, and they are carrying out the data analysis.

In the second week of July, D. Nielsen carried out a two-week training, research and project development program at UTRC, and advisory program at UTRC. During this period he and the UTRC staff worked on the data analysis and formulated the outline of the final report. During that period two training/project development workshops were held. One was an internal UT workshop in which institutional costs of Open University teacher training were determined. The second was a national-level workshop involving the key figures in teacher training from around the country. Variables in the phase II study were also formulated (namely, the knowledge, skills/behaviors and attitudes expected of trained teachers), existing research instruments reviewed, programs for the phase II study chosen and their institutional characteristics listed. The expected output of these two workshops will be: a) a determination of the institutional costs of teacher training through distance

education, and b) the formulation of a complete research design and work plan for the comparative cost-effectiveness study.

During August the UTRC finished the phase I data analysis and began report writing. In September it finished the report. In late September another workshop was held involving UTRC researchers and administrators, education policymakers and D. Nielsen in which the report was critiqued and revised.

During August and September in the United States D. Nielsen used the design specifications for phase II and the existing research instruments in designing draft research instruments for use in assessing teacher effectiveness. To do this he consulted with the BRIDGES teams at MSU and Harvard (the Sri Lanka teacher training study team). These draft instruments were discussed during the September workshop in Indonesia and will be pretested/administered early in the next fiscal year. During the workshop the work plan for FY 1989 was formulated and a new subcontract between IIR and UT drawn up.

The following sequence of activities were carried out to achieve the above:

1. D. Nielsen reviewed phase I data and working files and sent feedback to UTRC June 1988
2. UTRC staff began data analysis June 1988
3. Joint data analysis--UTRC & IIR [Nielsen] July 1988
4. Workshop on institutional costs of UT teacher training July 1988
5. Workshop on variable specification, research design and program characteristics for phase II July 1988
6. UTRC finished data analysis for phase I Aug. 1988
7. D. Nielsen drafted research instruments for phase II Aug. 1988
8. UTRC finished the research report for phase I Sep. 1988
9. Workshop reviewed phase I research report and phase II instruments Sep. 1988

10. FY 1989 work plan and new IIR/UT contract was formulated

Sep. 1988

B. RESEARCH RESULTS

The response rate to the mailed questionnaire was over 50%, a level considered to be high in Indonesia. A preliminary tabulation, however, revealed that the nonrespondents were disproportionately from rural or remote areas, precisely the areas in which distance education is expected to be particularly beneficial (given the lack of other higher education alternatives). Therefore, the team decided to visit these areas and to track down a "critical mass" of nonrespondents from them.

Many of the personal costs categories in the questionnaire (e.g., typewriter) were ticked by very few respondents. Therefore, they were eliminated from the working file. Also, problems arose as we tried to compute unit costs, since respondents took varying numbers of credit units in a semester. Thus, we decided that it would be necessary to look up the number of credit hours that were carried by the respondents during the year of the research and to compute cost per credit unit as the basic unit cost. Private "cycle costs" (costs for the entire course of study) will be computed by multiplying cost per credit hour times the total credit hours required for program completion.

A hypothesis of the study is that personal costs are related to student enrollment decisions (dropping out or course load). A preliminary look at the data seems to show that the relationship is very weak, but this is perhaps a reflection of a selection bias (those who are dropping out or scaling back were probably less likely to return questionnaires than those who are enthusiastically engaged). This is another reason that the team decided to embark on supplementary data collection.

C. RESEARCH PRODUCTS

The main product for this phase of the BRIDGES study was a research report on the private costs and expected benefits of

teacher training through distance education in Indonesia. The study and therefore the report answered the following questions:

1. What are the actual costs incurred by UT students in teacher training programs (per unit and per cycle)?
2. What is the relationship of private costs to students' enrollment decisions (i.e., course load, continuation of enrollment)?
3. Are certain categories of private costs more closely related than others to enrollment decisions?
4. Is teacher training through distance education more costly for certain categories of students than for others?
5. To what extent is affordability (rather than simple private costs) related to enrollment decisions?
6. What are the expected private benefits of teacher training through distance education?
7. What is the relationship of expected private benefits to enrollment decisions?
8. Are certain kinds of private benefits more closely related than others to enrollment decisions?
9. Do some categories of students expect more/greater benefits from teacher training through distance education than others?
10. How do actual private costs relate to expected benefits?
11. What are the perceived benefits/strengths of Open University courses compared to conventional university courses?

Answers to these questions are expected to provide policymakers in Indonesia (and, through BRIDGES, those in other countries) with a basis for determining whether their current "pricing policies" for Open University training are realistic and appropriate given the kind of clients (generally untrained and poorly paid teachers) which they are expected to reach, and whether there are certain important groups which are being or will be

excluded from the programs because the private costs are too high. It will also give them a sense of whether enrollment and pace of progress are being influenced by private cost factors. If the costs students are being asked to bear seem excessive, the university may need to find alternative financing schemes.

In addition, the research is expected to provide policymakers with a sense of what the students expect to gain from their Open University program, and the extent to which they (the students) consider gains from this program to be equivalent to those from conventional universities. The policymakers and program administrators can compare student expectations with what the courses can actually provide and, if there are discrepancies, take appropriate action. They can also get a sense of what kind of reputation their courses are acquiring, something considered critical to maintaining enrollment at levels required in order to assure the program's cost effectiveness.

The report's findings will be used directly by policymakers in Indonesia. In addition, the private costs figures will be used as an input into the second phase of the research, that deals with the program's relative cost effectiveness.

D. CONSTRAINTS AND IMPEDIMENTS

Progress on this project was slower than anticipated because of a four-month delay in D. Nielsen's joining IIR. Originally, he was scheduled to join IIR in September of 1987. Under those circumstances, he would have been available during the entire fiscal year to review project progress, provide technical assistance and give training. As it was, he joined IIR in early February 1988. The Indonesia team thus delayed its final coding of data and data analysis in anticipation of his arrival. The final report of phase I research, originally scheduled to be submitted in April 1988, was submitted in September 1988.

During the period between P. Spector's visit to UTRC in May 1987, and D. Nielsen's arrival on staff there was also some ambiguity about the financing of the UTRC research activities. A

contract drafted in May 1987, to provide up to \$20,000 for UTRC research activities was left "inactive" until Nielsen's visit to Indonesia in March 1988. At that time the contract was revised (in the form of a subcontract between UTI and IIR) and was put into force in May 1988. The delay in getting funds to the university also was a factor in the slower-than-expected pace of project implementation.

3. Pakistan

A. ACTIVITIES IN PROJECT YEAR I--FY 1988

As in other BRIDGES Project countries, the overall purpose of BRIDGES in Pakistan is to assist national organizations in the expansion of the capacity of policymakers, planners and managers to identify, evaluate, choose among and design implementation strategies for the improvement of education. To realize this goal four major sets of activities will be carried out during the four-year period of the project. These are:

- * improvement of data systems;
- * generation and use of information on educational policies;
- * the design of methods to increase awareness of policy options and their implementation; and
- * training in the development and maintenance of the methods and systems.

1. Improvement of Data Systems

Interviews were carried out by Donald Warwick and Noel McGinn from BRIDGES, and a team from the Academy of Educational Planning and Management (AEPAM) headed by Habib Khan and including Mirza Tauhiduddin Ahmad, Nasir Amin and Dawood Shah, with officials in the Federal Ministry of Education and Departments of Education in each of the provinces. These officials included the Chief of the Planning Wing of the Federal Ministry, Secretaries, Directors General, Directors of Schools, District Education Officers, and Statistical Officers in the Provincial Departments. The interviews were designed to identify perceived needs for information to inform

both routine and developmental decision-making activities, and opportunities for involvement by the AEPAM and BRIDGES in the improvement of data systems.

Each of the four provincial departments expressed interest in receiving assistance. The task force recommended that efforts be spent first on work either in Punjab or in Sind, and to work in the other provinces in year three of the project. Given uncertainties about proposed World Bank activities in Punjab, activities were initiated in the Planning and Monitoring Cell (PMC) of the Sind Department of Education, under the direction of Syed Anwer Uddin. Work with the PMC has been carried out by Tom Cassidy, Ernesto Cuadra and Noel McGinn of BRIDGES, and Attaullah Chaudhry and Nasir Amin of the AEPAM.

The PMC project has included the following steps to date:

- a. design of a data base utilizing information existing within the PMC with respect to school location, in order to support routine monitoring of school construction projects, and the preparation of the annual development plan;
- b. purchase by BRIDGES of a microcomputer and training of new PMC staff in data entry; and
- c. beginning of entry of data and development of basic reporting forms.

Work also began on the improvement of capacity to collect and analyze information about the cost of educational programs. Mun Tsang of MSU, together with staff from the AEPAM, interviewed ministry and provincial officials to determine perceived needs for cost data and current methods of collection. The task force developed a pilot instrument to be field tested in early October and included in the sample survey of schools in December.

2. Generation and Use of Information on Educational Policies

Interviews with policymakers and review of recently published sector studies of education in Pakistan were used to establish

which of the BRIDGES research themes should be pursued first. Highest priority was given to:

- a. identification of major difficulties in the implementation of new policies and programs in the education system;
- b. assessment of the effectiveness of the mosque school program in terms of its impact on access, particularly of girls;
- c. description of the variety of instructional practices used in classrooms and identification of those that contribute most to increased student learning; and
- d. description of the methods and information used by district education officers and other officials in the assessment of the effectiveness of individual schools.

Work on implementation was begun by Don Warwick, Noel McGinn and Fernando Reimers. Together with Sarfraz Khawaja and Aslam Bhatti, Reimers and McGinn interviewed officials in federal and provincial offices to identify major policy initiatives that have been attempted during the past 10 years, and developed a map of the process followed in policy and program implementation.

To complement the findings of a recently completed evaluation of the mosque school initiative, Mary Anderson and Nuzhat Chaudhry of AEPAM initiated a study using interviews in schools and communities to assess the extent to which the initiative has enrolled children who would not have been enrolled in regular public schools.

BRIDGES researcher Andrea Rugh and R. A. Farooq of AEPAM have done the pilot work on a study on classroom instructional practices. Following earlier work in Pakistan, Farooq spent three weeks in Cambridge with Rugh developing a set of detailed questionnaires and observation protocols for an intensive study of instruc-

tional practices. The questionnaire was field tested in September and will be used in a study of 32 schools in early October.

To complement the above studies and provide a comprehensive evaluation of implementation and effectiveness, work was begun in February and carried through in June and August on the design of a sample survey of approximately 400 schools in the four provinces. The objective of this survey is to assess the relative effectiveness and cost--or efficiency--of the major policy initiatives that have been taken during the past 10 years, to assess the resource requirements for effective implementation of the most promising initiatives, and to determine the process of implementation that experience has shown to be most "useful." Direction of the survey is the responsibility of Sarfraz Khawaja working with Noel McGinn and Fernando Reimers.

B. CONCLUSIONS BASED ON RESEARCH ACTIVITIES

1. Problems of data systems in Pakistan are similar to those found in other countries. It is difficult to collect complete and reliable information given shortages of personnel, transportation and expendable supplies. As data systems are designed to satisfy the needs of users at several levels in the system, a considerable proportion of the information collected is of little relevance to any given user. This acts to lower overall confidence in and commitment to the system. Lack of feedback to data suppliers results in reduced attention to detail in filling out forms. Problems of data supply are complicated further by passing costs of collection downward in the system, e.g., asking district education officers to duplicate copies of data forms. Finally, confidence in the system is reduced further when data is delivered to decision makers after decisions have had to be made, and when copies of data are not made available throughout the system.

There have been at least three major proposals to overcome these problems by means of the creation of an Educational Management Information System. One of these resulted in the creation of the Management Unit for Studies and Training (MUST) of

the Northwest Frontier Province. MUST has produced an excellent data base and generates some basic education reports to decision makers, but has failed to live up to expectations for it. The other plans for an EMIS have proposed massive investments in hardware and training for simultaneous development of a national system, and have not been funded. None of the proposals to date have addressed directly the issue of implementation strategy. Not clear is whether it is feasible to install computer technology at the district education office level.

2. Implementation of educational policies varies considerably across schools, districts and provinces. In part this variation can be attributed to the different cultural traditions of the regions. But in large measure variations in implementation can be explained by reference to large differences in the training and supervision of both administrators and implementors of policies. There are at least five layers of organization between a policy decree and its implementation in the classroom. Within and between each layer policies are, often without intention, transformed and deformed until they have little similarity with the original design. Administrators and implementors often do not understand the original goals of the policy and are unfamiliar with specifications of how the policy is to be implemented. Too few resources are dedicated to communication of goals and methods: there is too little training, not enough written communication, and little supervision. Policy designers appear to underestimate the serious difficulties that implementors must overcome to implement policy initiatives. As a consequence, committed resources are not spent and promising innovations are not tried out.

3. Access to schooling remains a critical problem in Pakistan despite various policy initiatives. Although some progress has been made in increasing levels of enrollment, the rate of improvement is so small that it will be 20 or more years before universal primary enrollment will be in sight, unless radical improvements occur. Mosque schools have been effective in most

instances, in the sense that children, especially girls, do attend them, but this initiative has not been widely implemented in Punjab, and in other provinces it is not clear that the creation of the mosque school has generated access for children who would not otherwise have attended. Visits to schools have been essential to demystify some practices with respect to description of enrollment. For example, official statistics on enrollment of boys and girls in fact represents the enrollment in schools classified as "boys" or "girls," and not the number of boys and girls in those schools. Many single-sex schools are coeducational in fact. Low participation rates as a result of two factors, limitations in opportunities to enroll in school (here called access), and low retention of those children who do enroll. In most, but not all, cases access is a problem of inadequate supply of education, rather than a problem of low demand. Although there are occasional cases of families in rural areas that will not enroll their (female) children, the vast majority of parents are eager to put their children in school and keep them there. Evidence for this hypothesis is the uniformly high levels of first grade enrollment, even taking into account the artificial inflation of statistics caused by attendance of under-age children. Girls' schools seem especially crowded in most villages. There are some cases, however, especially in Punjab, of villages where there are relatively empty classrooms for girls because of low demand by parents.

4. Teachers in classrooms generally are unfamiliar with curriculum objectives except at the most general level. There is a uniformity in teaching that comes out of poverty of method. Teachers rely heavily on the textbook as a source of instructional content. Until recently, supervision has been infrequent. Most teachers have not had exposure to good models of teaching and no access to suggestions of how to improve their own teaching methods. The creation of "learning coordinators" for every 10 to 15 schools appears to have improved teacher attendance and morale. Effects

on teaching and learning are not yet clear. There are serious shortcomings in the curriculum material that does reach teachers. General primary goals are not explicitly translated into specific measurable grade-level objectives that can be realistically carried out under conditions found in most classrooms. For example, objectives are formulated that stipulate that teachers will take children on trips, and that it will be possible for students to understand how to take messages over a telephone. In many schools this is not feasible. Teachers work in a variety of classroom conditions, some of which are very difficult. They have developed a wide range of methods to maintain order and enhance learning, some of which are highly effective. Teachers may choose to teach to the brightest students, those who can respond quickly, or they may regulate the pace of instruction so that all children can learn. Both methods have implications for the total learning that goes on in a classroom. For example, the first method insures high rates of failure and low completion rates, but appears to keep levels of "quality" high. The second requires that teachers be able to assess periodically the learning progress of their students and alter their instructional practices in accordance to the results of the evaluation. In short, there are both problems of design and problems of implementation in policies that affect how teachers teach.

C. PRODUCTS FROM FY 1988 RESEARCH ACTIVITIES

1. Improvement of Data Systems

A data base containing information about the location and size of schools in Sind has been designed using data available in the Planning and Monitoring Cell. Procedures for retrieval of data have been designed, and staff have been trained in their use.

2. Generation of Information on Educational Policies

A detailed description (approximately 40 pages) of conditions of schools and classroom practices in a nonrepresentative sample has been prepared. A detailed questionnaire for classroom observation has been written and translated into Urdu.

A brief report has been written based on interviews with 15 officials in federal and provincial offices of education with respect to problems of implementation.

A draft report on "Models of Teacher Training in Pakistan" has been prepared.

3. Design of Methods to Increase Awareness of Policy Options

Collaborative work between AEPAM and BRIDGES staff will begin in FY 1989 when data are available to incorporate into the BRIDGES models currently in development. In the meantime, BRIDGES staff in FY 1988 worked on improvement of STEP, the prototype software for projection of demand for educational services and resource requirements. This work included improvements of the graphics capacity for HOST, the programming environment for STEP, revision of the manual for STEP, development of a series of exercises for use in training, and improvement of a simulation game in which STEP is used. Work also began on the design of the Educational Policy Model. The structure of this model was coordinated with the planning of the sample survey of schools so that data collected in that survey could be incorporated into a Pakistan version of the software.

D. MAJOR CONSTRAINTS TO THE IMPLEMENTATION OF THE FY 1988 WORK PLAN

The major difficulty in Pakistan has been the limited time availability of counterpart staff in the AEPAM. The original agreement between BRIDGES, AID/Pakistan and the AEPAM specified that the Academy would provide counterpart staff who would be relieved from their regular duties. In the first part of the year the AEPAM suffered the loss of its Director General. Two senior staff went to Harvard for graduate study. During the year another trained researcher left for another position. With the arrival of the new Director General, Professor Laee'q Ahmad Khan, the AEPAM has initiated a vigorous program of training and research, apart from its commitment to BRIDGES. With many external demands for its

services, the AEPAM has not been able to assign as much staff time to BRIDGES activities as it would like.

In response to this problem, the AEPAM and BRIDGES have agreed that BRIDGES will hire the equivalent of two full-time persons for one year to work with BRIDGES researchers in the execution of the activities described in this work plan. Candidates for the positions were identified by AEPAM and selected by BRIDGES in early July. Work began following work plans developed jointly by BRIDGES and the AEPAM.

Another difficulty in fulfillment of BRIDGES objectives was occasioned by the inability of the Planning and Monitoring Cell of the Sind Department of Education to hire staff necessary to work with BRIDGES on the development of a data base. As of June 15 no staff had been hired, and the computer purchased by BRIDGES for the PMC was sitting idle.

In response to this situation, BRIDGES opted to change its strategy with respect to MIS development in the Sind PMC. Instead of training PMC staff from the beginning in the development of a data base, BRIDGES, with agreement from AEPAM, decided to build a complete data base outside the PMC, to install the data base, and then invite use of the data base by current staff of the PMC.

This strategy was possible because the School Mapping exercise of the Primary and NonFormal Education (PNE) Wing of the Federal Ministry of Education had already collected and registered on computers detailed information about all the schools in Sind (as well as other provinces). These data were used to load a data base designed by AEPAM and BRIDGES staff. Delivery of the data base with documentation and instruction of PMC staff in its use will occur in the next fiscal year.

4. Sri Lanka

A. KEY RESEARCH ACTIVITIES DURING FY 1988

The overall objectives of the BRIDGES Project "are to support effort to improve the generation and utilization of knowledge about an understanding of the performance of the educational systems that

are relevant to and useful in policy formation, planning and decision-making," and to develop computer-based models based on this improved knowledge base. To support the objectives of the BRIDGES Project, several research activities have been or will be undertaken in Sri Lanka that are both germane to the Sri Lankan policy environment and have potential for generating lessons that may be beneficial to other countries.

The Sri Lankan research activities were initiated in October of 1986 (FY 1987) with the expectation that up to three phases of research studies would be attempted. Phase 1 consisting of projects 1, 2, and 3 to be described below was originally scheduled for completion in January of 1988, but the field work was delayed due to internal troubles in Sri Lanka. Because of this delay, the overall Sri Lankan plan will be restricted to two phases of research studies with targeted completion in September 1989.

Phase 1. Three major research projects undertaken for FY 1987-88 were:

- * Management Reforms (division/clusters and training) as they relate to Principal's Effectiveness (project 1)
- * Management Reforms and Teacher Performance (project 2)
- * Management Reforms and School Community Relations (project 3)

Phase 2. Two additional research projects initiated in FY 1988 (January) based on preliminary findings from the above were:

- * District-Level Comparison of Decentralization (project 4)
- * Cost-Effectiveness Study of Teacher Education taking into consideration aspects of teacher deployment and performance (project 5)

B. RESEARCH RESULTS

Research designs for the latter activities (projects 4 and 5 of Phase 2) have been developed, and instruments for measuring key variables are currently under development. As these activities are

still in the developmental stage, the current and prospective work on them will be saved for Part II of this report.

The major objective of all current Sri Lankan management reforms is to improve the quality of education of "the smaller and poorer schools," primarily those classified in the official system as Type II and III schools. Consistent with both BRIDGES and MOE objectives, all of the studies undertaken in Phase 1 examine how policy initiatives impact processes known to influence the quality and efficiency of education in the basic education level (grades 1-8) of these smaller and poorer schools.

Draft reports for the first three projects (Phase 1) have been completed and were presented at a National Workshop held from July 11-13, 1988, in Colombo.

We turn now to summarize the major findings of the first three projects:

Project 1: Management Reforms and Principal's Effectiveness.

For purposes of presentation, the study has divided this topic into reports focusing on two distinct policy initiatives: the division/cluster reform, and programs for training principals.

Clusters following the conventional design of networking circa 10 rural schools have been attempted in at least 10 Third World countries with moderate to no success. The original Sri Lankan cluster imitated existing designs, except that the core school typically was a Type I (higher quality) school while the periphery schools were of Type II and II. Currently about 35% of all Sri Lankan schools are participants in conventional clusters. Contemporary critics of the cluster (e.g., JVP in Tangalle) tend to be focusing on the impact of the conventional design.

From 1984, several districts were reorganized to shift more of the administrative and developmental functions to a new sub-district office, the Division Office. In these same districts clusters were reorganized to restore the function of principals as first-line managers while creating the new coordinating position of cluster principal. This modified cluster design is a unique Sri

Lankan development. Currently, about 5% of all Sri Lankan schools are participants in modified clusters.

The research finds that the Type II and III schools that are members of modified clusters are generally superior to other schools in the following respects: greater communication with higher levels in the educational system; greater communication with neighboring schools; greater frequency of interschool in-service teacher training workshops; greater frequency of sharing of scarce resources such as science laboratories, specialty teachers, audio-visual equipment, sports equipment; higher incidence of initiating new projects in diverse areas including curbing student and teacher absenteeism, providing remedial classes for slow students, cleaning school grounds and repairing buildings; and a greater likelihood of putting into practice several management practices urged by MOE management consultants (to be discussed below). Conventional cluster schools, while not as outstanding as modified cluster schools, also tended to perform better than noncluster schools in most of the above respects.

The above differences were also mirrored in several measurements of school outputs, vis higher levels of self-esteem of principals and teachers, lower student repetition rates, lower punishment rates, and a greater probability for basic education graduates to continue on to the secondary level.

In sum, the study finds that the division/cluster reform has powerful effects on the operation of schools. Of particular interest is the differential willingness of district education offices to introduce the modified cluster. It is, in part, to understand why districts differ in their willingness to implement both modified and conventional clusters that Phase 2's decentralization study has been initiated.

The development and provision of management training for principals is another recent measure for improving the quality of the weaker schools. The research indicates that principals who have received training are more likely to have a first-line manager

orientation (higher willingness to initiate as well as a greater openness to the opinions of others) and also are more likely to practice several preferred management strategies: to devote more time to instructional management, to support and contribute to school-based discussions of curriculum and materials development, to develop medium-range school plans. The study also found some indications that the implementation of these progressive management practices was associated with improvements in school outputs (though stronger confirmation of these results will depend on a longer time series).

However, the study found that training was not equally distributed among schools; schools that had better conditions were more likely to be the beneficiaries of training opportunities.

It was also found that factors other than training had an even more powerful influence on preferred management practices: notably, membership in a modified cluster, having a principal who resides near the school, and also having a principal who has not come up from the ranks of the school he/she now manages.

It was found that training had its greatest impact in contests where other policies were also being implemented, that is, where clusters had been formed and principals had been carefully selected. Thus, the research points to the importance of policy packages in contrast to the implementation of discrete policies. This last finding highlights the importance of looking more deeply into the procedures used for the selection and promotion of principals and the award of training opportunities, as proposed in Phase 2's decentralization study.

Project 2: Management Reforms and Teacher Performance. This study, employing a case study approach, provides vivid illustrations of the difficult conditions in many rural classrooms. Imaginative principals make a critical difference in the climate of schools and in the introduction of reforms: for example, one principal wisely postponed the introduction of the new texts which

arrived in June until the beginning of the next school year so as not to cause excessive dislocation of classroom processes.

Also of obvious importance is the competence and dedication of teachers. In general, teachers in less advantaged schools are less likely to have the expected training and also tend to manifest simpler teaching techniques. According to a measure of student achievement administered at the observed schools, the average achievement level in certain rural fourth grades is twice as high as in others.

The study examined the extent to which various reforms proposed by the MOE had been implemented. Consistent with project 1 summarized above, cluster schools had been most responsive. And, relative to the resources at their disposal, the cluster schools achieved favorable academic results.

The study notes how some schools are highly regarded by their teachers and/or by their community. But some of these highly regarded schools may not achieve notable results in academic performance or community service. The implication is that rural schools, if isolated from the control of the administrative system, are susceptible to goal displacement.

This study provides valuable insights on the ways in which schools respond to the management reforms. It shows the critical role of both the imaginative principal and the trained teacher in translating these reforms into practice. The study points to the need to know more about processes for determining how principals and teachers are assigned/promoted. It also raises questions about the appropriateness of current teacher training practices for the conditions of isolated rural schools.

Project 3: Management Reforms and School Community Relations.

This study focuses on the rich interaction between schools and communities in many Sri Lankan schools. It finds that schools that are more active in cultivating good community relations tend to receive more active community support. Lower-quality schools and schools in poorer communities are more likely to receive community

support in the form of in-kind contributions while schools in better-off areas are more likely to receive monetary contributions. The average per-student value of community contributions is considerably higher in the schools located in better-off areas. Thus, reliance on community contributions leads to greater rather than less inequity in the distribution of resources available to schools.

Various factors relating to the quality of school-community relations are considered. The personal characteristics and behavior of principals are critical, suggesting the importance of a deeper understanding of personnel policies. Clusters, which prove to have a positive impact on other aspects of school performance, also tend to enhance the quality of school-community relations.

These nearly completed studies have identified a number of important relations that will be incorporated in the BRIDGES planning and policy analysis. The findings of these studies also are expected to provide vital information for the current Sri Lankan debates on educational reform.

C. RESEARCH PRODUCTS

The above-mentioned Colombo Workshop was the focal event for consolidating the research products of Phase I. At the workshop, these products were presented in low-cost binding:

- * Summary report of the three projects including both background chapters and a concluding chapter on policy implications. The report of 230 pages will be revised for submission during FY 1989 as a BRIDGES publication with the tentative title, "Clusters and Related Management Reforms: How These Can Improve Schools."
- * Eight case studies describing the schools of project 2. Each study is about 100 pages. These will be published by the National Institute of Education, Sri Lanka.

- * Twenty-one case studies describing the schools of project 3. Each is about 30 pages. These will be published by the National Institute of Education, Sri Lanka.
- * A statistical volume describing various characteristics of the context and the schools of the six districts where the research was undertaken.
- * A booklet describing and printing the instruments for projects 1 and 3.
- * The codebook describing the variables used in the analysis for projects 1 and 3.
- * A master file prepared for the Systat computer program that includes all of the variables used in the study as described in the codebook. This file, incidentally, will be used for the policy analysis exercise of the 1988 BRIDGES summer workshop.

D. MAJOR CONSTRAINTS AND IMPEDIMENTS

1. Delay in Field Work

Due to local disturbances, field work was delayed four months, and three visits by U.S.-based team members had to be cancelled.

2. Problems in Clearance

USAID-Colombo requests four weeks' notice for clearance requests. BRIDGES-Harvard has taken the precaution of preparing its requests at least five weeks in advance, but these have been held in Washington for lengthy periods with the consequence that some clearances have not been granted or have been delayed. These delays are costly in wasted time and because tickets bought at the last moment usually cost substantially more. To avoid any further recurrence of these problems, (a) USAID-Colombo has been provided a detailed schedule and rationale for forthcoming visits, and (b) a double-clearance procedure has been devised whereby BRIDGES-Harvard through HIID seeks clearance directly and simultaneously from USAID-Colombo on dates and from USAID-Washington on substance. The two separate responses now constitute clearance.

3. Insufficient Attention to Quality Control

In the FY 1987 and FY 1988 field work, BRIDGES did not provide Sri Lankan collaborators with sufficient guidance on field methods, with the result that incomplete data was collected from certain sites (in the case of field studies) and from certain schools (in the case of surveys). For FY 1989 work, special emphasis in training will be placed on quality control in field work. Data-inputting provides a check on incomplete data; thus, emphasis will also be placed on more systematic processes for inputting data.

4. Insufficient Measures of School Outputs

Phase 1 research expected to obtain reliable measures of school outputs in the form of time series on repetition rates, dropout rates, and student achievement as measured by numbers succeeding in the Grade 5 Scholarship exams. Problems were identified in all of these measures, and some effort will be devoted in FY 1989 to solving these problems. As a parallel remedy, built into the Phase 2 Teacher Education study is provision for measurement of the academic achievement in a subgroup of those schools that constituted the sample for Phase 1; analysis of the achievement measures will enable an assessment of the reliability of simpler means of measuring outputs.

5. Inadequate Communication among Team Members

A number of misunderstandings have occurred over the past year relating primarily to different perceptions of assignments and deadlines causing unnecessary strain both in the completion of the final draft report for Phase 1 and the development of plans for Phase 2. To improve on this, the team leader will increase involvement in and communication concerning all phases of the work. At the same time, given that this is the final year of coordinated work, the team leader will hold high expectations for team members to complete assignments on schedule and of acceptable quality.

5. Thailand

A. FY 1988 ACHIEVEMENTS

FY 1988 activities were designed to accomplish the two NEC/BRIDGES research objectives in Thailand. The first is to improve policy-making by making available to policymakers the best possible information on the likely costs and outcomes of alternative strategies for increasing primary school quality. Such information is important for simulating the effects of policy decisions within a context of limited resources. Such modeling is intended to inform, but not to replace, political discourse concerning alternative strategies for primary school improvement.

The second objective of the research is to improve Thailand's existing educational management information system (MIS) by developing standardized indicators of school inputs, processes, outcomes and costs. As a result of the research, national and provincial administrators will be able to routinely collect and use valid information for: (1) accurately projecting costs and needed resource allocations; (2) assessing the relative efficiency of schools of various types; (3) suggesting strategies to improve quality without increasing costs; (4) setting goals for school improvement and assessing their attainment; and (5) providing a baseline against which the performance of innovations may be judged.

The following activities were carried out in FY 1988:

1. Development of Conceptual Framework (October-December 1987)

Team meetings in October and December produced a conceptual framework for our remaining work in Thailand (the survey, cost analysis and field studies). Papers were presented, critiqued and subsequently revised that covered the following topics:

- * the construction of operational definitions of primary school quality which accurately reflect national planning goals (Bhumirat, Kidchanapanish, Arunrungrueng and Shinatrakool, 1987);

- * a policy analysis of current problems affecting the implementation of the 1978 national curriculum (Kunanak, 1987);
 - * a policy analysis of recent key reform efforts in primary education, which identified alternative strategies for improving primary school quality and posed critical questions for further research (Wheeler, Raudenbush and Passigna, 1987);
 - * a quantitative synthesis (meta-analysis) of 500 innovations designed to improve teacher performance at the primary level and a discussion of implications of this synthesis for policy (Suwanketnikom, in process); and
 - * a re-analysis of two existing large-scale data bases, designed to assess policy options and to identify the appropriateness of available instruments for answering BRIDGES questions (Raudenbush, Kidchanapanish and Kang, 1987).
2. Design and Data Collection for National Survey (December 1987-March 1988)

The team meeting in December also focused on the design of the national survey of primary schools in Thailand. Respondents included approximately 12,000 sixth grade students attending a national probability sample of 400 primary schools, 2,000 teachers, and 400 principals, along with subsamples of 1,000 parents and officials at the national and provincial levels. Students were tested in 12 curricular areas and completed questionnaires eliciting data on their demographic backgrounds, parental support for their education and on the practices of teaching and school management in their schools. Teachers completed questionnaires asking about their background, prior experience, curricular knowledge, teaching practices and school management practices in their schools. Principals were asked about their background, about school facilities, parental contributions, and about the schools' instructional program. These data will be used to: (a) describe

the cost and distribution of resources available for education across Thai primary schools; (b) examine relationships between teaching practices and student outcomes; (c) examine the association between characteristics of school management and teaching practices found predictive of student achievement; and (d) evaluate the independent contribution of school management inputs and processes for student learning.

A distinctive feature of the national survey is the incorporation of cost data and cost-effectiveness analysis in a study of school effects. Cost data were collected at the national, provincial, and school levels as well as for selected years between 1982-87. Information on the public costs of education was supplemented with information on private costs.

During late February-early March the Office of the National Primary Education Commission (ONPEC) administered the survey in conjunction with its annual national evaluation of student achievement. The results are currently being coded and the data cleaned in preparation for an intensive analysis scheduled for September. Preliminary results are expected by December 1988.

3. Case Studies of Effective School Clusters (October-September 1988)

In October the NEC team conducted a pilot study of an effective school cluster to test instruments for data collection and to provide training for NEC staff in field research methods. In January the NEC undertook the first of several intensive rounds of data collection for the exploratory case study of an effective school cluster. In late February and early March the team completed the final round of data collection and wrote a report identifying a tentative set of conclusions about the contribution of the school cluster to school quality and to teacher productivity. Team members also drafted a paper which described a series of tensions and dilemmas that characterize school cluster policy and the conditions that seem to affect the performance of the school clusters.

In June the team met to review and revise the case study report and the paper on policy dilemmas. The team also developed an analysis of school-level contributions to teacher productivity and associated policy options. These three papers will be completed by September in draft form and merged into a final report by December 1988 (FY 1989).

4. A Low-cost Learning System: RIT

During the June meeting Aida Passigna completed the final data collection phase of her study of the Reduced Instructional Time (RIT) project, an example of a low-cost learning system. Thailand is one of five countries she is studying for this project, funded by BRIDGES through IIR. Her final report on the study will be presented at the December team meeting (FY 1989).

B. RESEARCH RESULTS AND TENTATIVE CONCLUSIONS

1. Conceptual Framework

The first "result" is the conceptual model itself which consists of two submodels: a macro-model which specifies the relationships generally between educational policy, school quality and student outcomes; and a micro-model which specifies the ingredients of school quality, including aspects of the school management process and the teaching-learning process which previous research and commentary suggest are indicative of effective school performance. The macro-model distinguishes between sources of student learning which are amenable to influence by policy and those which are not. The micro-model distinguishes between inputs into school management and teaching-learning and the processes according to which those inputs are used for the purpose of instruction. This conceptual model provided the framework for the development of survey instruments and case study data collection efforts. The process of developing the model was a collaborative one, enabling Thai policymakers and BRIDGES researchers to forge a consensus on the goals of BRIDGES research in Thailand.

2. Research and Evaluation on the Quality of Primary Education in Thailand

Bhumirat et al. (1987) provided a comprehensive review of research and policy-making in Thailand relevant to the improvement of primary schooling. This paper presented a comprehensive review and analysis of policy documents and research studies of the issue of "quality" in the Thai context. The paper and the process of its revision played a vital role in the creation of the conceptual framework presented above and in the unfolding of BRIDGES's dissemination strategy in Thailand.

3. Pre-primary Education Policy and Primary School Outcomes in Thailand

The background characteristics of children upon entry into primary school are usually thought of as variables beyond the control of educational policy. However, one aspect of child background, the child's pre-primary experience, is to some degree under the control of policy. Raudenbush, Kidchanapanish and Kang (1988), in their BRIDGES-sponsored re-analysis of 1982 primary school efficiency national survey data set, found that pre-primary experience boosts student achievement in mathematics and language, that differential access to effectiveness of pre-primary schooling in those areas is an important source of the disparity between urban and rural achievement, and that expanding pre-primary schooling, especially in rural areas, is likely to be an effective strategy for increasing teacher productivity.

4. Policy Analysis of Recent Educational Reforms in Thailand

Analysis of recent educational reforms in Thailand further improved understanding of two aspects of the model discussed above: school management processes and teaching-learning processes.

Three patterns of implementation emerged. Moreover, the study identified factors that seemed to increase the chances of successful implementation (i.e., reforms actually implemented and demonstrating results congruent with predicted effects). The study concluded that the dual need of a reform for strong central

government support and increased local initiative during implementation created a tension that is especially strong in a country with centralized control of education and a tradition of deference to authority. Hence, successful reform may in some instances necessitate a reconstruction in which the idea of a revered authority who commands respect based on passive acceptance of position is transformed into the notion of a revered authority who commands respect as the result of fostering the active engagement of others.

5. Dilemmas in Using School Clusters to Improve Primary School Effectiveness in Thailand

The qualitative field studies of effective school clusters contributed to understanding how school management processes at the cluster level can influence the teaching-learning process at the school or classroom levels. The pilot study and current exploratory study showed that school clusters face certain dilemmas which affect the role they play and ultimately their effectiveness in contributing to school improvement and effective classroom learning. For example:

a. Which Role: Accountability or Capacity-building?

Imbedded in the authority of school clusters are two models for improving school quality. The accountability model uses testing, monitoring, supervision and extrinsic rewards like double promotions to stimulate greater effort by individual teachers. It consciously tries to create a competitive environment within schools and across schools in the cluster as a means for promoting school improvement. In contrast, the capacity-building model emphasizes collaboration and cooperation as ways to improve teacher performance. Leadership emphasizes participation in the belief that teachers, principals and cluster officials will collectively develop goals for improving the quality of education in individual classrooms. Collaboration and cooperation are believed to be more likely to increase teacher knowledge of content and pedagogy than waiting for programs to reach the schools from central levels. The

most important rewards are intrinsic, i.e., internal, as the result of participation in a team effort to define and achieve goals for improvement.

Studies of each cluster (the pilot and the official exploratory) showed that school clusters contain elements of both. While elements of both models were present, however, one clearly dominated in each cluster. It appears that school clusters must develop a profile and, to the degree clusters take on the accountability profile, then the anomalous administrative position of school clusters may well be resolved in the direction of becoming part of the hierarchal chain of command.

b. Reducing Disparities. The possibility exists that, instead of reducing disparities, the actual practice of cluster policies may serve to reinforce or enhance inequalities. One area under direct control of the cluster is the use of the cluster resource center materials. Given their immediate proximity to classrooms in the core school, careful thought and planning by resource center staff is required if disproportionate use by core school teachers is to be avoided. In both cases this problem existed with the core school benefitting more from the materials than the satellite schools the resource centers were designed especially to help.

Reducing disparities among schools in a cluster requires attention to more than just areas under direct cluster control, such as the resource center. An area of substantial inequality uncovered by field work on the official cluster lies in community contributions to local schools, another aspect of the teaching-learning process component of the model presented earlier. In this study the range of community contributions proved substantial.

Such contributions present a dilemma for school clusters. On the one hand, such funds represent critically needed local resources for schools and serve to bind schools to local institutions in mutually beneficial ways. There is considerable reason, therefore, to stimulate such contributions. On the other

hand, such contributions pose a challenge to efforts by a school cluster to equalize educational opportunities across its schools.

C. INTENDED OR ACTUAL RESEARCH PRODUCTS

Products to date reflect the integrated nature of the research design guiding the BRIDGES project in Thailand (conceptual framework, survey and field studies).

1. Conceptual Framework

- * "Research and Evaluation on the Quality of Primary Education," by Dr. Chinnapat and associates of the NEC. Using the construct of teacher productivity developed by this project, the researchers analyze the research literature in Thailand on input, process and output variables associated with primary school quality. They synthesize major policy emphasis areas defined by Thai national development plans and policy memoranda. Finally, they develop a series of indicators of school quality in Thailand.
- * "Increasing Teacher Productivity in Thai Primary Schools: A Review of Policies to Promote Educational Quality in Thailand," by Dr. Pragob Kunanak of Silpakorn University. This paper describes and analyzes Thailand's recent focus on improving the quality of teaching and administration in Thai primary schools. The paper describes ONPEC's integrated strategy that links one initiative to another, rather than pursuing a series of piecemeal efforts. The political and bureaucratic factors that made such an approach possible are also described.
- * "The Effects of Classroom Innovations on Student Achievement and Their Implications for Policy: A Meta-Analysis," by Dr. Suwatana Suwanketnikom of Chulalongkorn University. In this study she analyzes 500 classroom innovations studied by Thai master's and doctoral candidates to learn effect sizes, costs, and the amount of effort required by the teacher to implement the

innovation. It is still too early to identify specific conclusions from the meta-analysis of innovations in the teaching-learning process.

- * "Policy Initiatives to Improve Teacher Productivity in Thailand: An Essay on Implementation, Constraints, and Opportunities for Educational Reform," by Drs. Wheeler and Raudenbush and Ms. Pasiona. This paper analyzes nine important educational reforms of the past 20 years. It identifies factors that increase the chances for successful implementation, suggests lessons regarding enduring obstacles for improving quality that any reform might have to overcome and suggests some promising areas for policy initiatives.
- * "In-Service Initiatives in Thailand: Selected Examples and Lessons," by Dr. Claudette Ligons. Selected in-service initiatives from 1980 to the present are analyzed for elements that seem to explain their success and possible lessons for other Third World countries. Portions will be included in the paper, "Policy Initiatives to Improve Teacher Productivity in Thailand."
- * "Pre-Primary Educational Policy as a Vehicle for Improving Primary School Outcomes in Thailand," by Dr. Stephen Raudenbush, Somsri Kidchanapanish and Mr. Sang Jin Kang. A secondary analysis of the primary school efficiency data set, the study develops techniques for use in analyzing survey data to be collected specifically for this project. The paper also generates policy options based on the contributions of pre-primary education to mathematics achievement by Thai primary students.

2. Survey

- * "A conceptual Framework for School Effects Research in Thailand," by Dr. Stephen Raudenbush. This analytical

paper guided the development of the instruments for the survey. It draws on papers discussed above.

- * "Survey Instruments," by Drs. Stephen Raudenbush and Chinnapat. These instruments guide the national survey.
 - * "Costs of Primary Education in Thailand: Survey Instruments," by Dr. Mun Tsang. This document contains the cost analysis instruments included in the national survey.
 - * "A Plan for Analysis of the Survey Data," by Drs. Raudenbush, Tsang and Chinnapat. This paper will be the result of the September meeting. It will describe the various kinds of analyses to be completed for the December 1988 team meeting (Year Three) and associated responsibilities.
3. Qualitative Studies: A Case Study of an Effective School Cluster
- * "Data Collection Manual, by Dr. Christopher Wheeler. Developed originally during Year One (June 1987) after a training session, this manual was subsequently revised after the October pilot study. It guided the research for the exploratory case study of an effective school cluster carried out between January and June of 1988.
 - * "Lessons from Kohn Kaen: A Pilot Study of an Effective School Cluster," by Dr. Christopher Wheeler. This paper reports the findings of the pilot study. The major purpose was to show how multi-site data could be integrated into a set of findings that could be generalized across sites. It developed the concept of a facilitating or capacity-building role for school clusters, the major finding of our research.
 - * "Tentative Conclusions on the Role the Cluster Plays in Improving School Quality," "Enduring Issues for Policy-Makers in Thailand," "Conditions that Affect the Performance of School Clusters," and "An Outline for

Reports on Individual Schools: An Analytical Essay of 25-35 Pages," by Dr. Christopher Wheeler. This set of brief papers is designed to guide the writing of the report on the exploratory case study of an effective school cluster. The concepts in the papers will be incorporated in the report on the findings of the exploratory case study.

* "Improving Primary School Quality in Thailand: An Exploratory Study of an Effective School Cluster," by Drs. Jaithip Chuaratanaphong, Chinnapat Bhumirat, Christopher Wheeler and staff of the NEC. This report will analyze the effects of school cluster policies on primary school quality. It will also show the elements within schools that contribute to and detract from effective classroom learning. It will conclude with a set of policy options at both levels: cluster and school.

* "Primary School Quality: Case Studies of Effective Schools," by the staff of the NEC. It is anticipated that several case studies of individual schools for the exploratory study will be of such a quality that they can be published separately.

4. Low-cost Learning Systems

* "Reduced Instructional Time (RIT): A Study of a Low-Cost Learning System in Thailand," by Aida Pasiona. This paper represents work in process.

D. MAJOR CONSTRAINTS AND IMPEDIMENTS HINDERING THE CARRYING OUT OF THE PLANNED RESEARCH PROGRAM

The Year Two Work Plan called for survey results to be analyzed and papers to be written by September 1988. A draft of the exploratory case study was to be completed by June. Completing both initiatives would have enabled the September team meeting to develop the multi-site case study design to examine the meaning of particularly interesting correlations that emerged from the survey.

Those qualitative studies, it was proposed, would occupy the first half of Year Three, allowing adequate time to synthesize findings from the three methodologies, to develop alternative policy options, and to modify the MIS system before the project concluded.

The project is close to that schedule. The survey was implemented during January, as promised. Cleaning and coding the data, a task that could only be done in Thailand, proved more difficult than anticipated. Part of the problem stemmed from the enormity of the task. Preparing the data for coding and cleaning on approximately 12,000 students, 400 schools, 2,000 teachers, 400 principals with subsamples of 1,000 parents and officials at the national and provincial levels proved to be a very time-consuming and complex process. It had to be done with care, moreover, to avoid jeopardizing subsequent analysis. But careful work done over many days is only part of the answer for creating a useful, valid data set. The NEC has no in-house facilities for actually entering the data onto a computer tape; they have to use the staff and facilities of another agency. This requires fitting into that agency's time lines, a bureaucratic necessity that created a regrettable, but unavoidable, delay of nearly four weeks. Once the tapes are ready, additional preparatory work is needed, specifically the translation into English of key variables, before the process of variable construction can begin. For these reasons the variable construction and initial analysis phases are now planned for the September team visit. At that time the cost analysis data will be available in a form that can be analyzed at MSU. Analytical papers will then be written for presentation at the December 1988 team meeting.

Task magnitude and task complexity, the importance of careful, accurate work, and the need to use another agency's staff and facilities, therefore, have created a delay in meeting the time lines for the fourth quarter of FY 1988. Finally, to some degree a delay experienced in FY 1987 contributed to this situation. Originally, the exploratory case study was scheduled to begin

during FY 1987, but finding delays by BRIDGES, discussed in Wheeler and Raudenbush's June 1987 trip report, meant the project had to be started in FY 1988.

6. Yemen

A. FY 1988 ACHIEVEMENTS AND CLOSING REPORT

In November of 1986 it was agreed that the BRIDGES Project of Harvard University would supply a basic research component for the Educational Development Support Project (EDSP) proposed for assistance by USAID. Preliminary to the implementation of the EDSP, the BRIDGES Project would begin with activities that had the three following objectives:

1. to provide staff from the Ministry of Education (MOE) and the Educational Research and Development Center (ERDC) with training in analysis and research skills;
2. to provide key MOE officials with basic information on core issues of primary education to help them in policy formulation; and
3. to provide general background information about primary education to project implementors in preparation for the EDSP project.

The research conducted by BRIDGES in collaboration with the MOE was to be practically oriented, aimed at identifying successful practices already in use that might be replicated in other programs to solve basic problems of the educational system. Ministry officials also hoped that information from the research would provide them an empirical base with which to develop consensus about valid policy alternatives they might pursue.

In June of 1987 the project began with a visit to Yemen of Noel McGinn, Director of BRIDGES, and Andrea Rugh. During their visit they established MOE research priorities through interviews with ministry officials and by gathering relevant information from planning documents. As a start it was agreed to concentrate on a core set of priorities related to the quality of instruction and especially to problems of internal efficiency, i.e., high levels

of repetition and dropout. The key research question became, "What are the inputs required to raise the level of instruction so children remain longer in school and learn more."

During the June visit a research plan was developed and work was begun. The first year of activities was to have consisted of an analysis of already existing school data, while the second year would have included a field study to identify patterns of effective instruction in currently operating schools.

In February 1988 Andrea Rugh and Ernesto Cuadra made a second visit to continue the first-year activities of data reduction and analysis of the existing data base, and to visit schools in preparation for the second-year field study.

B. RESEARCH RESULTS

During the first year of the project, MOE and ERDC researchers recorded selected data from MOE records and a school location survey onto code sheets for input into the computer. The purpose was to identify those characteristics of teachers and physical facilities of schools which are associated with high and low levels of achievement on the grade six national examinations. This activity was to have been completed by the summer of 1988, when a member of the Statistical Unit of the MOE and a staff member of the ERDC were to have gone to Harvard to work on the analysis of the coded data.

The final analysis would have identified areas of policy relevance with respect to resource inputs and their effects on achievement. Already preliminary analyses of the data from the first completed governorate suggests a relationship between class size and achievement, and textbook availability and achievement under specific conditions. However, the preliminary data were not sufficient in numbers of cases analyzed for us to place much confidence in the results. Combined with the data from the remaining three governorates, the results would have proven more persuasive.

The data from the complete analysis were also intended to aid in the selection of a sample of schools for the second phase of the research. From the information about the schools, including achievement scores in the national sixth grade exams, we would have selected a set of schools where achievement was higher or lower than would be expected given the available facilities. In the second year observations in these under- and over-achieving schools would have been carried out to identify those teacher behaviors and characteristics of schools that contribute significantly to student learning. The purpose of the study was to determine what specific behaviors should be replicated through teacher training to increase student learning under currently existing conditions. During the February visit we visited schools in the Taiz area which met the criteria for the sample we planned to select.

C. INFORMATION

An important part of the BRIDGES project was to provide specific information about classroom learning as a preliminary to the upcoming Educational Development Support Project (EDSP). This information, generated through BRIDGES research, would have made it possible to pinpoint more accurately where the problems in classroom learning lie and to shape the activities of the project for more focused results. In addition, EDSP requires a substantial amount of monitoring and evaluation that could well have drawn upon the kinds of analyses and research skills BRIDGES was helping the MOE staff to develop.

Unfortunately, results of the analyses of existing data were not expected to be ready until the fall of 1988. BRIDGES has offered to continue the analysis of the data from the remaining three governorates at Harvard if the Yemenis can be persuaded to complete the data coding. Because it takes considerable time to locate the relevant data under the present system of information storage, this coding would require a commitment of effort that the Yemenis might be unwilling to make. However, unless attempted at some point, studies of the school location type will be largely

useless as they sit unanalyzed in the ERDC. This particular study, completed in 1985, is already rapidly becoming out of date.

D. CONSTRAINTS AND IMPEDIMENTS

A number of problems arose during the nine-month involvement of BRIDGES in Yemen that have had and would continue to have had an impact on our ability to carry on the work. These may be summarized as problems of insufficient staff in the ministry department with which we worked, other projects that competed for the same staff time, a government work day of only about three or four hours, an active Yemeni social life in the afternoons that makes working overtime not very attractive and only appealing when well compensated for, and the absence of someone on the spot who would take responsibility for trouble-shooting the work.

In addition, BRIDGES consultants were not able to obtain permission from USAID to visit Yemen in October 1987, December 1987 and January 1988 to maintain closer contact with the progress of activities, presumably because the MOE staff was occupied with more urgent commitments. It was therefore not until February 1988 that we were able to visit and straighten out some of the difficulties that had arisen in the coding activities since September 1987. Under such circumstances it is difficult to maintain the momentum of a project.

Some of the specific problems were as follows:

1. Loss of a Counterpart

After the summer workshop one counterpart was removed from the team by USAID because he was not meeting commitments to other USAID projects with which he was involved. His removal prevented the remaining counterparts in the BRIDGES project from continuing work coding data from the last three governorates since he took with him the procedures that had been utilized earlier for selecting samples. Even after a substitute set of procedures were sent to the Yemenis, however, the coders refused to work because they had not been paid for work completed in the summer of 1987. As a result, the analysis of the school location survey virtually

stopped between September 1987 and February 1988. The February visit therefore began with the task of trying to get activities moving again.

2. Payment Problems

During the June visit the BRIDGES Director made it clear that BRIDGES would be extremely reluctant to become involved in supplementary payments to MOE staff for overtime work, both because of the principle involved and because of an exceedingly limited source of central funding for BRIDGES work in Yemen. Because USAID/Yemen was anxious to involve BRIDGES, it was agreed at that time that USAID/Yemen would provide the funds for overtime work and contribute a small annual amount to the overall BRIDGES budget in Yemen.

The payment problems which delayed the data collection process occurred because AID/Sanaa quite rightly was unwilling to make payment until they were assured that the relevant work had been completed. Even though in June 1987 BRIDGES had understood that its consultants would not be involved in this payment procedure, it became clear during the February 1988 visit that BRIDGES would have to develop a schedule of reasonable expectation for the work and some sort of verification procedure to ensure the work was actually accomplished. The Yemenis by this point had used the ambiguity in procedures to bill USAID what appears to have been an excessive amount for the work carried out in the summer of 1987. During the February visit we carried out trials of the time that would be needed to complete the coding of the final three governorates and submitted approximate cost schedules to USAID.

3. Inadequate Supervision

A new residential technical advisor went to Yemen in the fall of 1987, and we were led to believe that he would be responsible for keeping an eye on our activities as well as those of the IEES project. However, he became so immersed in his own problems that it was clear he had little time left for anything else.

MOE and ERDC staff had drawn a sample of schools in Taiz governorate and coded all the appropriate information between the end of June and the end of July when they brought the data to Harvard for the summer workshop. When we left them at the end of August they were planning to continue and complete the same activities for the remaining three governorates of the sample. It was not until December that BRIDGES learned for the first time of the disappearance of the sample procedures and telexed a duplicate with detailed instructions to USAID for transmittal to the Yemenis.

Again, between December and February we assumed that activities were continuing because we heard nothing to the contrary from Yemen. It was not until the February visit that we learned that nothing had been accomplished since the previous summer. During the February visit we again worked out a system for drawing a sample in the remaining three governorates based on the formula they had used successfully to draw a sample from the Taiz governorate in the summer of 1987. Counterparts from both institutions assured us that they understood the procedures and would be able to complete the work in the following few months, but to be sure they had enough time, we gave them until the summer workshop at Harvard in August 1988 when one from each of their organizations were to have come to Cambridge to participate in a workshop on data analysis, using the Yemeni data. About a month after we left Yemen, the Yemenis sent word that in fact taking the sample was more complicated than expected in the new governorates and was going to take a longer time than planned. The work was therefore at a standstill again because they did not feel they could proceed without seeking our permission to change the payment schedules that had been drawn up for USAID.

These are all simple problems that could be overcome (if indeed we take them at face value and they are not symptomatic of other problems such as lack of interest or inadequate staff), but they become very difficult to solve from such a distance. The fact that we have had no one to follow up these problems who is familiar

with the work has been a critical deterrent to the progress of the project. At the same time, the project is not large enough, nor does it have sufficient budget, to warrant a full-time staff person on the spot.

4. Quality of the Data

Ernesto Cuadra spent a day at the ERDC with Samira Seif il-Diin, Head of the Documentation Section, clarifying the coding categories and checking anomalous data from the Taiz sheets that seemed to be in error. Overall, there were a number of problems with the school location survey both with regard to the kinds of information that were collected, and the ways in which the information was categorized. Nevertheless, we felt there was enough useful information to make the analysis worthwhile. Again, we might have benefitted from a person on the spot who could occasionally check for errors in the coding.

5. Minimal Availability of MOE Staff

During regular ministry working hours, which in practice extend only from 8:30 to 12:30 at the outside, the staff who were assigned to work on our project were fully engaged in developing a data base for the ministry with IEES. During our February visit these MOE staff discovered they would not be allowed compensation for work on more than one outside project at a time (IEES rules) and their interest in our project waned considerably, since IEES has a great deal more activity with the MOE than we do.

E. LESSONS LEARNED

1. Supervision

There is a need for close and continuous supervision of the research activities in Yemen. The BRIDGES practice of maintaining as little presence in a country as possible so local researchers will not become dependent on the consultants does not seem to have worked very well in Yemen. On the other hand, to accomplish this close supervision with current BRIDGES staff and budgets is not feasible. Ideal would have been the presence of a fully informed trouble-shooter on the spot, with some knowledge of field methods,

who could answer questions authoritatively in the interim while BRIDGES consultants were not available. None of the data problems were major, and all could have been solved easily on the spot. If such research or similar monitoring and evaluation studies are carried out under EDSP, provision should be made for this kind of supervisory person.

2. Staff and Time

The lack of available staff and the short hours of the ministry put severe constraints on the amount that can be accomplished in any project. If projects will require a great deal of overtime work, even when compensated, these hours should be negotiated before the project starts. It is unfair to put pressure on staff to give up their afternoon activities which are such an integral part of social life in Yemen unless there is a clear understanding that they are willing to do so. It is also important to negotiate how much of the official day, for how much of the staff, will be made available to a project. BRIDGES assumed from the beginning that much of the coding work would be accomplished during ministry hours, and we were unaware at the time of our agreement that IEES would be absorbing the large part of our counterpart time on a continuous basis.

3. Compensation

Compensation for overtime work has come to play a compelling role in counterpart motivation and tends to determine who is willing to work with us and in what capacities. Strict guidelines in what should be compensated only decrease interest in activities that are not compensated. Projections of estimated overtime costs reduces motivation because, as one project participant informed us, "Other projects pay more than yours," and presumably do not keep such careful records of what is actually produced. Yemenis are also careful to spread the largess equitably according to their own formulae, which means the project counterparts constantly change and it is difficult to build a base of skills in any core group of individuals. Part of the problem is that those with the motivation

to improve the educational system are people near the top who do not receive compensation, while the people who bear the brunt of the project work are lower down in the hierarchy and care more about how the project best serves their own interests. Spending long hours on data coding in lieu of a gat chew is not very appealing unless the money is very good. Perhaps the answer is to work in lump sums that are paid for a finished product and handled through those altruistically motivated officers further up in the hierarchy. Then they can play a role in seeing that the objectives of the project are met, by providing more staff, more time, etc.

Cutting the project short appears the only realistic way of responding to formidable constraints of staff and time that now plague the MOE. Under the circumstances it would be difficult to accomplish the objectives of the project, especially with the limited funding BRIDGES has available for Yemen. However, halting the project should not imply that the planned activities are no longer necessary for the improvement of the educational program in Yemen. Indeed, knowing how to pinpoint existing resources more precisely for better results in learning, and developing the capacity to look at educational problems empirically, remain just as significant needs for the system now as they were when the project was envisioned.

7. Egypt

A. ACTIVITIES DURING FY 1988 AND CURRENT STATUS OF THE EGYPT PROJECT

1. Analysis of the Organization, Structure and Major Planning and Policy-making Processes in the MOE

The design of an effective management information system (MIS) requires understanding of the production, transmission and use of data by the various decision-makers within the Ministry of Education (MOE). The objective of the organizational analysis which began in November 1987 was to identify the objectives actually pursued by the component parts of the MOE, the problems

faced in achieving those objectives and the information sought to resolve those problems, the data actually generated, and how the data was being used. A specific intention of the analysis was to evaluate the effectiveness of the current statistical system at the MOE in Cairo.

Following a three-day seminar which discussed cases about the production and use of information in the Ministry of Education, the research team began interviews with officials in the MOE. The team members included Reda Afifi, Director-General of the Statistics Department, Mamdouh Farid, Director-General of Planning, Jim Toronto and Noel McGinn.

Interviews were carried out in November with Directors-General and Directors in the departments of Primary, Secondary, Technical, and Teacher Training. Nine interviews were completed during this period.

The interviews revealed a consistent pattern of duplication of effort in the generation of basic data about inputs to the system, and absence of information about the performance or outcomes of the system. For example, each of the departments of Primary, Secondary and Technical Education collects data from schools with respect to enrollments, teachers, headmasters and facilities. The data matches almost exactly that collected by the Department of Statistics and is collected at almost the same time during the year. The same personnel (supervisors or inspectors) are involved in the collection process, but slightly different data collection forms are used. The Director-General of Statistics had not previously known of this duplication of efforts. He was told by his colleagues that his data were made available to them too late to be useful in their decision-making process. At the same time, it appeared likely that the data collected within the departments was of lower quality in terms of reliability.

The data collected are used by the departments to assess the needs for additional inputs (e.g., teachers, buildings) to the system. In only one department were data analyzed to suggest ways

to improve the quality of the instructional process. In most cases it appeared that the use of inspectors or supervisors to collect data for planning limited their ability to counsel teachers on how to improve instruction. Information on the impact of curriculum materials is limited to teachers' opinions about their suitability--no measures of student achievement are used to assess the impact of textbooks or curriculum units. In one department comparisons are made across governorates (and across districts within governorates) to suggest which units are functioning more effectively. These analyses are carried out by hand and were necessarily limited in scope. They also were unrecognized by the system (i.e., there has been no feedback on reports submitted to superiors).

Continuation of interviews for the organizational study (to cover the entire MOE) was interrupted by work on development of the Educational Planning Unit (EPU) proposal. As a consequence, by late July there remained about 10 interviews still to carry out (with 23 completed).

2. Development of a Computer-based Prototype of the February National School Census

School data are collected in November and February. The February census deals primarily with personnel data. In November 1987 Tom Cassidy and a team of 12 collaborators from the Departments of Planning and Statistics, and three pilot district education officers, spent three weeks working on the development of a prototype for improved data collection, storage and retrieval. This included a review of current collection instruments and procedures and analysis of the way data collection was organized. Following modification of the data collection form, an initial computer-based prototype data collection form and data storage system were developed. The prototype system, developed in a collaborative fashion in Egypt, was refined between December and February at Harvard. In March Cassidy returned to Egypt, at which time the prototype was further refined following discussions with

the Director-General of the Statistics Unit and other Egyptian members of the prototyping team. Field testing of the prototype was to have been conducted in March, but this was interrupted by Cassidy and Toronto's involvement with the EPU planning team. Field testing of the prototype was carried out in April in three pilot governorates by Toronto and members of the Statistics Unit.

Experience with both the organizational analysis and development of a computer-based February data collection system clearly demonstrated the isolation of the Department of Statistics from other departments of the MOE, i.e., data forms are not made in response to operating departments' data requirements. Data collected in February could not be supplied in time to be used by other departments for their planning purposes. Even with advanced technology, it is unlikely that data would be made available when it is most needed. In short, the institutional analysis carried out indicated that the February census should have been moved to an earlier date, or perhaps eliminated altogether. It also showed that personnel data should be collected together with school and student data in a single annual national school census to save time and effort.

3. Analysis of Decision-making in Costs and School Finance

In response to a request by First Undersecretary Soliman, in November Tom Cassidy worked with the Director of Finance, Abdel Monem Tabi, on the development of a computer-based application for tracking and reporting the budget chapters used by Planning for tracking and determining required resource allocations. This work was continued in March by Ernesto Cuadra, who completed a preliminary version of the software for three of the four budget chapters.

Software of this kind will greatly facilitate the work of recording and tracking cost and finance data, and aid with the preparation of reports by the Finance Division. This initial software is based on current practices in Planning. Required is further work on the specification of required cost and finance data, and the development of an interactive software package for

recording, tracking and projecting cost and finance data that can be used by persons who are not experts on the microcomputer. BRIDGES had planned to work on these objectives during April and May, but activities associated with the proposed educational reform necessitated cancellation of the proposed visits by specialists in this area.

4. Review and Synthesis of Educational Research Done in Egypt

A contract was signed with Gamal Nuweir of Ain Shams University College of Education to conduct a review of educational research done in Egypt over the past 25 years. This review was essential to the specification of research priorities for reform of the education system. Professor Nuweir provided a comprehensive bibliography in English of published and unpublished studies in Arabic, prepared detailed abstracts of the 50 most important research papers or books, and prepared a synthetic review of the research. Noel McGinn and Jim Toronto met with Nuweir in June and reviewed progress to date. A draft of the review is expected in October 1988, and the final paper will be ready by November.

5. Support for the Design of the Educational Reform and the Educational Planning Unit

This activity was not contemplated in the FY 1987 work plan submitted last September, and BRIDGES participation in this activity, at the request of AID/Egypt, necessarily reduced time on planned activities. The strong parallels between the requirements for planning of the reform and the EPU, and the original BRIDGES objectives, fully justified this diversion.

Central to the proposed reform is the reformulation of the structure and process of educational planning. This is to be accomplished through the creation of an Educational Planning Unit (EPU). The EPU will greatly expand the responsibility of the current Planning Department within the MOE, seeking much closer coordination between national and governorate levels of government, extensive use of research and evaluation in the formulation of

educational policy, creation of a national system to collect and process educational statistics, and the utilization of techniques of computer modelling to plan and manage the system.

In November of 1987 Cassidy, Noel McGinn and Jim Toronto met on four occasions with Dr. Ezzat Mawgood, who had been appointed by the Minister of Education, Dr. Fathi Sorour, as the person responsible for developing a reform plan. Several short papers with suggestions for implementation of the reform were written by Tom Cassidy and Jim Toronto. In December 1987, again in response to a request from AID/Egypt and Dr. Mawgood, Cassidy, Davis and McGinn, working at Harvard, prepared and sent recommendations to Egypt for the structure and implementation of an Educational Planning Unit. During January and February BRIDGES recruited for AID/Egypt a team of consultants to prepare a proposal for the EPU in Egypt in March. The team included Drs. Hans Weiler, David Woodward, Gary Theisen and Rawia Fadl. Professor Donald Warwick of BRIDGES was to have headed the team but was unable to do so because of illness. Jim Toronto and Tom Cassidy provided additional support to the team, and a finished proposal was delivered to AID/Egypt in early April.

B. IMPLICATIONS OF THE EPU PROPOSAL FOR BRIDGES ACTIVITIES

Full-scale work on the implementation of the EPU proposal will begin after April 30, 1989, through a bilateral agreement between USAID/Egypt and the MOE. Given the close parallels between the initial objectives of the BRIDGES project in Egypt and the proposal for the creation of the EPU, no major changes were required in the orientation of activities of BRIDGES prior to initiation of the bilateral agreement. BRIDGES' participation in the EPU project will end after April 1989. The incorporation of activities under phase I of the EPU project into the existing framework of BRIDGES activities is intended to facilitate the more efficient implementation of the EPU project.

The new BRIDGES work plan proposes a series of activities which will be both consistent with the original BRIDGES project and

which will speed up the implementation of the EPU project. Many of these activities are a continuation of those already being undertaken by BRIDGES staff. Included are activities which will make available to the MOE and USAID/Egypt products resulting from research being carried out by the BRIDGES Project in other countries.

8. Women in Development (WID) Activities for FY 1988

The WID project is an activity sponsored by USAID's WID/PPC Office in Washington D.C. The project was recently completed in August 1988. The purpose of this project was to improve our understanding of the educational status of girls in Third World countries through the collection of quantitative educational data on issues that reflect gender access to education and the collection of more detailed information on educational policies as well as descriptive data related to women's access to education in five USAID assisted countries.

A. FY 1988 ACTIVITIES

Six major activities were carried out to achieve Project objectives:

1. Brief review of the literature on women's access to education. The purpose of this review was to define what information was needed to understand the educational status of women.
2. Collection of data from pre-existing sources for 70 USAID assisted countries in the categories identified by the literature review.
3. Visit five selected countries to gather data on policies implemented by the governments to increase women's access to education and to compile information about the quality of the data being used by the governments.
4. Design of a data base system to store and present the information that was collected for the 70 USAID assisted countries, to analyze these data, and to project educational enrollment by gender.

5. Organization of a seminar where a framework for analyzing gender-related issues in the area of access to education and the data base was presented to specialists in the area of women in development and education.
6. The writing and presentation of a final report containing a description of the database and the results of the research undertaken during the project in addition to projections on educational enrollments.

The five countries selected for study under activity number three were Yemen, which was visited in February 1988, and Mali, Sri Lanka, Nepal and Indonesia, which were visited in June 1988. In each of these countries at least a week was spent interviewing educational policymakers, principals, teachers, educational researchers, and people involved in the area of women in development. Time was also spent at each MOE collecting more data on women's access to education and gathering information to assess the reliability of the data used from UNESCO sources.

B. DATA RETRIEVAL SYSTEM

The information collected for the 70 USAID-assisted countries was originally organized in a data base package called RBSYSTEM V and in LOTUS. Due to the limitations imposed by these packages, especially with respect to their ability to carry out a search of the data base and for data analysis, the final version of the data base was developed under using a HOST modeling system. The acronym of the data base is GENDER which stands for Gender Education and Reporting System.

Because GENDER was designed using a HOST base, it can use elements of the STEP system for the projection of various educational indicators by gender. In addition to the projection component, GENDER has a data query feature which allows the user to extract information from the data base according to specific user-defined criteria. Another two components of gender are a graphic device and a customized table generating tool.

A prototype of GENDER was presented to PPC/WID Seminar in August 1988. Gender is now being revised to incorporate suggestions given by participants of these two meetings. It will be ready for distribution shortly.

C. THE WID SEMINAR

A seminar on "Education for Girls: An Undervalued Resource for National Development" was organized in Washington DC during August 17 and 18 to present both the results of the research carried out under the WID project and the GENDER data base. The seminar was attended by 35 participants from The World Bank, Peace Corps, International Center for Research on Women, Creative Associates, Institute for International Research, IEES, RTI and Bridges/Harvard.

The final report of the project titled "Female Access to Basic Education: Trends, Policies and Strategies" was presented during the August Seminar. This report is now being revised to address important issues raised by participants at the August Seminar. It contains a description of the WID data base, an analysis of women's access to primary, secondary and higher education in 70 USAID assisted countries during the period 1975 to 1984, and an analytical framework designed to help policymakers to group countries along access to education and gender disparity dimensions and also progress both in access and disparity. This framework was conceived as a tool to facilitate the formulation of relevant research questions, and for guiding policymakers in their evaluation of past policies aimed at increasing women's access to education.

D. SYSTEMS FOR THE PRESENTATION OF INFORMATION

A. SUMMARY OF KEY FY 1988 ACTIVITIES

1. Completion of System for Tracking Educational Progress (STEP)

During the fiscal year the final version of STEP was completed. Work on STEP during the year included:

- design and implementation of a simplified cost module;
- conversion of STEP to version 3.0 of Host;
- debugging and error trapping;
- development of documentation including:
 - a color brochure;
 - a "STEP by Steps" tutorial;
 - a revised User's Manual.

2. Regional Education Projection Methodology

During the year Dr. Oleh Wolowyna, an RTI demographer, began work on a draft concept paper on the development of a multi-regional projection methodology for projecting student enrollments. The methodology may be applied to Indonesia and/or Egypt and/or Pakistan depending on BRIDGES project developments in those countries.

3. Educational Planning Model (EPM)

In FY 1988, work began on this important model/software system which will become the focal point of much of BRIDGES dissemination work during the final years of the project. Initial conceptualization and design of EPM was carried out and discussed during meetings with Harvard, AID and MSU staff. Alternatives for the software approach were explored.

4. Education Impact Model (EIM)

An initial version of this model was mapped out. An international data base for estimating the model's coefficients was established. Also, a review of the literature on external linkages of educational attainment to socio-economic variables was conducted. The literature review is being used to identify the relationships in the model but is also of interest as an adjunct to the model.

The EIM model will show the costs and benefits to the national socio-economic variables was conducted. The literature review is being used to identify the relationships in the model but is also of interest as an adjunct to the model.

The EIM model will show the costs and benefits to the national socio-economic system of investments in education. The first version will have relationships estimated from an international cross-section data base (possibly an extension of the WID data base). The software will be in the form of a Host-based model but will also be usable under the "Host presentation shell" which is being developed (see section 6, below).

5. BRIDGES Education Policy and Planning Game

In FY 1987, a first version of this Game was developed as an extension of the RTI-developed U.N. Population and Development Game. During this year, additional features have been added to the Game, including a budget constraint. Alternative data bases will also have been developed and documentation drafted, including a Technical Description and a Player's Manual.

6. Host System Development

Since so many of the BRIDGES developed models use the RTI developed Host modelling system, limited support for enhancements to that system has been given under BRIDGES.

- * Graphing routines developed in FY 1987 have been further tested and documented.
- * Design for an interpolation/targeting routine was started for the Editor.
- * Design for a Lotus 1-2-3 import facility was started.
- * Design for a "Presentation Shell/Interface" was implemented through a prototype for use during presentations of results of models or by users wishing to use a model for a limited number of tasks.

7. Women in Development Data Base and Projection Module (GENDER)

In conjunction with Harvard, AID/S&T/ED, and AID/PPC/WID, RTI took the Harvard-developed international cross-section data base and developed a data query and reporting/graphing system. This will allow the user to ask the software to sort out the data according to user-defined criteria and to display it in

preformatted tables and graphs. In addition, the software includes most of the STEP routines which analyze and project certain key variables (enrollment, cohort analysis, population, teachers and schools required).

Projections for a sample of 20 countries were prepared and a report prepared on the projections as well as a description of the GENDER software. A color brochure was printed for dissemination and publicity purposes.

8. Country Activities

Pakistan. During the year, training in STEP took place as well as some methodology training for four Pakistani participants during the Harvard Summer workshop. In addition, in-country training took place during a June workshop for Pakistani participants.

Initial work and conceptualization took place concerning the development of a Pakistan-specific version of the STEP system. Additional country strategy development work also took place.

A set of provincial projections were prepared using the STEP model and data brought back from Pakistan. These projections were prepared at the request of the USAID mission.

Burundi. During the year, work continued on the "Domain 1" and "Domain 2" activities, in particular Domain 1. Two trips to Burundi were carried out and significant progress was made. Initial data analysis of the 25 firm sample surveys took place and a first draft of a report on the findings was written.

Egypt. During the year no RTI in-country work took place in Egypt. However, some of the central modeling work was germane to the proposed scope of work for Egypt and is preparatory, to the two workshops planned for FY89. In particular, the work of STEP and EPM are relevant to Egyptian needs.

9. Dissemination Activities

During the period a number of significant dissemination activities and opportunities took place. In addition to the STEP color brochure, RTI prepared a BRIDGES project Story Board computer

slide show which explains the BRIDGES project. A brochure on the GENDER system was also published. Luis Crouch and Scott Moreland published articles in the Development Communication Report on education planning software and on simulation games.

Events at which the BRIDGES software was shown by RTI staff have included the following:

- * First BRIDGES Annual Meeting, RTI, North Carolina;
- * IEES Meeting, Florida State University, Florida;
- * International Institute for Educational Planning, UNESCO, Paris;
- * Harvard Summer Workshop, Harvard;
- * WID Seminar, Washington, D.C.;
- * Ministry of Education, Mogadishu, Somalia;
- * World Bank, Washington, D.C.;
- * RTI Executive Committee of the Board of Governors;
- * World Bank-organized workshop in Vancouver;
- * AID education officers, Washington, D.C.

10. Training Activities

Three main training activities were completed during the year. These included:

- * Use of the WID software for AID/Washington;
- * Use of STEP and the Game during the Harvard Summer Workshop;
- * STEP training in Pakistan;
- * STEP and advanced modeling training for a Burundi education official at RTI.

11. First Annual BRIDGES Meeting

RTI was selected as the site of the First Annual Bridges meeting which was held in January, 1988. The meeting was attended by principal collaborators of the BRIDGES project in the various countries as well as AID, other BRIDGES collaborating institutions and the IEES project.

RTI and Harvard worked together on the planning, organization and execution of the meeting.

12. Modeling and Simulation-Gaming

Part I: Summary and Schedule of Activities for FY 1988.

During FY 1988 progress was made in several areas of simulation gaming.

a. Model Design and Analysis. Following advice given by previous consultants, several games were selected for their use in training programs for educational policymakers and planners in developing countries. Three game models were analyzed for several characteristics including design, technological requirements, interactive capabilities between participants and computers, typology, data representation, reliability and validity. The purpose of this inquiry was to help us to determine the characteristics most helpful in the design of a game for use in Project BRIDGES.

b. Selection of the Game Objectives and Parameters. The subject matter selected for the simulation was the factors which hinder and/or promote access to education and retention at the scale of the family with particular attention to the ways that a national policy can have varied affects according to location, gender and income groups.

The purpose of the game was determined for its use in the context of a training program to introduce the (a) various ways that data can be used in both aggregated and disaggregated forms and (b) the affects that policy decisions based on aggregated or disaggregated data might have on different populations (i.e. male/female; rural/urban; rich/poor).

c. Model Development. Several models were considered by BRIDGES staff and considered for further development. Two models were developed simultaneously: One simulating the policy aspects to concerning access and retention rates in the context of a developing country and the other simulating the village side of access. A computer prototype of the policy model was developed and presented at the CIES Conference in March for discussion. The prototype of the village model was developed as a board game.

B. RESULTS AND CONCLUSIONS

Project BRIDGES now has two prototype models concerning two sides of the larger model simulating access and retention rates in the Third World. Each of these needs to be reviewed and further work is needed to combine the two models.

C. CONSTRAINTS AND IMPEDIMENTS

The two major constraints that have affected the development of the Access Simulation concern data and time requirements. Both games currently in development lack the validity that can only be provided by hard data. Project BRIDGES has recently gathered data from Pakistan which can now be applied toward further development of the game. Concerning time requirements, this project has been coordinated by Christina Rawley through one research assistantship position. More time is required from more people if this project is to produce a usable product. During the period February-May two other students worked with the coordinator on the village access model as part of class course credit in Educational Planning. Plans for a similar arrangement are being made for the coming year to complete the model.

E. TRAINING

1. Pakistan

Each of the visits by BRIDGES staff to Pakistan during the year involved some form of informal or "hands on" training. For AEPAM staff this included:

- a. a three-day review on sector studies in education;
- b. a two-day review of previous work on management information systems;
- c. a 10-day visit to three provincial departments of education in which participants interviewed officials and systematically reviewed their conclusions;
- d. supervised observation in schools to assess instructional practices;

- e. supervised interviews in district education offices, schools and households with respect to enrollment; and
- f. supervised visits to schools to assess school facilities.

Systematic training in microcomputer use and data entry was provided to staff of the Planning and Monitoring Cell in the Sind Department of Education.

Two formal training sessions were carried out in the AEPAM by BRIDGES. These included:

- a. a three-day seminar on the costs and financing of education; and
- b. an eight-day seminar on applications of microcomputers to problems of educational planning and policy analysis by Mary Rice and Tom Cassidy.

Two members of the AEPAM staff travelled to Harvard for participant training. Abdul Ghafoor worked with Don Warwick and others for 10 days on the design of the plan for research activities in Pakistan. R. A. Farooq worked with Andrea Rugh for three weeks on the design of instruments for use in the classroom observation study.

2. Sri Lanka

BRIDGES began work in Sri Lanka at the time the Ministry of Education was establishing a new professional arm, the National Institute of Education, with the Research Division as a core unit. All of our research activities have had an implicit training component, as we have been working with newly recruited staff that had limited experience. Thus, along with the formal training activities in which we have participated, we also have been involved in informal on-the-job training at every step in the above research. Both the Secretary of Education, Mr. E. L. Wijemana, and the Director-General of the National Institute of Education, Mr. D. A. Perera, expressed their sincere gratitude to BRIDGES for its assistance in launching the Research Division. From no staff, it now has a Director, five Senior Project Officers, one Assistant Project Officer, and will soon have two new Project Officers. NIE has hopes for sending some of its future junior staff on long-term

training programs and may nominate up to two people for the 1989 BRIDGES summer workshop. In addition, over the past year we have organized a number of one to three-day workshops to carry out training in such areas as Attitude Measurement, Statistical Analysis, Conduct of Field Work, Preparation of Field Reports, Word Processing.

As we move into the third and final year of BRIDGES work, we intend to turn an increasing proportion of the responsibility of all phases of project management and analysis over to our Sri Lankan colleagues and to reduce the number of trips we take there. In this manner we hope to promote self-reliance, which is perhaps the most effective training approach.

3. Thailand

A. QUALITATIVE RESEARCH METHODS

During the second week of the October team visit, Dr. Wheeler, assisted by Ms. Passigna, conducted the final training session for NEC researchers in qualitative multi-site case study research methods. This training was held in conjunction with the pilot study of an effective school cluster in Kohn Kaen province.

B. COST ANALYSIS

During the first week of the October team meeting, Dr. Tsang conducted a seminar on educational cost analysis for NEC staff and Dr. Atchana of Thammasat University in Bangkok. He discussed the implications of cost analysis to educational policy-making, how costs can be taken into account in the study of primary school quality, and the features of a national data base for costs of education.

At the December team meeting he worked closely with two Thai collaborators on the design of survey instruments for collecting data on the costs of primary education. Field experience in applying the methods learned occurred through interviews with school principals and educational administrators on issues regarding educational costs.

C. SURVEY

It would be a mistake to view the learning that has occurred and will continue to occur in the context of the survey as "training." NEC staff have considerable experience in the conduct of surveys and in data analysis. The learning process is a collaborative one. U.S. researchers have learned a great deal, not only about the context of Thai education and educational policy-making, but also about the logistics of conducting a national survey. Thai researchers will learn about appropriate methods of analyzing the kind of multi-level data routinely yielded by a large-scale survey of schools and classroom effects.

The U.S. and Thai researchers are engaging in a collaborative process of critically evaluating current conceptions of the linkage between research and policy. The alternative conception under development, stimulated by the BRIDGES' viewpoint, involves utilizing data to help "model" or simulate alternative courses of action in order to improve the decision-making process. This conception contradicts a more traditional one in which researchers recommend actions that seem to follow directly from findings. This exercise may be viewed as a "mutual training" process.

4. Burundi

During the current year extensive informal training has been provided to CPF and the Ministry of National Education in the following areas:

- a. project management, with emphasis on meeting the accounting expectations of a USAID project;
- b. conceptualization and research design;
- c. instrument development;
- d. interviewing;
- e. classroom observation; and
- f. data coding and data management.

This training was conducted during three visits of the total BRIDGES team in November 1987, February 1988 and May 1988, each two weeks in length, plus a special one-week training workshop for

research assistants, which was conducted by Robert Prouty and CPF colleagues. The value of the training in interviewing and in classroom observation is already apparent in the field notes taken by the research assistants. When the interviews and classroom observations were first pretested before the training, the need for training was apparent. The field notes reviewed after the training showed much improvement and were of generally good quality.

5. Indonesia

The participation of Mrs. Widodo in the BRIDGES annual meeting at RTI was a form of training. Not only did she benefit from gaining a clearer understanding of the range of BRIDGES activities, but she also was able to confer with D. Nielsen on issues of coding, sample patch-up and data analysis.

An intensive one-week training workshop was held at UTRC during D. Nielsen's visit. This training covered coding and recoding, data reduction, scaling and data analysis. Five members of the UTRC staff were involved. D. Nielsen was the trainer, assisted by Dr. Aria Djalil, Director of UTRC. In addition, a full day's discussion of the research design for the "phase II" cost-effectiveness study was considered to be a form of training on research design and project development. This was attended by the five UTRC staff members as well as three other UT faculty members who are expected to assist in the phase II study. The output of these training events were:

- a concrete work plan for the finalization of the data analysis for phase I research (costs and expected benefits); and
- a research design and work plan for phase II research (cost effectiveness of alternative teacher education programs).

The workshops to be held in July and September will also be occasions for "within-project" training. Trainees will be the UTRC staff members and associated researchers. The trainers will be D. Nielsen and Aria Djalil.

6. Harvard Training Workshop

A. INTRODUCTION

During the month of August 23 educational policymakers, planners, computer programmers, professors and administrators from nine different countries came to Cambridge to attend the BRIDGES Workshop on Educational Policy Analysis and Planning.

Participants included 10 Egyptians, 5 Pakistanis, 3 Indonesians, 1 Burundian, Sri Lankan, 1 Thai, 1 Tunisian, and 1 West Indian. Training represented a wide range of professional interests and backgrounds, but all had major responsibilities for either planning or policy analysis in the educational sectors of their respective countries. The majority of the participants came from the public sector, one came from the Aga Khan Foundation, a private voluntary organization involved in an extensive school project in the north of Pakistan, and another came as a planner and project manager from the regionally supported University of the West Indies in Barbados. Deputy Minister, Mohammed Ezzat Abd El-Mawgood hand-picked for the workshop the block of 10 Egyptians who will assist him in implementing the new educational reform. Members of this Unit will translate the latest plans of that ministry into concrete strategies when they return to Egypt. Three relatively high ranking Pakistanis were sent by USAID, and the fourth was sent by the Academy of Educational Planning and Management.

BRIDGES is mandated under the cooperative agreement with USAID to conduct two of these workshops and to produce a set of training materials that could be used in other settings. The summer of 1988 witnessed the second of these workshops and the production of a set of training materials that links conceptual information with practical exercises. Having fulfilled its contractual obligations, two questions arose out of the experience of these workshops: 1) were they generally worth it, i.e., did the workshops serve a sustaining and relevant benefit to the participants? and 2) if they are to be continued, what form should they take, or what have we

learned from these two initial experiences that would improve on subsequent training exercises? An evaluation was carried out to try to provide answers to these two basic questions.

C. ISSUES EMERGING FROM THE EVALUATION

A majority of the participants indicated in the final evaluation that the social orientation within the workshop was good. While this may seem gratifying to the support staff working in BRIDGES, the participants only saw a fraction of what really went on. In the pre-workshop preparation period, Shirl Schiffman, a paid consultant who produced the finished materials for the workshop, and her team used scarce computing and other office resources.

1. Training Site and Equipment

This year's training course took place in the Media Center of Gutman Basement, HGSE. The Media Center was ideally suited for computer instruction as there were facilities for projection and demonstration on a large screen (a blank wall). At times there were technical difficulties using various forms of projection, which caused delays and uncertainty among supporting staff and workshop professors.

The evaluations also indicated that participants preferred to have their own machines rather than share them with partners. Yet only one person in the final evaluation mentioned having a problem with a partner.

The positioning of the machines was found to be important. Originally they faced the wall opposite the lecturer. Instructions written on the blackboard meant constant turning around resulting in confusion or loss of information. At the beginning of the fourth week, however, Scott Morland from Research Triangle Institute (RTI) repositioned the training computers so that the operator faced the front, allowing participants to follow the operations and commands of the lecturer as these were being performed. This greatly improved the communicability of computer skills from the lecturer to the participants. Repositioning the

computers seemed to unify classroom instruction and intensify participation. This was a logistical task that had instructional consequences.

2. Extracurricular Activities

With few exceptions the participants appreciated the scheduled weekend activities. They represent a much-needed diversion from the focused intensity on computers during the week. Also, many of the participants wanted to learn about American life and appreciated being given the chance to meet American families.

D. EVALUATION CAVEATS

Most of the data collected about teaching and content issues came from the evaluations filled out during the workshop. There were a few problems with these evaluations, and results need to be interpreted with two provisos. One is that not all of the participants filled them out each week. During the third week only 11 participants responded. Energy at this time was low, and the extremely hot weather may have contributed to the weariness felt by all who participated. For the final evaluation, the author only received 14 questionnaires. Secondly, in many cases the evaluations were filled out collectively by either the Egyptians or by the Pakistanis and the Indonesians. This discouraged individuals from expressing their own opinions. There may also be a cultural tendency for many participants from developing countries to withhold giving a written or formal response on issues related to training. In spite of these imperfections, there was reason to believe some of the results may be verifiable through an observation of those who were there and through the interviews held with each participant.

1. Presentation Issues

Asked if the participants understood the lectures and readings from the standpoint of language, many strongly indicated that they understood. The top ranking of strong understanding was consistent over time and applied to group discussion contexts as well. As strongly ranked as these might have been, it was apparent that

"understanding" may have been over optimistically ranked in some cases, as people were having difficulty using the concepts and integrating them either into computer applications, exercises or discussions about theory. Some participants' difficulties with English added support to this observation.

Questions were asked about understanding specific points or subjects covered in the lectures or demonstrations. Like the question about understanding the lectures and readings, rankings were optimistic and high except in one area: the material on educational policy research and presentation. In the questionnaires the participants consistently thought that the material in the loose-leaf binders was highly organized, but that it was only moderately complex. Participants were also asked if they had been able to complete their weekly readings and all replied in the affirmative.

For the most part, the software presented throughout the training period was successfully executed. In the final evaluation participants ranked HOST/STEP as best executed (probably because it was the last and freshest in their minds), but also ranked SYSTAT, Lotus 1-2-3 and R:BASE System V high as well. Other software programs were demonstrated, but not enough time was given to practice them in depth. The reason that SmartForecast II received such a low rating was due to this fact. In spite of the high ratings among some software presentations, there were difficulties with some of them. Some programs would not run on the first try (e.g. Lotus, IFPS, SYSTAT) which resulted in frustration by the professor, extra time spent demonstrating the application and loss of confidence in the program among participants. In some cases the programs did not run for technical reasons, e.g., a faulty disk or incompatible equipment, but in other cases, the professor had not run the program prior to the demonstration to work out any problems. During the first two weeks there was a tendency to introduce too many Lotus applications or other software

packages, resulting in information overload among some participants.

Asked if the professors were responsive to questions and if they indicated a knowledge of planning and policy environments in their countries, participants ranked this item highly and consistently throughout the training period.

Did the readings cover too much ground? Apparently not, and the same seemed to be true for lectures and hands-on computer exercises. During the workshop participants were moderate or ambivalent in their assessments about the pace at which materials were being covered. The final evaluation, however, indicated that the material was presented too quickly and that clarity of presentation was only "fair" to "good." The workshop organizers, it seemed, were successful in providing the proper mix between emphasis on lectures, demonstrations, hands-on, discussion, group activities, and the ad hoc evening seminar.

2. Lab Assistants

The role of the lab assistants was to provide a vital face-to-face component to help bridge the gap between theory and the computer-applied demonstrations and assignments scheduled throughout the workshop. In this sense they assisted the professor in accomplishing his instructional objectives and interacted with participants by helping them carry out their assignments during practical sessions. Participants rated the lab assistants very highly in their assistance to them.

3. Conclusions on Presentation

With a few minor exceptions, participants rated teaching very highly, teachers responded well to questions about problems within specific country contexts, the demonstrations of state-of-the-art software were impressive, and there was evidence that many attending the workshop would go on to use the skills gained at Harvard to improve the effectiveness and efficiency of their respective planning operations.

D. WERE THEMATIC GOALS MET?

This workshop covered three basic themes: 1) computer skills being used in 2) educational policy analysis and 3) educational planning. Questions asked in this part of the evaluation focused on the degree to which the material was relevant to the participants and the extent to which the current curriculum needed modification.

It can be said without hesitation that the workshop was considered a valuable learning experience by most participants with varying roles and responsibilities in educational planning or policy. There were some policymakers in high positions of responsibility, there were some senior policy analysts, and there were computer programmers who had no experience with modeling programs such as Lotus, and there were also some statisticians who had little or no experience analyzing data for their policy implications. In all three levels of basic competency emerged those with: 1) high to low analytical competencies, i.e., those who analyzed data as a regular part of their job; and 2) those with some computer modeling experience.

E. BRIDGES FIRST ANNUAL INTERNATIONAL CONFERENCE

The First Annual BRIDGES International Conference was held at the Research Triangle Institute in Raleigh, North Carolina, January 25-30, 1988. The two major objectives of the conference were: 1) to provide education decision-makers from developing countries with an opportunity to share their knowledge and ideas about the kinds of policies most likely to improve the quality of education; and 2) to evaluate the strategy and progress of the BRIDGES Project in terms of educational experiences and needs in various countries.

The conference included key members of ministries of education from several developing countries as well as team research leaders from American-based universities, all of whom are participants in this state-of-the-art, collaborative educational policy research effort. Among the many themes which emerged from the fruitful exchanges between the North-South participants, the most dominant

was the proposal that the "systems approach" be applied to the various emerging policy research endeavors. There was a consensus among the participants which was critical of the atomization of research variables as reflected in a widely expressed uneasiness over the use of lists of variables without a context within which to measure their contribution to the learning process.

The conference was carried out in four main phases. During the first phase, discussions were generated around the six policy domains which BRIDGES has identified as central to its research efforts across countries. These are physical resources, teacher training, teacher characteristics, classroom management, school management, and learning technologies. Presentations of work planned within each domain were made by the research team leaders. This phase also included an in-depth presentation of an example of BRIDGES research being carried out in Thailand.

The second phase focused on summary reviews of the BRIDGES research program in which a panel of country participants described the country-specific research being carried out with BRIDGES. In their presentations, they attempted to describe the projects in terms of how correct the research themes are, whether the projects are well-designed, and the appropriateness of the presentations of proposals. This part of the conference ended with a presentation by the Secretary of Education in Sri Lanka, Mr. Wijemanna, who very eloquently challenged researchers to assess the utility of basic education in each of the contexts being considered.

The third phase was devoted to a presentation of the software and data development part of the BRIDGES Project. This phase was divided into three sections: 1) an outline of the educational data analysis, projections and management information system which is being developed and implemented for Indonesia; 2) an update of the progress being made in the Women-In-Development data base subproject; and 3) a description of three educational planning models (STEP, EPM and EIM) being developed by RTI under the project.

During the final phase of the conference, the participants discussed the future agenda of BRIDGES and, in particular, they considered: 1) the overall research agenda, 2) software development, and 3) the information network. This part of the conference had the specific objective of providing inputs to help BRIDGES management to improve support being provided to the participants in their work.

The lively dialogue which was one of the major outcomes of this meeting was aptly described by Dr. Noel McGinn as "a sharpening of research themes through the contributions that decisions-makers made about how they see the problems their systems are facing and the kind of information they need." At the same time, there was also a broadening of the understanding of what policy options are available and what their likely consequences are in influencing educational policy-making in LDCs.

A total of 40 participants attended the meeting in North Carolina including researchers and educators from Egypt, Thailand, Burundi, Indonesia, Pakistan, Sri Lanka and the U.S.

F. PUBLICATIONS AND DISSEMINATION ACTIVITIES FY 1988

In October 1987 BRIDGES set up a Publication Unit to publish and disseminate research products. Hired for this task were: Billie Jo Joy, Publications Coordinator; Pam Summa, Copy Editor; Kinbing Wu, Copy Editor; Christina Rawley, Forum Editor; and Mary Ann Bin-Sallik, Forum Research Assistant.

After assessing the backlog of manuscripts, seven categories were identified as needing to be prepared for eventual publication.

A. PUBLICATIONS

1. BRIDGES Research Report Series (RRS)

Two issues of this Series were published in FY 1988. The first issue of the BRIDGES Research Report Series, "Improving Access to Schooling in the Third World: An Overview," by Mary B. Anderson, was published in March 1988. The second issue, "Literature Review of the Soft Technologies of Learning," by

Sivasailam Thiagarajan and Aida L. Pasiona, was published in July 1988. The third issue, "Cost Analysis For Educational Policymaking: A Review of Cost Studies in Education in Developing Countries," by Mun Tsang, will appear in October 1988. The project will publish 8 more issues in FY 1989.

The RRS consists of state-of-the-art research reviews, and research reports of field work covered in participating countries. A total of 20 issues are expected to be published over the life of the project; about half will be reviews. The Series is intended to provide researchers, policymakers, planners, and managers in Third World education systems, development agencies, and universities with detailed information about the effects of policy and program options on educational outcomes. Although every effort is being made to edit the publications to make them accessible to the broadest possible audience, they will be regarded primarily as technical documents and as reference sources for those who wish to explore the issues further.

Each issue is externally reviewed by two experts in the relevant field of interest. Our editors work with authors to improve manuscripts according to reviewers' comments. A process of careful editing, design and layout is carried out for each issue. Only about 20% of the Project's research papers are eventually considered for publication in this category.

2. Education Development Discussion Papers

BRIDGES produced three DDPs in FY 1988. In this category are placed papers which are considered unsuitable for publication as RRS, either because the area they review is limited by a lack of available research, because the paper has not received at least two favorable external reviews, or because the topic covered is content-specific and therefore of less general interest to our final audience. However, these papers still warrant a semiformal presentation and are in demand. Using the Harvard Institute for International Development Discussion Paper Series as a model, these papers require a less rigorous approach to produce. The DDP

manuscripts are internally reviewed and copy-edited, proofread and laser printed, and the final copy is sent to a printer for reproduction.

Education Development Discussion Paper #1, "Determinants of Effective Schools," Thailand Country Research Review, was published in February 1988. DDP #2, "Using Instructional Hardware For Primary Education in Developing Countries: A Review of the Literature," by Stephen Anzalone, appeared in July 1988. DDP #3, "Consequences of Schooling: A Review of Research on the Outcomes of Primary Schooling in Developing Countries," by Thomas O. Eisemon, was published in September 1988. Though there are several manuscripts that could fit into this category, there has been no budget allocation to continue this series in FY 1989.

3. Forum

The BRIDGES Forum series was launched this year and has been printed on a bimonthly basis since January 1988. Each issue contains about eight pages of articles and reports on in-country developments and any project work in progress. The Forum features contributions from host country professionals and collaborating researchers from the academic community, as well as Project members.

The Forum has provided a model which Sri Lanka and Pakistan have already attempted to follow. The Research Division of the National Institute of Education in Sri Lanka now publishes its own newsletter, also called The Forum, using a similar format and style.

Although The Forum was originally conceived as a means for communicating between participating countries, there is a great deal of curiosity and interest in this publication outside the immediate BRIDGES network.

4. Manuals

A selected number of training manuals will receive a treatment similar to the Research Report Series. They will be turned into formal presentations and widely disseminated. Table 1 lists the

six manuals that Project members have produced to date. We are still in the process of packaging these for dissemination. Those manuals not publishable will be put into the category of Casual Papers and made available upon request, at cost price.

5. Casual Papers

These are research papers generated by the members of the Project that are archived rather than turned into formal BRIDGES research products. About 80% of all research papers fit into this category. A list of Casual Papers will be widely distributed. Copies with a standard cover will be made available upon request, for a minimum price. A list of 25 Casual Papers were available in FY 1988.

Manuscripts that would have become DDPs will be included in this category during FY 1989. Casual papers receive the least amount of staff time and cannot be formally cited or quoted. These papers are available at cost to those requesting copies. Because they are copied on a demand basis the cost per copy of a xeroxed Casual Paper is often more expensive than the cost per copy of a RRS or DDP.

6. BRIDGES Information Documents

This category is for documents such as the Annual Summary. These documents are primarily public relations pieces and, as such, are presented formally and are distributed widely. The Annual Summary for FY 1988 was published in March 1988.

7. Research Digest

The Digest is intended for policymakers, planners, and managers unlikely to have the time or inclination to read the Research Report Series. The material for the Digest, however, will come from the Research Report Series which will be summarized for our non-research readership.

Staffing and budget constraints have made it impossible to produce this publication during FY 1988. There has been no budget or staffing allocated for this publication in FY 1989.

8. Miscellaneous

In addition to the above products, the Publication staff have also been responsible for the production of workshop brochures, formal meeting agendas, covers, T-shirts, and graphic brochures on a number of occasions.

B. DISSEMINATION

1. Research Report Series

Fifteen hundred copies of each issue were distributed in the following way: 200 for AID, 50 to each subcontractor, 200 for distribution within the U.S., 400 for distribution overseas, 10 copies to each author, and the remainder honoring special requests. Addresses for all the publications were entered in a Notebook data base.

2. Education Development Discussion Papers

Five hundred copies of each issue were sent to the following: 50 to AID, 25 to each subcontractor, 100 for distribution within the U.S., 200 for distribution overseas, 10 copies to the author, and the remainder sent out on special request.

3. Forum

The mailing list for this publication numbers about 100. Ten were sent to each country, five to each participating institution, 25 to USAID. A total of 150 copies were printed for each issue.

4. Manuals

Some of these will be handled in the same manner as the Research Report Series. Others will be sent out upon request.

5. Casual Papers

A list of titles will be widely disseminated. Xeroxed copies of each paper will be made available upon request, bound with a special cover, and sold at cost.

6. BRIDGES Information Documents

Some documents will be presented and distributed through the same mailing list as the RRS. Other documents will be distributed in the same way as Casual Papers.

C. THE PIPELINE PROCESS

Incoming documents are registered upon receipt and placed in one of six categories. Authors are told within 30 days of papers being received whether the paper is publishable by the Project or not.

- * First Internal Critique: Papers are read by Noel, Frank, Billie Jo (the committee) and other project members; a copy is sent to Gary Theisen for reading.
- * Papers are returned to author with a critique.
- * Papers are revised and returned.
- * Second Internal Critique: Papers are re-read by the committee.
- * Decision is taken by committee to publish paper as:
 - A - publishable as part of the Research Report Series,
 - B - brief editing and ready as a Casual Paper,
 - C - needs further work.

a. If the manuscript is considered for publication as an RRS, a blind external review by two experts is arranged. The review process is lengthy and involves the following steps:

- (i) Identify and recruit reviewers.
- (ii) Receive, review and return paper with clear guidelines to the author for revisions.
- (iii) The author returns the final draft to BRIDGES for final editing.
- (iv) Noel McGinn writes a Foreword.
- (v) The final draft is passed to AID/W for

comments.

- (vi) Begin printing process (allow 8-12 weeks).

b. If a manuscript becomes a Casual Paper: the paper is photocopied, given a Casual Paper cover, priced, and made available upon request.

c. If a manuscript needs further work: the manuscript receives further scrutiny and discussion with the author and the committee for the production of a better product.

D. PROBLEMS IN FY 1988

1. Some authors did not respond to our request for papers to be submitted in hard copy form, along with a floppy disk that has the manuscript entered on WordPerfect software for use on the IBM. Noncompliance slowed down the process and increased the costs.

2. Mailing lists were not current and were difficult to update.

3. Problems were encountered in establishing a list of available reviewers in Third World countries.

4. Our pipeline process is a lengthy one because it requires responses from USAID and external reviewers, some of whom are in countries where the postal services are very slow. Authors have complained that the process of revising their manuscripts seemed unnecessarily lengthy.

G. TRAINING ASSESSMENT

In general, our experiences with training to date have impressed us by the rapidity with which collaborators in participating countries can acquire our conceptual frameworks and learn to carry out the tasks we have assigned them. We have also learned, however, that given the vertical structure of educational organizations in the participating countries, most ministry of education personnel have had very little exposure to the basic goals and policy orientation of the organizations in which they work. As a consequence, while technical skills are easily acquired, we cannot expect that our collaborators will necessarily

understand how and when these skills are to be applied in maintenance or expansion of the kinds of systems we are helping them to establish.

II. OBJECTIVES AND ACTIVITIES FOR FY 1989

A. INTRODUCTION

In the year ahead, the BRIDGES Project faces four major challenges. These are:

1. to continue to design, produce and distribute research-based information about possible impacts of policy alternatives, in forms that are easily utilized by decision-makers in education systems;
2. to design, carry out and report research in a form that facilitates the incorporation of findings into microcomputer-based software and other devices for presentation of information;
3. to prepare for the winding down of BRIDGES field research efforts in Burundi, Sri Lanka, Thailand and Egypt, and to support the continuation of educational research activities by counterpart institutions and research teams;
4. to identify from the large volume of field-generated research the most appropriate policy-related findings for addressing policymakers' needs to upgrade the effectiveness and quality of their education systems.

These are challenges at this time because of the successes the Project has had in its first three years of implementation. Because of our success in developing collaborative relationships with policymakers and researchers in six countries, we have the opportunity to contribute to expanding the awareness of those policymakers about how their systems could be improved. We can fail in our attempts, of course--hence the use of the term challenge instead of just opportunity. But the opportunity was offered, as a result of the work carried out the previous three years.

This year we will continue to place special emphasis in our research efforts on the identification of policy variables, and on the production of research findings that inform policy. This has not been straightforward--much research in education still fails to inform policy at all, even when its high quality contributes to the development of better theory. This year we will place special emphasis on informing policymakers of those actions which can be taken in education systems, which have been demonstrated to have (positive or negative) effects on outcomes such as access, retention, learning, and costs.

The process of design and execution of the research will include attention to the problem of communication of findings and their implications to the actors in the system, particularly to key implementors and senior policymakers. This will be accomplished by periodic reporting to decision-makers in order to solicit their reaction to designs and initial findings, and by careful consideration of the processes by which information currently employed in decision-making is gathered, presented and taken into consideration.

These consultations will also contribute to the design and improvement of the formal BRIDGES publications that are planned for this coming year: for the Research Reports, and for the Research Digest, for public distribution. The Project Newsletter Forum will continue to be used to communicate across the research teams about the various efforts to fit research to decision-makers' requirements. As described in the pages that follow, the Pakistan, Thailand and Egyptian projects will invite participants from the other countries for one-week research exchange seminars--these exchanges will facilitate examination of efforts to make research more accessible to decision-makers in each of the countries concerned.

The BRIDGES strategy includes development of microcomputer-based software as a means to enhance the communication to decision-makers of information about policy alternatives and their possible

consequences. The simulation models that will permit policymakers to see what might happen in their system if a new policy were implemented will be loaded with basic data from their own country, but in almost all cases the coefficients between policy variables and outcome variables will be supplied through research done in other countries. For example, research done in Sri Lanka on school cluster management provides the source of coefficients that permits the policymaker to simulate for her/his system in, say, Pakistan the consequences of changing from the current system of school management to a more viable decentralized cluster system. Research done in Thailand on the impact of preschool education on primary student achievement scores will be used in a model that could be employed by a policymaker in Egypt to simulate the possible impact on learning of more spending on the training of preschool teachers.

As the section on software development implies, BRIDGES intends to complete this year a resource allocation model that will allow users to simulate the effects of varying the distribution of resources that are basic in an education system. The data to specify the coefficients for this model will come from reviews of existing Third World research, and from studies currently underway in BRIDGES.

This year, research efforts in BRIDGES will increase their attention to the problem of how to present research findings that can be used by policymakers. The issue is not so much of quantitative versus qualitative expression of results, as it is of presenting results in a clearly stated causal framework. The policymaker must be able to recognize and understand which policy variables would make a most beneficial and cost-effective impact in the improvement of her/his educational system.

A particular challenge will be to learn how case study research can be presented in ways that will not only provide the narrative that must accompany each simulation model, but also contribute to the specification of the relationships between variables. BRIDGES continues to make a significant commitment to

close-up, qualitative case studies, of classrooms, schools, communities, projects. During this year we will demonstrate that this kind of so-called "soft" research can make simulation models even more powerful as devices for communication of information to decision-makers.

Our experience during the past two years with training has demonstrated its importance not just for sharing with others what we have learned, but also in learning from others how to share. This Project would be a failure if we amassed a great deal of information about how education systems can be improved, but could not discuss the results with others in ways conducive to generating a two-way learning process beneficial to all participants. Training is a means by which we can learn how to present information to others and therefore is as central to the BRIDGES Project as is the actual generation of information.

From this past year's training we have learned that education officials in other countries define the problems their systems face in ways which reflect the constraints and difficulties implicit in their own context and that they lack information about alternative ways to solve both the problems they define as well as the ones we define. This year our training will, even more than in the past, emphasize the importance of conceptualization--of explicit recognition of the objectives sought, and of the various means that exist to reach those objectives. We will be careful not to fall back on the mere provision of skills in our training. As important as skills may be, when learned out of context they are soon forgotten or misapplied.

To understand context better, BRIDGES will spend more time looking at the process of decision-making in education systems and at the policy frameworks of those with whom we would like to communicate. As in our research and software development efforts, our work in training this year will continue to emphasize even more the importance of collaboration with our counterparts in the BRIDGES countries.

B. SYNTHESIS OF EXISTING INFORMATION

BRIDGES has produced 29 state-of-the-art reviews. Two of these have been published; another two will be ready for publication by November 1988; and an additional three will be ready for publication by March 1989. Information about all the reviews, including those in draft form, will be disseminated through professional conferences, associations and journals, international assistance agencies and the existing BRIDGES network.

The Project Research Digest, long-promised but delayed in implementation, is being researched and the final edition will be published. The Research Digest will summarize the findings contained in BRIDGES publications, beginning first with the research reviews and then synthesizing the results of BRIDGES research as they become available.

Forum, the Project's Newsletter which was first published in October 1987, will continue to be published on an irregular basis about six times per year. This Newsletter is directed toward Project participants, USAID and other international assistance agencies. The Newsletter will provide a running summary of the activities of the Project. The enthusiasm with which the first editions of Forum were received has encouraged our colleagues in Sri Lanka to publish their own look-alike monthly NEI Forum.

C. GENERATION OF NEW INFORMATION

1. Burundi

The subcontract signed by CPF and MSU provides for the following activities in FY 1989. We expect some modification of these activities based on the results of the first year. These changes will be negotiated before November 1988 as the analyses of the first year become available.

1. Rural Schools Study (Second Year)

a. Prepare a sampling plan to select 31 schools (October 1-November 30, 1988). The intent for this plan will be to select a sample of 31 schools that will be representative at the

national level. To do this, a detailed list of criteria will be prepared. This list of criteria will be based on the results of the first year and will be accompanied by a discussion in depth of the implications of the findings already obtained. The information obtained during the first year concerning the characteristics of primary schools (rural and urban) will have to be updated and aggregated to the cantonal and national levels. One school in each of the 31 cantons may be chosen such that it will be representative of others in the canton in terms of enrollments, staff, number of sixth-grade classes, etc. Another possibility to be considered would be to draw a stratified random sample which would be representative of the number of schools with sixth-grade classes and which would take into account the geographical distribution of schools.

The study of a national sample of primary schools would make it possible to determine to what extent the pilot studies are representative of the variability found across the entire country insofar as the teaching of science and other practical subjects is concerned. The introduction of double shifts for the purpose of increasing access to primary education has had a profound, though varied, impact on the "ruralization" of education (one of the objectives of the reforms of 1973). The results of this survey may reveal the means by which the effort to strengthen the contribution of primary education to rural development can be reconciled with the desire for universal schooling. To be prepared: sampling plan before November 30, 1988.

b. Develop instruments for the survey of 31 schools (December 1, 1988-January 31, 1989). The instruments used for interviews with principals and teachers in the three schools will be revised by CPF in collaboration with the representatives of the Ministry of National Education. An instrument will be developed for assessing learning outcomes. This instrument, which has a particular importance for this study, will provide understanding of the extent to which instruction related to agricultural practice

has been assimilated by the students. All the instruments will be developed on the basis of the findings obtained during the first year. It is anticipated that the instruments of the second year will be much more structured, given the relatively more abundant information available on completion of the pilot studies. Observations of lessons will be carried out in each school. These will focus on sixth-grade instruction in science and in agriculture. A plan for this observation will be developed and the guide used for the earlier studies adapted for the subsequent survey. To be prepared: the indicated instruments before January 31, 1989.

c. Recruit and train research assistants (February 1-March 15, 1989). It is expected that the research assistants for the first year will not be available for the survey of the second year (for reasons of employment, etc.). If this is not the case, they will be given preference. Five research assistants will be needed at this stage. They will be recruited in Bujumbura and trained at CPF for one week. During this week, they will receive a detailed explanation of the principal objectives of the project and the achievements of the first year. As an integral part of the training of research assistants, the instruments will be pretested by these assistants in a local school. These instruments will be revised on the basis of these pretests. A representative of the BRIDGES team will participate in the training of these research assistants.

d. Obtain the necessary authorizations to get access to the sampled schools; produce the instruments (from the third week of March to the second week of April, 1989). As in the first year, authorization to conduct the research in the schools will be obtained from the Ministry of National Education. CPF personnel will visit each school before the arrival of the research assistants in order to ensure the highest level of cooperation possible. During this period, the documents to be used in the schools (interview schedules, questionnaire, classroom observation guide, etc.) will be produced.

e. Collect data from 31 schools (from the third week in April to the second week of June, 1989). Each of the five research assistants will visit six schools. One of the assistants or a senior researcher will be responsible for the 31st school. Each visit will be for a duration of around eight or nine days. The time will be allocated more or less as follows:

- (i) one day of travel and familiarization with the site;
- (ii) one day for interviews with principal and sixth-grade teacher (or teachers);
- (iii) one day to give questionnaires/tests to students in the sixth grade;
- (iv) one day of rest;
- (v) four days to conduct and transcribe classroom observations (it is suggested that for each observed lesson, the assistant will need four hours to transcribe the observations).

This schedule allows a margin of error for cases of sickness, transportation difficulties, etc., of about 12 days. CPF staff will visit each research assistant at several points during the research period in order to monitor the data collection.

f. Coding and preliminary analysis of data (from the third week of June to July 31, 1989). Instruments will be coded for data processing and analysis. Transcriptions of a recorded sample of observed lessons will be prepared and typed. A system of coding for the observational data will be agreed upon and used. A sample of extracts from the notebooks of students will be analyzed. There will be a maximum of 100 interview protocols (with principals and sixth-grade teachers) and around 1500 questionnaires filled out by the sixth-grade students. A representative of BRIDGES will help CPF prepare a plan for coding and analysis of data. To be prepared: a data base ready for analysis before July 31, 1989.

g. Additional analysis and write-up of final report (August 1-September 30, 1989). The final report will present the data analyses from the school studies as well as recommendations to the Ministry of National Education. These recommendations will deal with changes of educational policy and programs that could strengthen the effectiveness of primary education and increase productive capacities, especially in the rural population. Special attention will be given to the syllabus, to in-service training of teachers, to the language of instruction, to school textbooks and to other aspects that are directly influenced by educational policy. BRIDGES personnel will help CPF prepare a report of about 100 pages. This report will synthesize the findings of the two years of research activity. After having been submitted to the Ministry of National Education and studied officially, it will be considered for publication as a project document by Harvard and USAID. To be prepared: provisional report before September 1, 1989 and a final report before September 30, 1989.

2. Study of Private Employer Needs (Second Year)

a. Finalize instrumentation. Following analysis of year one employer survey data and review of methods and procedures, adjustments will be made to the instruments and the instruments will be printed. To be prepared: instrument for mail survey, before January 31, 1989.

b. Select sample of 150 firms for mail-out survey. Criteria will include such factors as firm type, employment size, occupational staffing patterns and type of ownership.

c. Mail out survey to 150 firms. This task should begin no later than mid-February to permit time to contact and, if necessary, visit all nonrespondents.

d. Follow-up of nonrespondents. Site visits will be conducted to all firms not responding to initial follow-up attempts. Firms that provide partial responses will be followed up by telephone in order to obtain additional information. Interviews with nonresponding employers/owners will result either

in obtaining completed forms or in determining the reasons for each case of nonresponse.

e. Plan for data analysis and final report. CPF and Project BRIDGES team will jointly prepare analysis plans and final report outlines in coordination with the Ministry of National Education. Specific arrangements will be made for communication between BRIDGES and CPF during this period. To be prepared: plan for analysis of data and outline of final report, before May 31, 1989.

f. Analyze data. Data from the employer mail-out survey will be analyzed jointly by BRIDGES and CPF staff as agreed during the BRIDGES visit. Analyses will include data from the earlier surveys. In particular, the analyses will indicate how these data can be more easily and more routinely collected from modern sector employers in the future.

g. Prepare project final report. A final report outline will be prepared during the BRIDGES visit in coordination with the Ministry of National Education. The report will be completed by September 30 and should be of publishable quality. To be prepared: final report, before September 30, 1989.

3. Schedule for Winding Down Research Activities

The above schedule provides for bringing to a conclusion all Burundi activities by September 1989. By that time we expect to demonstrate the policy relevance of BRIDGES research as follows:

a. The results of the studies of rural schools and households will have been incorporated and helped shape the larger Ministry of National Education evaluation of the reforms of 1973.

b. The Ministry of National Education and the Ministry of Labor and Vocational Training will use the results of BRIDGES research on the improvement of educational planning through surveys of private sector employers as a demonstration of what can be learned from this approach and as a way of guiding the two ministries in the revision of existing data collection and analysis activities.

4. Training Activities

There will be a second round of training activities in the following areas, using the first year's instruments, data and reports as training materials. It is also likely that we will have to train entirely new research assistants inasmuch as this year's were hired on a strictly temporary basis solely for the duration of the data collection.

- * Project management
- * Conceptualization and research design
- * Instrument development
- * Interviewing
- * Classroom observation
- * Data coding and data management

5. Research Products

Products from FY 1988 activities will continue to be published in FY 1989, namely, the international reports on:

- a. school- versus home-based knowledge in agriculture (by end of December 1988);
- b. Kirundi versus French in teaching science and agriculture (by end of December 1988);
- c. school management to provide more time for critical subject matter (by end of December 1988).

Likewise, the CPF policy analysis for a Burundi audience, revised on the basis of comments received from BRIDGES collaborators and local audiences, should be published by the end of December 1988.

In addition, the second year of the rural schools study will produce at least one national and one international report in each of the following areas; we expect to expand and modify this list as the scope of work is modified and negotiated in the fall of 1988.

6. Evaluation Plan

For purposes of project evaluation, the following sorts of indicators will be documented to demonstrate the following:

- a. Use of BRIDGES results in policy discourse and policy formulation in Burundi.
- b. Impact of BRIDGES on the major Ministry of National Education efforts to evaluate the reforms of 1973 in light of the effort to make primary schooling universal.
- c. Availability of published results of the project to its intended audiences (through journal publication, in-house BRIDGES publications, conferences, etc.).

In addition, written review of project publications and results will be solicited from the various national and international audiences and constituencies for the BRIDGES project in Burundi.

These include:

- (i) Ministry of National Education (especially Planning Office and Bureau of Rural Education);
- (ii) Ministry of Labor and Vocational Training;
- (iii) USAID office in Burundi and other USAID missions selected for having comparable situations and interests;
- (iv) Project BRIDGES management at Harvard and USAID/Washington;
- (v) Regional networks of educational researchers in Africa, such as the one funded by IDRC;
- (vi) Relevant Africanists at Michigan State University and other leading centers of social science research on Africa.

7. Dissemination of BRIDGES Findings Within Country

Dissemination has been a dimension of the project from the beginning in the sense that the Ministry of National Education and the Ministry of Labor have been involved throughout in conceptualizing and carrying out the project. In the early stages, they helped design the project and set its objectives. The Ministry of National Education has representatives on the CPF teams

which have been responsible for designing instruments, deciding on sampling, supervising data collection and planning analyses.

A workshop is planned for early FY 1989 for representatives of various ministry offices to review the BRIDGES work of the first year, to discuss the policy implications and to discuss the plans for FY 1989. This workshop will be organized by CPF but will be participated in by the entire BRIDGES team. Finances permitting, another such activity will be held at the end of the project in September 1989. Emphasis will be put on synthesizing the results in Burundi with the BRIDGES results from other countries. In particular, if financial support can be found, it is intended to provide further demonstration and training in the use of BRIDGES models. This activity under the aegis of Harvard and RTI will continue in FY 1990 when the initial BRIDGES Burundi team will no longer be funded.

8. Travel Schedule

Although funding is presently anticipated for only three full team trips, we actually need four team visits (with Eisemon, Lawrence, Prouty and Schuille as follows). In addition, a visit by Scott Moreland from RTI would be highly desirable.

- a. November 1988: two and a half weeks to conduct workshop on first year results and to finalize year two activities.
- b. February 1989: two weeks to finalize instruments, sampling, training plans and data collection procedures for the major collections of the second year.
- c. May 1989: two weeks to review progress on data collection and to plan for analyses and reports.
- d. September 1989: two weeks to negotiate final wording of reports and to conduct workshop for review and dissemination of project results (workshop to be attended by representatives of the Ministries and agencies concerned).

In addition, Prouty is expected to make five short two- to three-day visits from his home in Rwanda, at dates to be determined. These will be scheduled as the year proceeds to coincide with times when his guidance and assistance are particularly needed.

2. Cameroon

The resumption of BRIDGES's involvement in Cameroon awaits the resolution of outstanding issues raised by the deterioration in the relationship between the USAID Mission in Yaounde and the Cameroonian Minister of Education. The BRIDGES management team continue to express an interest in working in Cameroon, but only if conditions there will permit unhindered access to local research data and open contact with government educational institutions and officials.

3. Indonesia

A. PROPOSED ACTIVITIES FOR FY 1989

During FY 1989 the bulk of the work on the phase II study (the comparative cost-effectiveness analysis) will be accomplished. In brief, this will involve pre-testing and finalizing data collection instruments, collecting survey data from teachers and schools, collecting observational data from trained and control group teachers, analyzing data, writing the research report, holding a research review and dissemination workshop and evaluating the research effort. In more detail, the year's work is expected to unfold basically as follows:

In early October the draft instruments will be tried out in selected field sites and revised if necessary. At around the same time the sample of sites and subjects will be drawn. Also, the institutional costs for conventional teacher training will be determined. These will all be accomplished during a visit by D. Nielsen in September-October.

During October and November data on teacher knowledge, skills and attitudes (a form of pretest) as well as data on the private costs of teacher training programs will be collected from new

teacher trainees. This will involve researchers' visiting a number of teacher training institutions as well as the tutoring centers of the Open University.

During December to February the same kind of measures (except those related to program costs) will be collected from recent teacher trainees in their first post-training year of teaching (a form of post-test). This collection will use the same instruments as used with the new trainees. This group of teachers will have to be visited on site at their schools. For a 10-20% subsample there will be direct observation of teacher classroom behaviors. A matched sample of untrained teachers will be surveyed and observed as a control group.

As the data is coming in, and during the course of the observations, there will be a project workshop in which coding schemes and scales will be constructed and analysis design formulated. This workshop will involve the UTRC research staff and D. Nielsen. Coding and data entry/cleaning will be done during February to March and preliminary data analysis during March to May. In May there will be another workshop in which the preliminary analysis will be reviewed and a report outline agreed upon.

During June the data analysis will be completed and in July to early August a final report drafted. In late August there will be a final project workshop involving the researchers and their IIR collaborator as well as Ministry officials and key teacher educators. This workshop will provide feedback to researchers to be used in revising the report and will also provide an opportunity for a policy review, the dissemination of research findings and project evaluation. The revision of the final report and report dissemination will be done during September to November 1989.

During October to December 1989, D. Nielsen will use the final Indonesian report in conjunction with the equivalent report from Sri Lanka in writing of a comparative study of the cost effectiveness of distance education in teacher training.

The planned sequence of activities will be (subject to agreement by the UTRC team) as follows:

1. Try-out of instruments for phase II and site selection Oct. 88
2. Determination of institutional costs for conventional teacher training Oct. 88
3. Data collection from new teacher trainees Oct.-Nov. 88
4. Data collection from post-training teachers and control group (survey and observation) Dec.-Feb. 89
5. Workshop on coding, scale construction and data analysis design Feb. 89
6. Coding, data entry and cleaning Feb.-Mar. 89
7. Preliminary data analysis Mar.-May 89
8. Workshop on data analysis and report format May 89
9. Completion of data analysis June 89
10. Drafting of final report Jul.-Aug. 89
11. Workshop to review final report, make policy recommendations and disseminate results Aug. 89
12. Project evaluation Aug.-Sep. 89
13. Completion and dissemination of final report Sep.-Nov. 89
14. Produce comparative cost-effectiveness study (Indonesia-Sri Lanka) Oct.-Dec. 89

B. TRAINING

Each of the workshops mentioned in the above work plan will be occasions for research staff training. The training will consist of "hands-on" activities in which the UTRC staff and associates will conduct the study in collaboration with IIR's D. Nielsen, who will provide assistance and guidance when necessary.

C. RESEARCH PRODUCTS

The final products of this BRIDGES project will be a cost-effectiveness study report (suitable for publication in Indonesian and English). In addition, a comparative report covering this and a similar study in Sri Lanka will be produced in English. These products will be submitted by the end of December, 1989.

D. PROJECT EVALUATION

Project evaluation will be one of the tasks of the final project workshop. The project will be evaluated on the basis of the usefulness of its products (from the point of view of Ministry officials and teacher educators) and by staff self-assessment. An outside observer (preferably someone from another BRIDGES team, if funds are available) will also be invited to assess the quality of the project's output and processes.

E. DISSEMINATION

As mentioned above, this will be done through the project's final workshop (to which top policymakers and teacher educators will be invited) and through the project's final report. Since the Rector of the Open University is a member of the Southeast Asian Research Review and Advisory Group (SEARRAG), it is also possible that the results can be disseminated and perhaps reviewed by national and regional RRAGs.

F. TECHNICAL ASSISTANCE TRAVEL

During FY 1989 technical assistance travel for D. Nielsen will be as follows:

	<u>DATE</u>	<u>PLACE</u>	<u>PURPOSE</u>	<u>DURATION</u>
1.	Feb. 89	Jakarta	Participate in coding and analysis planning workshop	2 weeks
2.	May 89	Jakarta	Participate in data analysis review workshop; assist in data analysis	4 weeks
3.	Aug. 89	Jakarta	Participate in report/policy analysis workshop; project evaluation	3 weeks

4. Pakistan

A. PROPOSED ACTIVITIES FOR FY 1989

1. Improvement of Data Systems

a. Completion of the Installation of a Management Information System in the Planning and Monitoring Cell of the Sind Department of Education. Two lines of work are contemplated. The

first will involve the development of data bases. Data from the PNE Wing of the Federal Ministry for Sind Province will be loaded into a data base designed by AEPAM and BRIDGES. The design will include interfaces that permit use by persons with minimal instruction in microcomputer use and use of the particular data base software. Complete documentation will be provided. A second set of activities with respect to data base development will use information already collected and stored in the PMC or other offices of the Department of Education. The particular data bases to be developed will be negotiated with the PMC but will permit projection of enrollments, demand for teachers and classrooms, and estimation of likely costs of construction and teacher salaries. Under consideration is the development of a data base that describes population characteristics of all villages in Sind, which can be matched with the data base describing existing schools, so that it is possible for planners to locate those villages most in need of construction of classrooms.

The second activity will involve improvement of information collected from schools. Specifically, BRIDGES will work with PMC and Public Instruction staff on the design of a basic data questionnaire to be filled out by teachers and headmasters, and on the design of procedures for registering and distributing the resulting information so that it is available at all levels in the system, in time for decision-making.

The activity in Sind will be designed as a prototype for the other provinces. Accordingly, trips will be made to other departments of education to discuss information systems with relevant officials, and staff from those departments will be invited to training sessions in the PMC and AEPAM on the design and development of information systems. The objective of these activities will be to enhance the possibility of extending work done in Sind to other provinces in FY 1990. Tom Cassidy, Luis Crouch and Ernesto Cuadra will have major responsibility for this

activity for BRIDGES, and Attaullah Chaudhry, Nasir Amin and Ikram Qureshi will participate for the AEPAM.

b. Study of the Costs and Financing of Primary Education. The objective of this work is to improve the capacity of Pakistan education officials in the use of information on costs of education for purposes of planning, policy analysis and management at the primary level. Specific objectives are:

- (i) Identify relevant cost variables to put into a data base for primary education.
- (ii) Develop a set of procedures for collection, processing and analysis of cost data.
- (iii) Carry out analyses of the pattern of costs.
- (iv) Provide training.

Work carried out in August will lead to design of procedures for data collection that will be pilot-tested in October and November 1988 by AEPAM staff under the supervision of Abdul Ghafoor and Hafeezullah. The revised questions will be included in the sample survey questionnaire (described below). Analysis of data collected will be carried out in July 1989 and reported in September 1989. Mun Tsang will be responsible for BRIDGES and Abdul Ghafoor for the AEPAM for this project.

2. Generation and Use of Information on Education Policies

a. Girls' Access to Education. This research will assess the effectiveness of policy initiatives designed to improve the access of girls to education. For each initiative, two questions will be addressed:

- (i) To what extent has the policy drawn into education girls who would not otherwise have gone to school?
- (ii) What factors account for the differential effectiveness of the policy across schools and districts?

For each policy, the research will generate information on the per (girl) student cost of enrollment; contextual factors that

influence the implementation of policies; and regional and community factors that determine which policies are more likely to be effective.

The research on the impact of mosque schools will begin with an analysis of the information collected by the AEPAM in their survey of mosque schools during 1988. This information, drawn principally from school records, will be supplemented by a survey of households in a sample of 40 communities to assess actual attendance patterns and the impact of policies on family attitudes toward schooling. The study on policies that affect rural female teachers (housing, busing, reduced certification requirements, in-service training, recruitment from rural areas) will interview teachers as well as in households. Mary Anderson has major responsibility for BRIDGES for this research, Nuzhat Chaudhry with Islamuddin Baloch for the AEPAM.

b. Classroom Management and Instructional Practices.

The purpose of this work is to identify strategies and practices used by teachers that are associated with higher levels of student learning, and to identify those teacher training and school supervisory practices that lead to teachers using effective strategies. The study will highlight the role of teachers in the management of instructional materials, time, classroom space and interactions with students. The study assumes that more or less consistent patterns of teaching behavior which enhance the learning process can be differentiated from patterns that are less effective. A major hypothesis is that these patterns of teaching behavior can be associated with prior experiences and training as well as current supervision and administration.

This research effort will carry out detailed interviews and observations in a sample of 32 schools. The objective of the study is to provide detailed descriptions of different teaching strategies, their impact on children's learning, and the extent of their origins in teacher training and supervisory practices. The end product will be recommendations for content of pre-service

teacher training, and for in-service training programs and supervision. This research is under the direction of Andrea Rugh for BRIDGES and R.A. Farooq and Ahmed Nawaz for AEPAM.

c. Factors in the Implementation of Policy Initiatives.

Implementation of policy initiatives depends on actors at various levels of the educational system: teachers in classrooms; headmasters and supervisors who directly monitor the work of teachers; district education officers who are responsible for the overall provision of resources and teachers to schools and who direct and monitor the work of supervisors and headmasters; provincial administrative officials who either initiate policies or translate federal policy initiatives into program directives for district education officers; and federal ministry of education officials who both initiate policies and who often are responsible for promoting appropriate levels of funding through the ministry of finance or other agencies.

This study will interview persons in each of these categories. Initial interviews will establish the major policy initiatives in education that have been carried out in Pakistan during the past 10 years. Later interviews will trace the process of implementation of these initiatives from design to efforts to install programs based on the policy in districts, schools and classrooms. The research will identify major obstacles to implementation, but will also identify those strategies that have been most effective. Don Warwick and Fernando Reimers will coordinate this research for BRIDGES and Sarfraz Khawaja for AEPAM. Dr. Khawaja will be assisted by Aslam Bhatti.

d. Sample Survey of Schools. The research projects described above will provide detailed descriptions of the implementation and operation of policies in a small sample of classrooms and districts. The sample survey of schools is intended to test lessons learned in the more intensive studies on a national sample of classrooms. The sample design will permit an assessment of the

relative effectiveness and cost--or efficiency--of the major policy initiatives that have been taken during the past 10 years.

The effectiveness of the various initiatives is understood in terms of four sets of criteria:

- (i) Impact on access to schooling, as reflected in gross and net enrollment ratios, especially of girls.
- (ii) Impact on student transition rates, i.e., measures of repetition and dropouts.
- (iii) Contribution to increased learning of the content of the official curriculum.
- (iv) Other outcomes not included in the original policy objectives which are now considered as important by education officials.

By costs are understood the public expenditures required to implement an initiative, measured both per student affected and total cost, capital and recurrent.

The central assumptions and hypotheses of the sample survey are the same as those asked in the more intensive studies. This can be summarized as follows:

- (i) Successful policy implementation involves persons at various levels in the system.
- (ii) Successful implementation requires attention to clients. The more fully-implemented policy initiatives are those in which greatest effort was made to mobilize support of client groups.
- (iii) Enrollments can be increased by satisfying already high demand for education. Demand and enrollments are increased directly by providing more opportunities to enroll.
- (iv) Dropouts are primarily a result of high failure rates.

- (v) Reduced failure rates in first grade do not raise failure rates in higher grades, and do lead to increased completion.
- (vi) Failure rates in first grade are lower when instruction is in the students' first language.
- (vii) Policies that increase teacher attendance increase student learning or achievement levels. Student attendance is a function of student health, family demands on the students' time, and the closeness of the school to the home.
- (viii) Teacher attendance is principally a function of location of teacher residence, teacher health, and organizational demands on teachers' time (such as the need to cash paychecks or to attend training sessions during school hours).
- (ix) Increased availability of instructional materials increases the time spent on learning.
- (x) Policy initiatives that provide teachers with greater exposure to official objectives, and which provide training in or exposure to effective models of teaching, result in higher levels of student learning.

Noel McGinn and Fernando Reimers will coordinate the sample survey for BRIDGES. For the AEPAM responsibility will be with Sarfraz Khawaja, assisted by Aslam Bhatti.

e. The Utilization of Statistical and Research Information by Policymakers. Interviews carried out during June and July 1988 suggest that policymakers, planners and managers in Pakistan, similar to those in other countries, do not rely heavily on research either to diagnose problems or to design solutions for them. In Pakistan there is little research for policymakers to use, and much of that which has been done is not presented in forms that policymakers find compatible.

Research will begin this year to design strategies to improve the utilization of research by policymakers. It is assumed that it will be necessary to improve the research products policymakers might use: to focus research more clearly on policy issues; to design research that generates findings that can be translated into recommendations for specific action; and to improve the ways in which results are presented. The research will identify the major obstacles that decision-makers face in obtaining research-based information. Successful instances of communication of research findings will be analyzed to understand:

- (i) How researchers defined the research question.
- (ii) Whether the process of the research improved later communication of findings.
- (iii) The techniques used to communicate results.

This study will focus on the knowledge-generation process as it pertains to educational policy formulation and planning in Pakistan, and will yield results directly relevant to the overall BRIDGES effort in Pakistan. Carol Weiss will be responsible for the design of this project for BRIDGES, working with Prof. Laee'q Ahmad Khan of AEPAM.

3. The Design of Methods to Increase Awareness of Policy Options

Work under this rubric is the major responsibility of Luis Crouch. The major objectives for FY 1989 are:

- a. installation of STEP and training of staff in its operation in each of the provincial departments of education with microcomputer facilities, and in the federal ministry of education;
- b. work with AEPAM staff on the design of a Pakistan version of the Educational Planning Model currently being developed by BRIDGES; and
- c. work with AEPAM staff on the design of a Pakistan version of the Intersectoral Education Impact Model.

All the activities with respect to STEP will be carried out in Pakistan. This includes training (described below), collection of necessary data, and monitoring of use.

The first step in the design of Pakistan versions of BRIDGES models will be interviews with policymakers and other officials in Pakistan, to establish the sequence of questions and critical terms which should be included in the models. Data for the Educational Planning Model will be drawn principally from the sample survey on the effects of policy initiatives. Data for the Education Impact Model will be compiled from existing statistical sources.

Most of the actual construction of the models, including that in which AEPAM staff are directly involved, will take place at Harvard and in the Research Triangle Institute. A prototype version of each model will be produced by the end of the fiscal year (September 1989).

4. Training

Three kinds of training will be carried out:

a. Hands-on training for AEPAM staff will be connected with each activity of the project. This will include systematic discussion of the objectives of each of the project activities, review of previous work with similar objectives, review of the contribution of AEPAM staff to instruments, training for data collection activities, training for coding and for data analysis, and systematic review of report writing.

b. Formal training will take place in the following settings:

(i) Eight persons from the Academy will come to the United States for training visits lasting from two to four weeks. Each of these visits will be connected with one or more of the activities described above. This will include:

aa. two persons will visit RTI for the purpose of working with Luis Crouch on the design and development of models.

- bb. three persons will visit Harvard, to work with the Access, Classroom Management, Implementation and Research Utilization teams.
- cc. one person will visit Michigan State University to work with Mun Tsang on development of cost information.
- dd. two senior persons will visit Harvard and other locations as appropriate for a general review of the BRIDGES-Academy collaboration.

(ii) Four persons from AEPAM and other offices of education will participate in the annual BRIDGES Workshop on Educational Planning and Policy Analysis. This training is designed to increase understanding of the utilization of BRIDGES models and commercial software packages.

(iii) BRIDGES and the AEPAM will offer four seminars or workshops during the course of the fiscal year, addressed to the following topics:

- aa. data systems and analysis for educational administrators, to be offered November 10-19, 1988.
- bb. issues in implementation of education policies and programs, to be offered April 1-7, 1989.
- cc. design and methods of institutional and program evaluation research, a seminar to be carried out April 12-16, 1989.
- dd. the design and methods of policy analysis research, scheduled for June 1989.

Each of these seminars will be addressed to staff of the AEPAM and staff of the provincial departments of education. The seminars will last five days.

(iv) A National Conference on "Strategies for Implementation of the 7th Five Year Plan in Education" will be held in Islamabad in January 1989. The following topics will be covered:

- aa. Female teachers in rural areas.
- bb. Staggered school time table.
- cc. Monetary incentives for rural female students.
- dd. Cluster school accommodation.
- ee. Local resource generation.
- ff. Decentralization of teacher training.
- gg. Compulsory primary education.
- hh. The use of community centers.
- ii. Overcoming obstacles to enrollment of girls.
- jj. Instructional practices of teachers.
- kk. Obstacles to implementation of plan recommendations.

This conference will invite high-level officials from the federal ministry (10) and provincial departments of education (20). Preparation of the papers will be carried out jointly by AEPAM and BRIDGES staff, assisted by other specialists from Pakistan. The conference proceedings will be published for distribution within Pakistan (100 copies).

(v) A second national conference will be held in Islamabad in July 1989, on "Policy Options for the 7th Five Year Plan." This Conference will present final reports for the Access and Classroom Management research, and a preliminary report on the Implementation and School Survey studies. The papers for this conference will be prepared jointly by AEPAM and BRIDGES staff, with the intention that their quality will permit publication in monograph or book form by a commercial publishing house.

B. PRODUCTS FROM FY 1989 ACTIVITIES

Each of the papers indicated below will be produced collaboratively by AEPAM and BRIDGES staff. Because this Workplan is for BRIDGES personnel (AEPAM has a separate Workplan), the AEPAM authors are not mentioned.

1. Improvement of Data Systems

a. "The Construction of a Management Information System for the Sind Department of Education." This case study will

describe the procedures involved in the design, construction and maintenance of a data base located in the Planning and Monitoring Cell of the Department. The report will focus on the principal lessons learned in the exercise, with reference to similar experiences in other countries and other provinces of Pakistan. Due May 1989. Tom Cassidy and Ernesto Cuadra will assume major responsibility.

b. "Proposal for an Integrated Education Data System for Pakistan." This proposal will include variables to be included, instruments and procedures for data collection, procedures for data analysis, reporting forms, and required staff. It will describe the steps and resources necessary to implement this proposal at the national level. Tom Cassidy, Ernesto Cuadra and AEPAM staff will prepare by July 1989.

c. "A Manual for Collection of Data on Costs and Finance of Primary Education in Pakistan." To be prepared by Mun Tsang by March 1989, this manual will be based on fieldwork carried out during the year. It will describe basic data to be collected, data sources, and procedures for coding and storing data.

d. "Relationships between Education Costs and Finance and the Effectiveness of Schools." This paper will be based on an analysis of the cost of education information collected through the school survey. Mun Tsang will be the major author for BRIDGES.

2. Generation of Information on Educational Policies

a. BRIDGES staff will collaborate with AEPAM staff in the preparation of papers for the National Conference to be held in January 1989. Conference proceedings will be published for internal distribution. The papers for the National Conference in July 1989 will be submitted for publication in book form by a commercial publishing house under a title such as "Implementation Strategies for the Improvement of Education in Pakistan."

b. "Impact of the Mosque Schools Policy on Girls' Access to Primary Education in Pakistan." This paper will be prepared by Mary Anderson and AEPAM counterparts by March 1989.

c. "Curriculum Development and Textbooks in Pakistan." To be prepared by October 1988 by AEPAM staff under the supervision of Andrea Rugh.

d. "Schools, Classrooms and Teacher Strategies in Pakistan." This will be a major summary of the classroom management research, covering what resources are available to teachers, how they use them, and to what effect. To be prepared by Andrea Rugh and AEPAM staff by June 1989.

e. "Effective Teaching Practices in Pakistan." To be prepared by Andrea Rugh in August 1989, this will be the summary report on the classroom management study.

f. "Policies for Improving Classroom Instruction." This will be a summary, for policymakers, of the two technical papers/monographs written on the classroom management study. It will review findings and their implications, suggest policy options, and present examples of protocols for supervisors and content recommendations for teacher training. To be submitted by Andrea Rugh in September 1989.

g. "Case Studies of Successful Implementation of Educational Policies and Programs." Fernando Reimers and Donald Warwick will prepare up to eight cases describing specific examples of how primary education policies and programs have been implemented. The cases will examine the obstacles faced in the implementation process, the procedures followed to overcome these obstacles, resource requirements, and maintenance of the programs once installed. These case studies will be produced during the fiscal year, the last of the eight being delivered by June 1989.

h. "The Implementation of Educational Programs." This summary paper will be based on the case studies described above. To be written by Donald Warwick, Noel McGinn and Fernando Reimers, it will present a general framework for the planning of successful implementation of educational policies.

i. "Effective Policies for the Improvement of Access, Retention and Learning." This report, to be prepared by Noel

McGinn and Fernando Reimers by September 1989, will be based on the sample survey of schools. It will identify those policies that have had most impact on the outcome measures included in the study.

j. Prototypes of the Intersectoral Education Impact Model, and the Educational Policy Model. These will be provisional but operating versions of the models, with data bases that make them appropriate for Pakistan.

C. A LOOK FORWARD INTO PROJECT YEAR FISCAL YEAR 1990

1. Extension of the data system developed for Sind into two additional provinces.

2. Research studies on selected topics suggested by outcomes from the research done in FY 1989. The fiscal year will begin with a national conference with policymakers from federal and provincial offices, to present results of the research to date and to identify those policy issues that need to be explored more fully.

3. Improvement of the prototype models developed in FY 1989 and installation of working versions in federal and provincial offices. Development of a prototype version of an Education Planning and Policy Game designed to give players experience in making education planning and policy decision through role playing and the use of computer simulations.

4. Training for AEPAM staff in policy analysis using data gathered during the FY 1989 research efforts. Training for federal and provincial staff on development and utilization of management information systems, and on utilization of the Education Impact and Education Policy models.

5. Sri Lanka

A. PROPOSED FY 1989 ACTIVITIES

1. Proposed Research

a. The data analysis and reports prepared for Phase 1 require further work before a high-quality product will be completed. In addition, the first phase has identified two areas that require further investigation, (a) teaching and teacher education, and (b) decentralization.

These two areas were proposed as new Phase 2 projects over November-January of FY 1988 and discussed and approved by all relevant BRIDGES decision-makers. Over the subsequent months, research designs and measurement procedures have been developed. The following is a summary of the main features of the two new projects; the major activities will be presented in section II.2 under schedule. Most of the continuing activities of Phase 1 are folded into the Phase 2 projects and so will not be described in a separate section.

b. Teaching and Teacher Education. For the preparation of primary education, Sri Lanka relies on three modes of teacher education: an in-service program in teacher colleges that receives O/L-A/L graduates with teaching experience for two years of institutional training and one year of supervised teaching, an in-service program accepting O/L-A/L graduates (and some with less education) for distance education and some supervised teaching over a two-year period, and a pre-service mode that accepts fresh A-level graduates for a three-year program at colleges of education and the conferral of a bachelor's degree. While the three modes differ in inputs, process and cost, they all ostensibly prepare teachers for the same primary level class-rooms.

Preliminary investigation suggests the following hypotheses: Concerning effectiveness: colleges of education > teacher training colleges > distance education. Concerning costs: colleges of education > teacher training colleges > distance education. The research question becomes, which is most cost-effective? In few countries do we find all three strategies being deployed. Thus, this project provides a unique opportunity to improve understanding of teacher training practices.

Two major issues have to be addressed in answering the research question: operationalizing the key concepts and planning the design. Below alternative approaches to each of these issues are described followed by an explanation of our rationale for

proposing a research program which encompasses all of the indicated alternatives.

c. Measurement. Three workshops have been assembled over the past six months to define what in Sri Lankan and international terms is meant by the cost-effectiveness of teacher education. One answer focuses mainly on the goals and characteristics of training programs and on the extent to which teachers learn and implement what these programs convey. Three major effectiveness concepts have been identified: teacher subject matter knowledge, teacher skills, and teacher attitudes. The institutional costs of training and the personal costs to teachers complement the effectiveness measures.

During the summer of 1988, these concepts were operationalized in carefully developed pencil and paper tests, survey instruments and observation profiles. The instruments are being pilot-tested in July and August and should be ready for the field in September. Except for the observation instruments, the instruments can be used to measure the effectiveness level of a teacher, independent of context. That is, they can be administered to a teacher while on the campus of a teacher training program or while in the teacher's school.

A second approach broadens the concept of effectiveness through including emphasis on the teacher's ability to translate what is learned into a teaching routine that demonstrably influences pupils. This approach, taking a more holistic view of teaching, places greater weight on the impact of factors such as school resources, performance incentives and morale on teacher effectiveness, alongside of training.

Common to all of the effectiveness measures will be gain scores. For example, concerning teacher knowledge, it will be important to compare the knowledge level prior to training (T1), at the end of training (T2), and after teachers have been in a post-training teaching experience for from one to two years (T3). Similarly, in considering the impact on students, measurement will

be attempted at two points in time; given the need to complete the study in FY 1989, student learning will be measured in January and May of 1989 conjoint with the measurement of other post-training attributes; the two measurement points will be referred to as T3.1 and T3.2.

d. Design. A chronological design following cohorts of teachers from the stage of entry (T1) through graduation (T2) and into their classrooms two years later (T3) cannot be utilized to answer the research question in view of the BRIDGES schedule to close out Sri Lanka research in FY 1989. Two alternative designs have thus been considered:

(i) A simulated chronological design where groups of teachers representing each of the programs will be studied at each of the above stages, but with the time span truncated to one year. Thus new entrants to the programs in 1988 will be compared with 1988 graduates and 1986 graduates who are now two years into their jobs. Is there any change in the knowledge, skills and attitudes of these three groups, and for which of the three programs are the changes most dramatic? How do these changes compare with the respective costs of the programs? The major limitations of this design are that recent changes in the programs may compromise the comparability of the T1 and T3 groups, and the numbers of teachers in certain of the implied subgroups are somewhat small. As graduates from the programs are employed throughout the nation, extensive field work could be required to gain a meaningful sample of the T3 subgroups.

(ii) A cross-sectional design which bypasses T1 and T2 and focuses on a more comprehensive comparison of the effectiveness of teachers at T3 who have undergone the respective training experiences. Whereas the simulated chronological design draws its sampling frame for the lists of graduates of the respective programs, this design samples from the lists of teachers who are employed in a geographic area. This design does not provide as much information on the training programs, but it opens the

possibility for simplifying field work through restricting it to a manageable geographic area: thus more extensive measurements of the performance of a larger number of teachers can be attempted.

e. Integrated Design. From our discussion above, it can be seen that we have identified two measurement strategies and two alternative research designs. In the early stages of the planning for this project, a program-focused approach was proposed which focused on the combination of a classroom-free definition of effectiveness and a simulated chronological design. However, we have become concerned about the risks entailed in relying on this limited approach. Careful review of the Sri Lankan research setting led us to appreciate that a more robust design involving all the alternatives described above would not cost appreciably more, while also providing more opportunities for answering the research question. The modification involved consists simply of drawing a larger sample of teachers for the T3 stage and of including measures of school context and student knowledge to supplement the measures of teacher knowledge, skills and attitudes.

A detailed description of most of the design has been completed, and final decisions on the fieldwork for T3 will be firmed up in September 1988, when William Cummings and Teresa Tatto visit Sri Lanka. The plan involves measurements from 50 members of each program at T1 and T2. T3 measurements will be restricted to teachers and students in schools in the districts of Bandarawella and Kegalle; affecting sampling decisions will be the concern both to get schools where 50 graduates from each of the programs are teaching as well as to get schools which reflect the diversity of the Sri Lankan context in terms of rural-urban setting, school type and cluster formation. A list of schools and teachers is currently being drawn up, and sampling decisions will be finalized in September, 1988.

For project execution, Dr. N. G. Kularatna will coordinate the field work for T1 and T2 and Mr. K. H. Dharmadasa will coordinate the field work for T3. Teresa Tatto, with the help

of William Cummings, will assist in supervising the field work and analysis. Dean Nielsen will provide specialized assistance on program descriptions and cost assessments. Weining Chang will assist in field work and the analysis of the relation between teacher status/context/incentives and teacher effectiveness.

f. Decentralization. A decentralization study has been designed to gain better understanding of the range of decisions at the district level and above which affect so many of the processes identified in the projects of Phase 1: the differential institutionalization of planning at the district and subdistrict level, the differential receptivity to modified clusters, the differential distribution and impact of training for principals, the differential opportunities for teacher training, the differential supply and utilization of teaching materials and supplies. It has been found in Phase 1 that successful implementation in each of these areas is related to improvements in the efficiency and effectiveness of schools. What then slows implementation?

The first question addressed in this project will be to specify the differential implementation of decisions for each of these areas through the development of quantitative indicators. An indicator for the implementation of modified clusters is simply the proportion of zones in a district that are under divisions and have initiated clusters.

The study will then seek to determine 1) why there is more thorough implementation of decisions in some areas, and 2) why districts differ in their level of implementation. The qualitative analysis will be guided by the following propositions:

(i) A Clear Objective: the vaguer the objective(s) and/or the more numerous the objectives, the more problems in implementation.

(ii) A Sound Theory: related to the objective, it is important to have a sensible rationale for its achievement that

includes a sensible (workable) program of implementation. To the extent there are flaws in the theory, implementation is in trouble.

(iii) Space for Change: actions are most likely to be successful when there is room for them. Old ideas are promising if there is an institutionalized channel for them. New ideas have a greater chance of realization if they do not clash with old ideas, if they can find an unoccupied niche.

(iv) Influential Promoter: it helps if a key person such as the Permanent Secretary is keenly interested in implementation; local level politicians and officials also can help.

(v) Consistency of Leadership: ideas have a stronger chance of realization if a person of some stature continues to push them, and that person stays on the scene for a long time.

(vi) Complexity of Joint Action: ideas that only require one individual or office for implementation have the greatest chance of realization. To the extent that they require common action by several levels in given organization and/or the cooperation of more than one organization, the chance of implementation decreases.

(vii) Benefits Outweigh Losses: no idea is without cost, both real and perceived. Those that seem to offer more than the cost to a sizeable number of people have a better chance of success.

(viii) Gamesmanship: ideas that are cleverly advanced with a proper understanding of the political realities have a better opportunity for implementation.

Three parallel strategies will be used for the investigation of these propositions. A core study over all of the areas will be coordinated by G. B. Gunawardena with the collaboration of W. Cummings. Preliminary case studies of three districts to aid in developing a methodology are underway from July to August. Based on these studies, a set of instruments for structured

interviews will be developed for use on a national basis between September and December. Analysis and reporting will be carried out in early 1989.

Derivative studies will be carried out to provide greater detail in two areas that were shown to be of special importance in Phase 1 of the Sri Lanka BRIDGES project. A derivative study focusing on clusters will be carried out by S. Karunaratne with the collaboration of Navarro. This study will carry out an in-depth study of four clusters in one district with the aim of providing more detail on cluster-district relations.

Mrs. H. M. K. C. Dharmawardena in collaboration with W. Chang will carry out a derivative study of the content and impact of training programs for principals. It was found in Phase 1 that the coordination of the introduction of other reforms and the distribution of training opportunities and content was poor. This study will seek to identify the factors affecting the coordinating policies, and develop estimates of the impact where coordination is smooth.

(ix) Activities and Schedule. Table 1 below summarizes the schedule of activities planned for Projects 4 and 5, in addition to those required to revise the draft report for Projects 1-3.

Table 1. Major Activities for FY 1989

	<u>Teacher Education</u>	<u>Decentralization</u>
October	Initiate Fieldwork for T1 & T2	Initiate Fieldwork for Core Study, Cluster Study, and Training Study
	Complete Cost-analysis for Teacher Education Programs	
December	Initiate Data Analysis for T1 and T2	
January	Initiate Field Work for T3.1	Initiate Analysis for Core and Cluster Studies

April	Initiate Field Work for T3.1	Initiate Analysis Management Training Study	fo:
May	Initiate Field Work for T3.2	Begin Preparation of Reports	
June	Initiate Analysis of T3.2 Begin Preparation of Reports		
September	Complete Reports	Complete Reports	

g. Training. As in previous years, most of the training planned for FY 1989 is closely allied with the research activities. A special concern for this final year of activities will be to increase the self-reliance of our Sri Lankan colleagues, with special emphasis on improving their procedures for data collection and management. In this regard, the following training activities are planned to take place at NIE over FY 1989:

- Procedures for coding instruments. Tatto in September 1988.
- Procedures for the observation of classrooms. Tatto in January 1989 (or Nielsen in October 1988).
- Procedures for automatic checks on data inputing. Tatto and Chang in January 1989.
- Procedures for estimating "missing data." Cummings in October 1988.
- Word Processing. Navarro in January 1989.

In addition, training in two new areas will be initiated:

Introduction to STEP. By Cummings in January (a) to prepare Sri Lanka representative for the annual meeting, and (b) to alert the MOE and Provincial Planning Divisions.

Utilizing the SYSTAT graphics package. By Cummings in June in the expectation that the techniques will be useful for the preparation of policy reports.

h. Forthcoming Research Products. Two research products are planned to complete the work of Phase 1:

- (i) A monograph on "Management Reforms in Sri Lanka."
- (ii) A policy paper on "Clusters and Other Organizational Reforms that can Improve Schools."

For Phase 2, the following products are envisioned:

- (i) "Conditions influencing the implementation of policies to decentralize education in Sri Lanka."
- (ii) "A cross-site analysis of the linkages within different modes of clusters and between these clusters and their administrative and community environments."
- (iii) "An analysis of the content, deployment, and impact of educational management training courses in Sri Lanka."
- (iv) "The cost-effectiveness of three modes of teacher education in Sri Lanka"

Most of these products should be ready by summer, 1989.

i. 5&6. Evaluation and Dissemination. A major national workshop was organized by NIE and BRIDGES to symbolize the first phase of cooperation and to present the preliminary results. The National Institute of Education plans to follow up on this workshop with a series of smaller workshops focusing on the major findings of each of the studies along with their implications. U.S.-based BRIDGES personnel are not likely to be involved in these workshops.

In keeping with our commitment to decrease the BRIDGES presence in Sri Lanka, a major workshop is not planned for the presentation of Phase 2 findings. Rather, separate workshops will be planned to discuss the results of the respective studies. As with the first phase, NIE expects to succeed these workshops with a second round focusing on policy implications.

We do not see the need for any special efforts at evaluation or dissemination within Sri Lanka apart from those conducted by NIE.

The draft report for the first phase has been circulated to appropriate people in the World Bank, UNESCO, the British Council, USAID, and selected universities. Also aspects of the research have been reported at the annual meetings of both the Comparative and International Education Society and the American Educational Research Association. This practice will be repeated for the research and reports of Phase 2.

j. Technical Assistance Travel Schedule. For the second phase of BRIDGES research activities in Sri Lanka, we intend to increase the level of reliance on our Sri Lankan collaborators for the coordination and execution of all phases of the research including the preparation and presentation of reports to the Sri Lankan policy audience. Thus, relative to previous years, we are scaling back the frequency of visits by the U.S.-based team.

6. Thailand

A. PROPOSED RESEARCH ACTIVITIES FOR FY 1989

The activities planned for FY 1989 reflect the integrated research strategy driving the work in Thailand (survey, cost analysis and field studies). Products completed during FY 1988 created the conceptual framework; products to be completed during early FY 1989 will lay the groundwork for the studies to be launched in mid-FY 1989; the results of these studies will provide the basis for the synthesis and dissemination activities for FY 1990. Such a plan will enable the BRIDGES/Thailand project to accomplish its two major objectives: improving policy-making by making available to policymakers the best possible information on the likely costs and outcomes of alternative strategies for increasing primary school quality, and to improve Thailand's existing educational management information system (MIS) by developing standardized indicators of school inputs, processes, outcomes and costs.

1. Background: An Integrated Research Strategy

The conceptual framework for BRIDGES/Thailand research is the result of an iterative process reflecting the carefully integrated nature of the work to date, and a dissemination strategy that involves key stake-holders in an ongoing review and evaluation of the products as they emerge. Literature reviews and secondary analysis led to an initial framework that guided the first exploratory study of an effective school cluster and the early design of the survey; results from the pilot study of an effective school cluster were incorporated into the final design of the survey; the conceptual framework of the survey influenced the data collection and analysis phases of the exploratory study of an effective school cluster.

2. Overview of Activities for FY 1989

During the first quarter of FY 1989 (October-December) the final paper on the exploratory study will be completed, as will the meta-analysis of classroom innovations. The results will inform the survey analysis (including cost analysis), a separate activity to be carried out during all of FY 1989. Initial findings from the survey (including cost analysis) will form the basis for a project meeting in December where causal hypotheses among especially interesting correlations from the survey data will be developed for examination by a multi-site case study.

While analyses of the survey (including cost analysis) will continue through the second quarter of FY 1989 (January-March), the major focus will be on the design, pilot testing and negotiation of access for the multi-site case studies. (A secondary focus will be the preparation and presentation of research results with policy implications for the second BRIDGES annual meeting in Bangkok in January.)

The third and fourth quarters (April-September) will be devoted to the collection, analysis and integration of findings from the multi-site case studies with the survey results. This will provide the necessary foundation for planning the revisions

in Thailand's MIS system, the writing of final products (including the final report) and numerous dissemination activities planned for FY 1990.

3. Proposed Research Agenda for FY 1989

a. Explanatory Study of an Effective School Cluster.

The final report will be completed before the December meeting. The focus of the report will be on how the school cluster influences schools and, within school, the teaching-learning process in classrooms. Such an analysis is complicated because each organization (the school cluster and each individual school) is responding to different internal and external environmental constraints, and individual schools may be more or less receptive to cluster influence depending on the prevailing balance of cluster roles (accountability or capacity-building) and the particular configuration of factors within a school that promote or detract from school effectiveness (see Schwille, et.al., Recognizing, Fostering, and Modeling the Effectiveness of Schools as Organizations in Third World Countries, 1986, for a discussion of these factors). Different levels of the organizational chain of command and different organizations, each responding to their own specific environmental set of constraints, all interact together. The report will systematically sort out these relationships and show how the school cluster contributes or detracts from the learning process in the classrooms of the schools that make up this cluster. Theoretical generalizations, applying to all clusters, will be developed. Finally, a chapter on policy implications will form the basis for a policy seminar to held by the NEC during October where the findings will be presented and discussed by key policymakers, including those at the local level. Their responses will be incorporated into the final report.

b. Survey Analysis. Prior to the December meeting, Dr. Raudenbush will analyze the national survey data using two types of statistical modeling: modeling student achievement as the outcome with characteristics of schools and teachers as predictors;

and modeling teacher practices as the outcome with school management inputs and processes as the predictor. Taken together, the two types of models will provide the information needed for specifying both direct and indirect effects of school management practices on pupil achievement. This analysis will result in a paper during FY 1989 on this topic.

Also prior to the December meeting, Dr. Tsang will examine cost information in the survey to learn how resources are allocated at various levels (school, district, province, region and nation), the behavioral characteristics of the costs of primary education and the implications of resource allocation and cost characteristics for the quality of primary education in Thailand. This will lead to a report during FY 1989 on this topic.

The NEC team will also analyze the survey data according to a plan to be developed during the September 1988 team meeting (FY 1988). Their reports will also be discussed at the December meeting and issued as papers during FY 1989.

Survey analysis will continue through FY 1989.

c. Multi-site Case Study. The limitations of the survey (correlations) can only be overcome through field studies that examine especially interesting hypotheses developed from the survey data, including hypotheses for the analysis of cost data. A multi-site case study will be designed and carried out from February-September through a collaborative effort of the U.S. and NEC staff. The tasks include: generation of hypotheses, design of data collection manuals, implementation of a pilot study, site selection, negotiation of access, two intensive rounds of data collection, cross-site meetings to synthesize findings, development of analytical outlines and the writing of report. The first draft of the report will be completed by the end of September; the final, revised report will be completed by December (FY 1990).

d. Schedule for Winding Down Research Activities through FY 1990. Approval was given for a no-cost extension for the BRIDGES/Thailand project through FY 1990 at the BRIDGES

quarterly meeting in May 1988. This extension provides the maximum "pay off" for this project in terms of high-quality products and dissemination strategies to increase the likelihood that policy-makers will actually use the findings. For example, cost analysis becomes a truly useful tool once the survey data and field study data are integrated into a series of policy alternatives which can be costed out. As these results become available, changes in Thailand's MIS system become possible, which in turn create the possibility for long-term sustained change in the Thai educational system.

All products from the survey analysis and multi-site case study will be completed in the final form by December 1989 (FY 1990). During December, a team meeting will develop an outline for the final report, a pilot test of revisions in the MIS system, and a plan for dissemination activities during the remainder of the project. Such activities will include, but not be limited to, regional conferences, direct technical assistance to other BRIDGES projects, and policy seminars for Thai decision-makers.

e. Ongoing Training Activities for FY 1989

(i) Qualitative Methods: Multi-Site Case Studies. Through the exploratory case study of an effective school cluster the NEC staff gained needed experience in how to design, implement and develop generalizable findings from qualitative data gathered across many sites. This study, from the outset, had two purposes: capacity-building and hypothesis generation for the design, implementation and analysis of the qualitative field studies. In the process they will have learned a valuable new lesson: how to link this methodology to both survey analysis and cost analysis.

(ii) Survey Analysis. NEC involvement in the survey analysis will lead to increased capacity to carry out hierarchical linear modeling, a specialization of Dr. Raudenbush, which will enable them to do similar analysis in subsequent work.

(iii) Cost Analysis. The NEC researchers and professors from Thai universities associated with this phase of the

research have already gained considerable knowledge on how to develop cost analysis instruments for inclusion in survey work. Dr. Tsang will continue to provide such "on-the-job" training in appropriate costing techniques for different policy alternatives developed by the project.

(iv) Policy Analysis. A major aim of BRIDGES internationally and in Thailand has been to re-conceive the linkage between information and policy-making. In some cases this means simply closing information gaps, that is, making information available for planning and policy where before none was available. In more cases, however, improving the linkage means changing the ways in which policymakers and planners use information.

Developing policy alternatives or options differs from developing policy recommendations: the latter tend to be prescriptive and typically have limited influence on policymakers. An alternative conception of the linkage involves "modeling." The modeling perspective recognizes that although information is highly useful for decision-making, rarely is sufficient information available to eliminate uncertainty about the consequences of alternative actions. This perspective also respects the role of values in decision-making. It encourages effects of policy options--not to prescribe actions, but rather to stimulate critical evaluation of alternatives and sometimes to generate novel solutions. In these ways modeling actually enhances the role of the decision-maker, rendering him or her more creative and less reactive. It also potentially enhances the contribution of research, which stands to gain stature by strengthening the policy-making process.

During FY 1989 the BRIDGES/Thailand process will begin the process of re-conceiving the interaction between research and policy. A policy seminar on the results of the study of an effective school cluster will involve policymakers in a discussion of the two roles a school cluster can perform (accountability and capacity-building), the results of our study which show the effects on classroom learning and school management processes of an

emphasis on accountability, and various alternative policy options that might strengthen both roles and reduce the incompatibility of some of the policies currently pursued. Policymakers will be encouraged to discuss the roles they favor, to respond to and generate new proposals for improving the roles they wish to see the cluster play and to provide support for appropriate changes.

f. Final List of Research Products with a Delivery Schedule for FY 1989 and FY 1990

(i) FY 1989

- aa. "Increasing Teacher Productivity in Thai Primary Schools." Dr. Pragob Kunanak. October, 1988.
- bb. "The Effects of Classroom Innovations on Student Achievement and their Implications for Policy." Dr. Suwatana Suwanketnikom. February, 1989.
- cc. "Improving Primary School Quality in Thailand: An Exploratory Study of an Effective School Cluster." Drs. Jaithip, Chinnapat, Wheeler and staff of the NEC. February, 1989.
- dd. "Primary School Quality: Case Studies of Effective Schools in Thailand." Staff of the NEC. February, 1989.
- ee. "The Direct and Indirect Effects of School Management Practices on Pupil Achievement in Thailand." Dr. Stephen Raudenbush. February, 1989.
- ff. "The Costs of Primary Education in Thailand." Dr. Mun Tsang. April, 1989.

(ii) FY 1990

- aa. "A Multi-Site Case Study Analysis of Causal Variables Determining Primary School Effectiveness in Thailand." Drs. Chinnapat, Wheeler and NEC staff. December, 1989.

- bb. "The Relationships between School Management Practices and Teaching in Thai Primary Schools." Drs. Raudenbush, Chinnapat and NEC staff. December, 1989.
- cc. "The Distribution of Resources for Education in Thai Primary Schools: Implications for Educational Quality and Equity." Drs. Chinnapat, Raudenbush and NEC staff. December, 1989.
- dd. "The cost-effectiveness of alternative policies to improve primary school quality in Thailand." Drs. Tsang and NEC staff. December, 1989.
- ee. "Quality of Education Indices: Routine Monitoring to Improve Primary School Effectiveness." Drs. Chinnapat, Tsang, Raudenbush and NEC staff. September, 1990.
- ff. Final Report: Modeling Policy Options for Improving Primary Education in Thailand. Drs. Chinnapat, Raudenbush, Tsang, Wheeler and NEC staff. September, 1990.

g. Evaluation Plan. For purposes of project evaluation, the following sorts of indicators will be used:

- (i) Use of BRIDGES results in policy discourse and policy formulation in Thailand.
- (ii) Availability of published results of the project to its intended audiences (through journal publication, in-house BRIDGES publications, conferences, etc.).

In addition, written review of project publications and results will be solicited from various national and international audiences and constituencies for the BRIDGES/Thailand project. These include:

- (i) The office of the National Primary Education Commission (responsible for administering 85% of the primary schools in Thailand).
- (ii) USAID Mission in Bangkok and other USAID missions selected for having comparable situations and interests.
- (iii) Project BRIDGES management at Harvard and USAID/Washington.
- (iv) Regional networks of educational researchers in Southeast Asia, such as the one funded by IDRC.
- (v) Regional specialists at Michigan State University and other leading centers of social science research on Southeast Asia.

h. Dissemination of BRIDGES Findings within Country.

From the inception of the BRIDGES/Thailand project the policy has been to disseminate findings as the project unfolds; not to wait until all the research has been completed. This strategy is made possible by the front-end thinking that has gone into the design of each phase of the study, the involvement of stake-holders in the design, implementation and review of the research, and the integrated nature of the research strategy (survey, cost analysis and field studies). As one phase comes to an end, it informs the next; at that time we also disseminate our findings.

During FY 1989, key policymakers in the Ministry of Education, specifically from ONPEC, will continue to be involved through participation in NEC governing board reviews of the project, briefings, and staff assistance for the implementation of various components of the project. During the fall of 1988 the NEC will host the first of a series of policy seminars which will occur on an ongoing basis until the end of FY 1990 on the finds of our studies for policymakers at the national, provincial and local levels. This first policy seminar will focus on the findings of the case study of an effective school cluster and will use the

policy-modeling approach that attempts to re-conceive the link between information and policy-making described earlier.

i. Travel Schedule

(i) November 29-December 16: 2.5 weeks to review and revise papers from the survey analysis, the case study of an effective school cluster, and the meta-analysis; to develop a plan for further analysis of the survey data, including writing responsibilities; to develop the hypotheses for examination through the multi-site case study, and to make final preparations for the BRIDGES/Thailand team presentations to the 2nd annual BRIDGES meeting; Raudenbush, Tsang and Wheeler.

(ii) Late March-early April: 2 weeks to pilot-test the data collection manual for the multi-site case study, to select the sites, and to negotiate access. Wheeler.

(iii) Late July: 2 weeks to participate in the final round of data collection for the multi-site case study and to assist in developing analytical outlines for the writing of results. Wheeler.

7. Egypt

A. WORKPLAN ACTIVITIES FOR FY 1989

The new Egypt Workplan includes nine major sets of activities or programs. These are:

1. General training of MOE staff likely to be active in the implementation of the EPU.
2. Development of a prototype version of a management information system for MOE.
3. Completion of the development of a prototype system for the collection, recording and analysis of information about costs of education.
4. Presentation of planning models which are appropriate for the Egyptian context.
5. Identification of research which should be carried out to support the education reform.

6. Presentation and review of the likely implications of policy options within the Egyptian context.
7. Design of a library, documentation and information retrieval system for the EPU.
8. Other contributions to planning for the implementation of the EPU.
9. Administration of the BRIDGES Project in Egypt necessary to carry out the above activities.

1. General Training

The plan for the EPU calls for a staff with skills not currently found in the MOE. As a consequence, much of the work of the EPU in its first years will be staff preparation. The specifications for some of the training are clear and can be carried out now. In addition, plans can be developed for the basic training unit that will be set up within the EPU within the first few weeks of its creation.

Most of the activities in this workplan include some form of training. Included in this section are those training activities not covered elsewhere.

Up to 10 members of the future staff of the EPU have participated in a month-long workshop on Educational Planning: Models and Methods offered at Harvard University between July 30 and August 26, 1988. Given the large participation by the MOE of Egypt, some of the course material was based specifically on issues faced in the Egyptian context, and discussions among BRIDGES staff and Egyptian participants about the planning requirements of the educational reform took place outside the regular sessions of the Workshop. The tuition charged to AID/Egypt through the buy-in to BRIDGES covered about 80% of the total cost of Egyptian participation in the Workshop. Other funding came from central BRIDGES funding (S&T/ED).

Training in the use of word processing software will be provided to support personnel of the MOE in Cairo. Training will include an evaluation of alternative software packages as well as

hands-on instruction in the use of a selected Arabic word processing software.

BRIDGES staff will prepare a detailed plan for the activities and implementation of a basic training laboratory that will be created within the EPU. This plan will include detailed description of objectives, structure, staffing, equipment, budget and scope of work for the first year of implementation of the EPU. Preparation of the plan, to be completed by early March, will include discussions with future EPU staff in Cairo.

2. Educational Management Information Systems (EMIS)

This activity will bring to completion previous work on the development of procedures and instruments for the collection and analysis of education system data, including a computer-based prototype data storage and retrieval system and computer-based modeling tools for projecting enrollments and resource requirements.

Essential to the design of the EMIS is an understanding of the information requirements and patterns of information utilization of decision-makers within the MOE. BRIDGES staff together with MOE staff will soon have completed 33 interviews with key officials in the MOE and several governorate education offices, identifying the critical decisions they make during their annual cycle, the information they seek to use in making those decisions, current methods for collection of that information, and procedures for analysis. One outcome of this "Organizational Analysis" has been the identification of parallel systems of data collection that duplicate the work of the Statistics Department of the MOE. The final draft of the report of the Organizational Analysis, which will report on information needs, production, flow and utilization, will be presented in mid-September, 1988.

General specifications for hardware and software required by EPU were included in the EPU Advisory Team's report. In March 1988 the main computer serving the MOE became permanently inoperable, and plans to purchase a new system are being developed. To ensure

that the hardware and software planned for the EPU are sufficient and compatible with the new MOE system, a study will be made and a report presented that outlines, in detail, the hardware and software required to initiate data-processing activities in the EPU. This report will be designed to provide information for the purchase of a new computer for the MOE, if it has not yet been purchased. This report will be delivered by mid-November, 1988.

In early November BRIDGES will organize and present a seminar that introduces the System for Tracking Educational Progress (STEP), a software package designed by BRIDGES that uses basic education statistics to project enrollments and to calculate a series of efficiency indicators. STEP was originally developed by BRIDGES (by the Research Triangle Institute and Harvard) under a buy-in from the LAC Bureau of AID. It has since been modified and improved with about 40% of the costs of these improvements provided by AID/Egypt, the rest by central funding.

STEP will meet all the needs of the EPU for projections of enrollment and assist with the projection of consequent resource requirements. The 30 participants in the STEP seminar will be drawn from the central MOE and from the three governorates with which BRIDGES has already worked on the development of a prototype data collection system. Preparation for the week-long seminar to be carried out by the Research Triangle Institute in North Carolina will include development of documentation and special exercises in Arabic using Egyptian data. The seminar will be followed by three-day work sessions in each of the three governorates and the central MOE, in which participants will be trained in the use of STEP in their own context.

In early December BRIDGES will complete work on the design of a school census data collection and storage system. The design, based on work carried out intermittently over the past year and a half, will include procedural manuals, data collection forms, and computer software for data entry, storage and the preparation of basic reports.

In January 1989 Tom Cassidy will take up residence in Egypt. His major task over the next four months will be to install and field test the data collection system in each of the three pilot governorates. BRIDGES staff will participate in the school census to evaluate the effectiveness of the proposed system for data collection. Results of this evaluation and the use of the computer-based prototype storage and retrieval system will be presented in a week-long seminar on Educational Management Information Systems to be held in Cairo in late April.

3. Studies of Costs of Education

Although cost information is used in the development of Chapter 3 (capital costs) of the MOE annual budget, the MOE lacks information on recurrent costs and has no facilities for easy projection of cost implications of policy decisions. The objective of the tasks included in this program is to complete work on a prototype for collection and storage of cost data, and for their use in routine projections associated with the planning process. The completion of this prototype contributes to the objective of development of planning models which include cost as a major outcome and constraint for policy options.

In mid-December BRIDGES will present an eight-day seminar for about 50 participants from the central ministry and the pilot zones, on the development of an educational costing system. This seminar will review definitions of costs in education, methods for estimation of costs and collection of cost data, and procedures for storage and retrieval of cost data.

By March BRIDGES will have completed work on the prototype of software for the recording and projection of cost data, and will have completed the installation of this software in the MOE.

4. Studies of Costs of Education

The objective of this program is to provide staff of the MOE with knowledge of the range and variety of microcomputer-based models for educational planning, and to demonstrate the utility and limitations of these various models.

In March 1989 BRIDGES will present a two-week seminar for 50 MOE participants that will review major existing software packages for educational planning. These will include two models (other than STEP) developed by the BRIDGES Project, and several models developed by the World Bank. The BRIDGES models include an Educational Impact Model that will display the impact of investments in education on other sectors, such as health, employment, productivity, migration. About 30% of the costs of development of this model and its documentation will be charged to AID/Egypt. The remaining 70% will be borne by other BRIDGES countries and central funding. The model presented in Egypt will include and be based in part on Egyptian data.

The second BRIDGES model is intended to familiarize policy makers and planners with research on the impact of different policies on access to education, internal efficiency of schools and student achievement. The model uses an extensive bibliographic data base developed in the first two years of the BRIDGES Project with central funding. Users will be able to represent the set of educational policies that characterize their system on about 40 dimensions, and to simulate the relative impact of changes in those policies on outcome measures (access, efficiency, achievement).

Preparation costs for the seminar on models are high because of the careful effort that will be made to develop exercises and documentation that relate the models included to the Egyptian context, i.e., supporting documentation in Arabic and the use of Egyptian data.

5. Research Topics

Actual policy research will begin in the first year of implementation of the EPU. In preparation for that, BRIDGES will

work with the MOE on the identification of those research topics that are more urgent given the objectives of the reform process.

The first contribution to the identification of research priorities will be the delivery of drafts of the BRIDGES-financed review of educational research in Egypt. This review will provide a comprehensive bibliography of studies in Arabic, detailed abstracts of the 50 most important studies, and a synthetic review of the research compiled. The first draft of this review will be delivered at the end of September, and the final draft by the middle of November.

In late April 1989 BRIDGES will present a seminar for 25 participants that will present a list of key research topics identified through interviews with key participants in the educational reform process. Descriptions of the scope of work for each of the topics will be presented and discussed.

6. Policy Options

The objective of activities in this program is to present key decision-makers in the MOE with access to conclusions drawn from developing country research and experience with policy options for education.

BRIDGES will create a "Senior Joint Working Group" of advisors that will meet periodically with the Minister of Education and a few other members of his staff, to discuss in an informal setting what research and experience elsewhere say to issues in Egypt. The agenda for the meetings will be set in advance by the Minister, who will also choose the advisors from a panel to be nominated by BRIDGES. Those nominated will be internationally recognized experts on education and development. The Senior Joint Working Group will meet approximately four times with the Minister and his staff over the period covered by this Workplan.

Two high-ranking members of the MOE staff will be invited to attend the second annual International Conference of the BRIDGES Project, to be held in Bangkok, Thailand in the last week of January 1989. This meeting, which is sponsored by the National

Education Council of Thailand (roughly the equivalent of the EPU), has as its theme "Policy Options for Educational Development." The conference will include presentations by BRIDGES staff and national collaborators on results of policy research in the BRIDGES countries, and presentations by country representatives on policy experiments in their countries. Attendance is limited to two high-ranking staff of the ministries of education in BRIDGES countries (one of whom is the coordinator of BRIDGES activities in the country), USAID representatives, representatives from other international assistance agencies, and BRIDGES staff.

In early February BRIDGES and the MOE will jointly sponsor an international conference on "Policy Options for the Improvement of Education." The conference will be held in Cairo and will invite one or two key officials from the BRIDGES-participating countries of Sri Lanka, Thailand, Indonesia and Pakistan, and about 50 officials from the MOE and governorates in Egypt. The conference will provide a forum for comparing experiences with policy innovation in Egypt with those of other developing countries.

7. Documentation

This activity is designed to anticipate the need of the nascent EPU for access to information and research about education in Egypt and in other countries. By Mid-October BRIDGES will deliver a compilation of a basic data series for use in the EPU. The series will include economics, agriculture, population, health, employment and education. In addition BRIDGES will provide a basic library of 25 major books on educational planning and related topics and a bibliography of relevant materials. A report will be submitted describing existing systems of computer-based retrieval of information about education systems and research.

By mid-January BRIDGES will provide a complete design for a documentation center for the EPU. This design will include recommendations for acquisitions, and bibliographic retrieval systems.

8. Implementation

Included under this category are activities designed specifically to facilitate implementation of the EPU. These include a one-week workshop on "Procedures and Issues in Implementation of the EPU" that will use case studies from other countries to analyze the basic steps and obstacles in implementation of education programs. This workshop will be for 25 participants from the EPU and will be held in late March 1989.

By the end of April BRIDGES will deliver a set of papers that describe the structure and functional operations of the current MOE. The objective will be to provide participants in the EPU with a comprehensive view of the actual operations of the MOE, with special attention to the utilization of information in the decision-making process. While organizational diagrams explaining the structure of the MOE can be found, interviews conducted as a part of the organizational analysis indicate that detailed descriptions of day-to-day and month-to-month operations are not available. The objective of this activity is to provide descriptions of the actual functioning of the various departments of the ministry to be used by the incoming staff of the EPU during the initial period of the reform process.

9. Administration

The programs described will require considerable planning and coordination to be accomplished within the short time period contemplated. BRIDGES is fortunate to have in place in Cairo until the end of April 1989 a Resident Advisor familiar with the MOE and cognizant of details of the plan for the EPU. In addition to the specific tasks described in the Schedule of Activities, he will assume responsibility for organization of all seminars, coordination of all travel, and general management of the BRIDGES project in Egypt. In addition, BRIDGES will provide from Harvard University backup support as necessary to carry out the programs. For example, BRIDGES management in Harvard will assume responsibility

for the formation of the Senior Joint Working Group, while the Advisor in Cairo will be responsible for local arrangements.

B. PRODUCTS FROM THESE ACTIVITIES

The following are expected products from the activities proposed above:

1. General Training
 - a. Evaluate report on Arabic wordprocessing software.
 - b. Design for a basic training laboratory in the EPU.
2. Educational Management Information System
 - a. Organizational analysis, "The flow and use of information in decision-making within the MOE."
 - b. Specifications for computer hardware and software requirements for the EPU.
 - c. Documentation and software for STEP in Arabic.
 - d. Documentation and software for school census prototype system.
 - e. Paper on "Management Information Systems for Policy Analysis and Planning in Education in Developing Countries."
3. Cost Information
 - a. Software and documentation for recording financial data for the 1st, 2nd and 4th chapters of the MOE budget.
 - b. Training materials on the conceptualization and collection of cost information in a ministry of education.
4. Planning Models
 - a. Training materials on models for educational planning.
 - b. Software and documentation on models for policy analysis and planning.
5. Research Topics
 - a. "Educational Research in Egypt -- A State of the Art Review."

- b. Scopes of work for research projects of high priority in Egypt.
- 6. Policy Options
 - a. Papers prepared for the BRIDGES Second Annual Conference.
- 7. Documentation
 - a. Design for a library and documentation center for the EPU.
- 8. Implementation
 - a. Case studies of implementation of educational projects in developing countries.
 - b. A set of papers that describe the day-to-day functional operations of selected departments in the MOE.

D. SYSTEM FOR THE PRESENTATION OF INFORMATION

The FY 1989 program will consist mainly of the follow-on activities to the current FY 1988 activities. However, the emphasis during the year will be on finishing activities and finalizing products. In particular, documentation will be developed and published for the main BRIDGES software, and training and other dissemination activities will take place. The particular activities are outlined below.

1. Refinement of Host Facilities

This activity will consist of refinement, debugging, testing and documentation of the Host support activities carried out in FY 1988. In particular, the interpolation routine, the Lotus import facility and the demonstration interface for Host models will be involved. The demonstration interface will be applied to the Game and to the EIM.

2. Development of EPM

During the year RTI will develop the software for EPM. This will most likely consist of a non-Host based computation software and a user interface for queries to the research data base. In

addition we will set up the research data base for EPM. Draft documentation will be developed and the software tested. It is hoped to demonstrate a prototype at the Annual Meeting in January, 1989.

3. Completion of EIM

During the year a final version of EIM will be completed. This includes testing, refinement of the statistical data base and parameter estimation, and completion of documentation. In addition, a demonstration interface and perhaps a computer slide show will be developed to present the model.

4. Completion of the BRIDGES Game

During the year, documentation will be completed (brochure, technical reference, player's manual, and computer slide show) for the BRIDGES Game.

5. Development of a Cost Projection Module

Under the STEP system a simplified, "stylized" cost module exists. Professor Mung Tsang of MSU is developing methods and procedures for measuring the costs of education systems. Under this activity RTI will develop a cost projection and analysis system which will help users of Professor Tsang's methodology to keep track of the costs, to calculate some of the cost variables in his system and to project these forward in time.

The module will link up to the STEP system thus permitting the calculation of cost effectiveness and cost efficiency measures.

6. Dissemination

Major emphasis will be given during the year to dissemination and to training. Under non-training dissemination activities several events can be anticipated. These include:

- * The Second Annual BRIDGES Meeting, Bangkok, January, 1989;
- * The Conference of the International Education Society;
- * The Summer 1989 Harvard Workshop;
- * A World Bank Organized Workshop in Turkey.

In addition, we anticipate that several occasions will materialize for showing RTI/BRIDGES products during the year. In particular, we expect that AID/W will want demonstrations of models in Washington. Also, the IEES project may wish a demonstration of BRIDGES software at its annual meeting.

7. Training

In addition, to presentations and demonstrations carried out by RTI staff, we anticipate that other BRIDGES project staff will be called on to demonstrate and use the various BRIDGES software. RTI will be available to help and to train other BRIDGES staff in this regard. In addition, we propose a one-week workshop on the GAME, EIM and STEP for BRIDGES and perhaps IEES staff. This will probably be held at RTI.

We also propose to organize an RTI-based workshop of two to three weeks duration for educational planners and policy makers from developing countries. This would be organized for 15 to 25 participants and would cover the use of STEP, the GAME, EIM and the WID software. Participant's costs would be covered by AID mission support as is the case with the Harvard Summer Workshop participants.

More training will be required during the year in Pakistan. Specifically, four training workshops in the use of STEP will take place in each of Pakistan's four provinces, and a national-level seminar will be organized to review progress in using STEP.

In Egypt, RTI will organize a national-level seminar on the use of STEP and a national-level seminar on the use of other BRIDGES software such as EIM and EPM as well as more general educational planning software developed outside of the project.

8. Country Activities

A. PAKISTAN

In support of the objective to transfer the STEP system to four provinces in Pakistan, to train staff in its use and to adapt it to the Pakistan setting, RTI will organize five in-country workshops. Four of these will take place in each of the four

provinces, and the fifth will take place in Islamabad. The provincial-level workshops will take during two visits and the last national-level seminar during a final visit. The purpose of the national-level seminar will be to review the STEP system in light of the needs of the provincial planners and to suggest modifications. Prior to the national-level seminar and after the two in-country seminars, a field visit to each of the provincial sites will take place to assess progress being made in the use of the system.

In addition, one of the other BRIDGES models (EPM or EIM) will be applied to Pakistan. A cost model will also be developed using the STEP cost model as a base.

B. BURUNDI

During the year the second phase of the Domain 1 activities will take place. This consists of a sample of 150 firms and will use the experience and knowledge learned during the first phase of the project. A report on the results of the 150 firm survey will also be prepared.

C. EGYPT

In Egypt, RTI's main activities will be in helping the newly established Educational Planning Unit (EPU) to plan and to assess policy options through the use of BRIDGES-developed models and software. To this end, RTI will organize and conduct two training and dissemination workshops in Egypt.

One workshop will be for about 30 Ministry of Education participants on the general theme of projections for educational planning and will use the STEP system as a focal point. The STEP system will subsequently be transferred to each of the three governorates as well as the central MOE.

A second workshop will focus on the EIM model and the EPM model which will use in part Egyptian data. This workshop will be aimed at decision-makers and will focus on education policy rather than on planning and implementation issues.

9. Expected Products for FY 1989-1990

Over the last two years of the project RTI anticipates delivering the final versions of all of the BRIDGES software and models in our domain. A completed software/model is defined as source and object code on diskettes, and includes the relevant documentation. Current software consists of EPM, EIM, the GAME and the Cost Module. STEP and the WID software will have been completed by the end of FY 1988.

Documentation can take the form of brochures, user's manuals, tutorials, and computer slide show demonstrations. The expected completion dates for the BRIDGES software are listed below:

Model/Software	User's Guide	Tutorial	Slide Show	Brochure
BRIDGES Overview	NA	NA	1988	NA
STEP	1988	1988	1987	1988
WID	1988	--	--	1988
EPM	1989	1989	1989	1989
EIM	1988	1989	1989	1989
Game	1989	--	1989	1989
Cost Module	1990	1990	--	1990

E. BRIDGES SECOND INTERNATIONAL CONFERENCE FY 1989

The second BRIDGES international conference will be hosted by the Thai National Education Council and will be held in Bangkok between January 25th and 30th. Senior policymakers and educational researchers will be invited to attend from the six countries where BRIDGES still has an ongoing research commitment. These include Egypt, Pakistan, Sri Lanka, Indonesia, Burundi and members of the BRIDGES research effort working in Thailand. An estimated 30 participants are expected travel to Bangkok in January to contribute to an ongoing policy-research dialogue which was initiated during the first international conference, held at the Research Triangle Institute in North Carolina during January of 1988.

The policy-research related topics chosen for the Bangkok meeting will give BRIDGES research teams a chance to begin to share their research findings with a broader audience. The overriding

theme selected for this purpose is "Policy Options for Educational Improvement: First Conclusions from Field Generated Research."

At this meeting papers presenting, in some cases for the first time, field-based research conclusions will be shared by each country team with a broader, more critical audience of peers for discussion and comment. A collaborative synthesis of emerging context-specific research findings will be used to try to formulate generalizable conclusions which can be applied to formulate policy options for assisting policymakers in beleaguered Third World ministries of education to use dwindling education resources in a more efficient way.

APPENDIX 2

PROJECT BRIDGES
LEVEL OF EFFORT PER PROJECT AND INSTITUTION
FY 1989

	ADMIN	BURUNDI	EGYPT	LEARNING TECH	PAKISTAN	SOFTWARE	SRI LANKA	THAILAND	PERSON TOTAL
HARVARD									
McSinn	5.25		1.75		2				9
Dall	10		2						12
Cassidy			6		6				12
Cummings			1				3		4
Cuadra			4.75		7.25				12
Reiners					12				12
Anderson					3		0.25		3.25
Rugh					7				7
Warwick	0		1		5				6
Toronto			7						7
Eisemon		3							3
Tatto							1		1
Navarro							1		1
IIR									
Neilsen				8					8
Pasigna				4					4
MSU									
Navarro							2.25		2.25
Tatto							3.25		3.25
Prouty		2							2
Raudenbush							3.25		3.25
Wheeler							5.5		5.5
Schville		1	3						4
Tsang				0.5	2.5			1	4
RTI									
Moreland			2		0.25	3.55			5.8
Cressman			1.5		1.05	0.5			3.05
Crouch			1		2.5	2.75			6.25
Cubeddu			3.5		1.5	4.25			9.25
Lawrence		2.25							2.25
Rice			1.25			1.75			3
Scott						1			1
Settergren						0.25			0.25
Wolowyna			1						1
TSU									
Chang							3		3
Matthews							1		1

PROJECT BRIDGES TRAVEL FORECAST
1988-1989

	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
BURUNDI												
Eisemon, T.		2.5 wks			2 wks			2 wks				
Lawrence, J.					2 wks			2 wks				
Prouty, R.		2.5 wks			2 wks			2 wks				
Schwille, J.		2.5 wks			2 wks			2 wks				
*RTI/Moreland, S.												
* = pending												
EGYPT												
Cassidy, T.			4-8	-----								
Cuadra, E.	2wks	2 wks	4-8		12-23	5-16	22-26					
Cummings, W.					conf.		30-					
Dall, F.						5-						
Davis, R. (Sept.9-19)		29-----1		2-5		16-21						
McGinn, N. (Sept.17-19)		29-----1		2-5	conf.	25-29	30-					
Reiners, F.						25-29						
Toronto, J.	-----											
Tsang, M			21-30									
Warwick, D.						25-29	30-					
RTI	30-----10						-----					
MSU					conf.							
INDONESIA												
Nielson, D.					2 wks			4 wks			3 wks	
Pasigna, A.		1 wk								1 wk		

Continue

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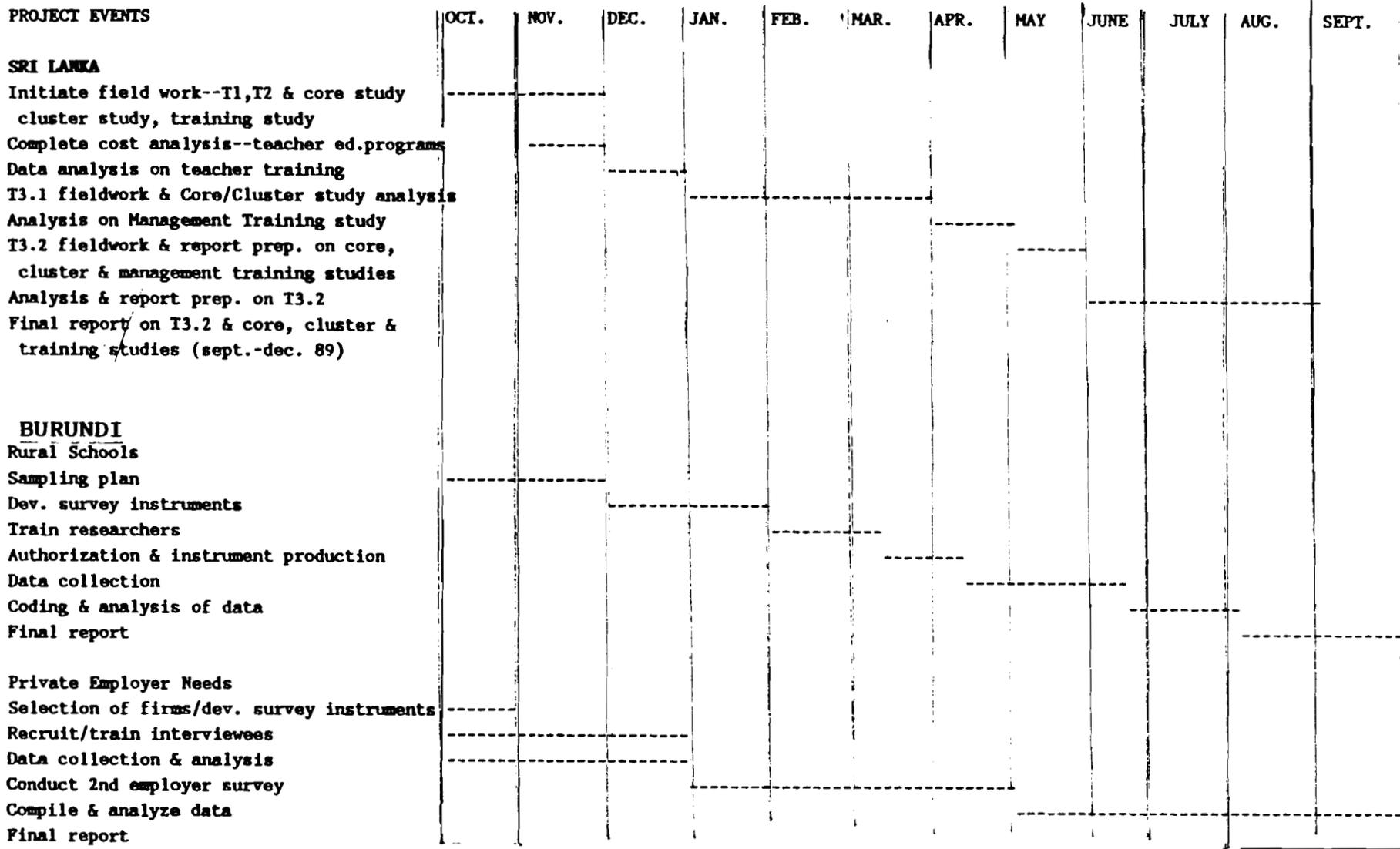
PROJECT BRIDGES TRAVEL FORECAST

	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
PAKISTAN												
AEPM/Staff				3-7		5-9		14-28			1-30	
Anderson, M.	1-17			7-21		3-24						
Cassidy, T.	10-24							10-24				
Crouch, L.	5-19				14-28			10-24			3-17	
Moreland S.	5-19				14-28			10-24			3-17	
Quadra, E.			1-14			1-15				1-14		
McGinn, N.	18-30	27-31	1-8	7-21					1-21			
Reimers, F.	1-13	15-----15		1-19			1-21					
Rugh, A.	1-13			7-21			6-20			1-15		
Tsang, M.			16-19									
Weiss /Warwick, D.							3-16					
SRI LANKA												
Chang, W.			15-----15					15-----15				
Cummings, W.		1-20		10-25					1-30			
Navarro, R.							1-15					
Nielsen, D.	6-15				1-7							
Tatto, T.				15-----7								
THAILAND												
Pasigna, A.		1 wk										
Raudenbush, S.		2.5 wks										
Tsang, M.		2.0 wks										
Wheeler, C.		2.5 wks				2 wks				2 wks		
**Int. Conference				22-28								

WID
Quadra, E.

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GANT CHART OF BRIDGES' ACTIVITIES
OCT.-SEPT. FY 1989



(continued)

GANT CHART OF BRIDGES' ACTIVITIES
OCT.-SEPT. FY 1989

PROJECT EVENTS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
THAILAND												
Annual Meeting				---								
Exploratory study report	-----	-----	-----									
Survey analysis	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Design/testing--multi-site care studies				-----	-----	-----						
Collection & integration of study							-----	-----	-----	-----		
Draft report												-----
Final report (Dec. 89)												
WID												
Training PPC/WID	-----											
Produce manual	-----											
Complete software package	-----											
Final report	-----											
INDONESIA												
Data analysis: Thailand, Bangladesh Indonesia, Philippines	-----	-----										
Interim report: Liberia, Malaysia, Belize	-----	-----										
Interim report: Thai.,Bang.,Indo.,Phil.			-----	-----	-----							
Final report on 7 Nation study			-----	-----	-----							
Data collection: Liberia, Malaysia, Belize							-----	-----	-----	-----		
Data analysis: Liberia, Malaysia, Belize											-----	-----
Final Report											-----	-----

(Continued)

GANT CHART OF BRIDGES' ACTIVITIES
OCT.-SEPT. FY 1989

PROJECT EVENTS

EGYPT

- Training of MOE Staff
- Develop prototype for financial report
- Develop/complete MIS prototype
- Improve data collection system
- Estimate hardware specifications
- Design Training lab
- Planning models seminars
- Design documentation center
- Educational reform research
- Educational costs seminar
- Prototype of educational costs
- Final report

PAKISTAN

- Improve, complete & install MIS
- School Study
- Instrument development & testing
- Training field researchers
- Data collection
- Data coding & processing
- Analysis
- Final report
- Access Study
- Data coding
- Data analysis
- Draft report
- Report distribution
- Final report & design phase II research
- Dev./test instruments & field research
- Classroom Management Study
- Training & initiating fieldwork
- Data collection
- Data reduction & analysis
- Draft reports

	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
Training of MOE Staff												
Develop prototype for financial report												
Develop/complete MIS prototype												
Improve data collection system												
Estimate hardware specifications												
Design Training lab												
Planning models seminars												
Design documentation center												
Educational reform research												
Educational costs seminar												
Prototype of educational costs												
Final report												
PAKISTAN												
Improve, complete & install MIS												
School Study												
Instrument development & testing												
Training field researchers												
Data collection												
Data coding & processing												
Analysis												
Final report												
Access Study												
Data coding												
Data analysis												
Draft report												
Report distribution												
Final report & design phase II research												
Dev./test instruments & field research												
Classroom Management Study												
Training & initiating fieldwork												
Data collection												
Data reduction & analysis												
Draft reports												