

PDWAY104

**B R I D G E S**

**BASIC RESEARCH AND IMPLEMENTATION  
IN DEVELOPING EDUCATION SYSTEMS**

**WORK PLAN FOR FISCAL YEAR 1990**

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**BRIDGES ANNUAL WORK PLAN  
FISCAL YEAR 1990  
OCTOBER 1989-SEPTEMBER 1990**

**EXECUTIVE SUMMARY**

**A. ORIGINS AND PURPOSE OF THE BRIDGES PROJECT**

A growing international awareness that more effort and resources should be put into helping the 700 million unschooled children in less developed countries gain a basic education, is beginning to be viewed by many as not only an educational access problem but also a basic human rights issue. An acute awareness of the social, political and economic costs of having so many uneducated has prompted the UN to select a theme promoting the provision of adequate basic education to all for the decade beginning in 1990. To initiate a broad discussion of the issues brought on by the educational crisis generated by escalating populations and declining public revenues, the United Nations with The World Bank, USAID and IDRC are sponsoring a world conference in Bangkok, Thailand, in early March 1990. The theme chosen is "Education for All" which will focus on the need to find strategies and cost effective policies to help to improve the quality of existing primary education and extend the provision of basic education to millions of children and illiterate adults who are still unable to benefit from an education.

BRIDGES (Basic Research and Implementation in Developing Education Systems) is a five-year project designed to promote the finding of workable solutions to the "Education for ALL" dilemma

by drawing attention to the importance of first carrying out carefully planned research into the issues and problems affecting basic education in developing countries. Project implementors are confident that through well-designed empirical studies educational leaders can be helped to choose timely, workable and low-cost policies with which to find affordable solutions to their education problems.

The BRIDGES Project is directed by the Harvard Institute for International Development and the Harvard Graduate School of Education, and funded by the U.S. Agency for International Development. The BRIDGES group includes educators, researchers, planners and policymakers involved in improving opportunity and quality in Third World schools. The goal of their collaborative effort is to design strategies that will:

- \* increase children's access to schooling;
- \* reduce the frequency of early school leaving and grade repetition;
- \* improve the amount and quality of what is learned in school;
- \* optimize the use of fiscal and educational resources;
- \* analyze educational needs and improve the accuracy of educational statistics and projections.

#### **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 is devoting 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 are being 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 is also exploring 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 is supporting efforts of ministries of education to increase their capacity to carry out policy-relevant research, and is facilitating the utilization of the software, publications, and other products of the Project.

#### C. ACCOMPLISHMENTS TO DATE

During Fiscal Year 1989 (FY89) the BRIDGES Project achieved the following:

1. Synthesis

- \* Two more state-of-the-art reviews were published and sent out to educational research institutions internationally. Likewise, one Development Discussion Paper was printed and disseminated. An initial working version of the "Optimizing Policies for Educational Systems" (OPES) model was produced along with relevant manuals and an explanatory pamphlet.
- \* An Annual meeting was held in Bangkok, Thailand, bringing together over 50 educational researchers and policymakers from Egypt, Pakistan, Burundi, Sri Lanka, Indonesia and Thailand to discuss the theme "Policy Options for Educational Improvement: First Conclusions from Field Generated Research." Thirteen papers analyzing preliminary findings of BRIDGES' field research agenda were presented and discussed.
- \* The field research and training components of BRIDGES' work in Burundi, Egypt, were brought to an end and closing-out procedures initiated for the work being carried out in Sri Lanka.
- \* A symposium hosted by AEPAM in Pakistan was held during July-August at which nine papers summarizing Pakistani research findings were shared and discussed with host country counterparts.
- \* A very demanding FY89 field research and training schedule resulted in BRIDGES professional staff from the

four participating institutions having to take 14 trips to Pakistan, 20 trips to Egypt, five trips to Sri Lanka, five trips to Indonesia, four trips to Burundi, 27 trips to Thailand.

2. Generation of New Information

- \* Over 30 separate research reviews and field research reports are being completed by BRIDGES country research teams. A selection of these will be published under the BRIDGES Research Review Series during FY90.
- \* Eight editions of the Forum were written and produced and sent to educational researchers and human resources development staff at the six participating USAID missions.
- \* Eight to twelve units summarizing LDC and BRIDGES-related research findings centered on the main BRIDGES policy domains are being written to be used for dissemination and training purposes during FY90.
- \* Numerous papers and articles have been published by BRIDGES researchers in relevant academic journals and research digests during the course of FY89.

3. Systems of Presentation

During FY89 a user manual for GENDER was completed and work was initiated to produce a user manual for OPES. Work was carried out by Harvard and RTI to upgrade and improve the help screens in OPES. Work was completed on the EIM model which will be ready for use in early FY90.

A high demand for the GENDER software packet has led BRIDGES Project management to explore the possibility of commercially packaging and distributing the GENDER Report and software as an single integrated packet for dissemination to a wider international user group of educators.

4. Training

- \* Short research skills training workshops and seminars were held in Pakistan, Thailand, Sri Lanka, Egypt and Burundi. Special workshops in computer and EMIS skills were held in Pakistan, Thailand and Egypt.
- \* Beta tests and work on a user manual were completed for EPIC, the game-simulation produced by BRIDGES as a training tool for educational planners and administrators who need to learn how to choose between competing educational policies in a cost-efficient way.
- \* The final version of the "Computer Applications for Educational Planning and Management" Course was edited and completed for use in future training workshops.

D. OBJECTIVES AND ACTIVITIES FOR OCTOBER 1, 1989 THROUGH SEPTEMBER 30, 1989 (FY90)

During the Project's final year emphasis will be placed on closing out the remaining field research activities, analyzing and writing up research findings, and aggressively promoting the various products of these activities to a broader international

audience of educational policymakers and administrators. The following objectives are intended to meet this goal:

- \* Complete the analysis and write-up of the field research data collected in Pakistan, Sri Lanka, Thailand, Burundi and Indonesia and select from this material for nine more BRIDGES Research Reviews.
- \* Complete the development and testing of five computer software models and their respective user manuals by July of FY90.
- \* Improve FORUM and use this as a tool for reaching senior policymakers and administrators with a synopsis of clearly written policy alternatives for improving basic education.
- \* Complete buy-in negotiations with USAID Amman and USAID Bangkok and carry out the tasks specified under each scope of work.
- \* Complete all the tasks under the FY90 five-step dissemination plan by September 30, 1990.
- \* Initiate the necessary formal BRIDGES closing out procedures including the preparation of reports, financial statements and documentation for USAID/W.
- \* Participate in the BRIDGES mid-term evaluation which will be carried out from September to November of FY90.
- \* Coordinate the transfer of relevant information, products and experience to the groups responsible for implementing project ABEL, which is due to start in January of FY90.

## **E. EXPECTED RESEARCH PRODUCTS**

BRIDGES country teams are preparing their final research products which will be ready for reviewing, editing and publication by January 1990. The following are some relevant product themes and titles:

### **Pakistan**

1. The Implementation of Educational Innovations in Primary Education in Pakistan.
2. How Do Public Primary Schools in Pakistan Differ Across Provinces?
3. Do Differences Between Schools and Between School Administrators in Pakistan Contribute to Differences in Student Achievement?
4. A Profile of Teacher Characteristics in Pakistan.
5. Language Instruction in the Primary Schools of Pakistan.
6. The Impact of Mosque Schools Policy on Girls' Access to Education in Pakistan.
7. Effective Classroom Primary Schools of Pakistan.
8. Characteristics of School Buildings: The Presence of A Building, Size of Building, Ventilation, Presence of Water, Toilets and Electricity.
9. Classroom Conditions: Size in Relation to Number of Students, Instructional Materials, etc.
10. Teacher Background: Pre-Service, Later Training and Travel Time to School.

11. Teacher Practices in School: Pedagogical Methods, Including Assignment and Grading of Homework.
12. School Management and Structure; Presence or Absence of Headmaster, Head Teacher; Impact of School Management on Attendance and Teaching Practice.
13. Characteristics of Students: Gender; Level of Affluence Indicated by Possessions in the Home; Travel Time to and from School.
14. The Impact of Costs and Finance. This Analysis will Draw on the Information collected by BRIDGES and AEPAM.

#### Burundi

1. Does Schooling Make a Better Farmer? Schooling and Agricultural Productivity in Burundi.
2. What Language Should be Used for Teaching? Language Policy and School Reform in Burundi.
3. Examinations Policies to Strengthen Primary Schooling in African Countries.
4. Indigenous Knowledge Systems: Implications for Agriculture and International Development.
5. Problematique de l'Enseignement Primaire dans le Cadre du Developpment Rural.
6. Should Schools Prepare Students for Secondary Education or for Self-Employment?
7. Between Policy and Students: The Reach of Implementation in Burundian Primary Schools .

8. Empirical Results and Conventional Wisdom: Strategies for Increasing Primary School Effectiveness in Burundi.
9. Testing in a Metropolitan Language; Its Implications for Measuring Instructional Outcomes and Impact on Student Repetition in Burundi.
10. Strategies for Improving the Effectiveness of Burundian Primary Schools, Given Existing Access and Selection Policies.
11. Cognitive Effects of Schooling on Agricultural Practice in Kenya and Burundi.

#### Sri Lanka

1. Policy and the Efficient Management of Small Schools.
2. Teacher Attitude and Attitude Measures.
3. Constructing School Effectiveness Indicators in the Context of Sri Lanka.
4. Teacher Motivation, Performance and Administrative Policies.
5. Summary report of the three projects tentatively titled, "Clusters and Related Management Reforms: How These Can Improve Schools."
6. Eight case studies describing the schools of Project 2.
7. Twenty-one case studies describing the schools of Project 3.
8. A statistical volume describing various characteristics of the context and the schools of the six districts.

9. A Booklet describing and printing the instruments for Projects 1 and 3.
10. The codebook describing the variables used in the analysis for Projects 1 and 3.
11. A Master file prepared for the Systat computer program.

#### Sustainable Low-Cost Learning Systems

1. Policy Initiatives to Improve Teacher Productivity in Thailand.
2. A Preliminary Report on the Efficacy of RTI in Thailand.
3. A Report on Indonesia's SDK and SDP Applications to the PAMONG System.
4. The Sustainability of Low-Cost Learning Systems.
5. Liberia Low-Cost Learning System Report.
6. Indonesian Low-Cost Teacher Training System Report.
7. Philippines Low-Cost Learning System Report.

#### Thailand

1. The Relationships Between School Management Practices and Teaching in Thai Primary Schools.
2. The Distribution of Resources for Education in Thai Primary Schools: Implications for Educational Quality and Equity.
3. The Cost-Effectiveness of Alternative Policies to Improve Primary School Quality in Thailand.
4. A Multisite Case Study Analysis of Causal Variables Determining Primary School Effectiveness in Thailand.

5. School Clusters as a Management Strategy for Improving Primary School Quality in Thailand.
6. Quality of Education Indices: Routing Monitoring to Improve Primary School Effectiveness.
7. A Final Report: Modeling Policy Options for Improving Primary Education in Thailand.

## PART I

### BURUNDI

#### REPORT OF FY89 ACHIEVEMENTS

The principal objective of the research carried out during the second year of the Burundi project was to examine the effects of variations in policy implementation on student achievement with the intention of identifying ways to strengthen the internal effectiveness and efficiency of primary schooling. Pilot studies conducted during the first year of the project indicated that several domains of policy were of particular importance: (1) policies that affect the supervision of instruction and resource allocation at the school level (e.g., clustering of primary schools, use of double shifts); (2) policies governing access and selection in schooling (e.g., control of repetition rates, secondary school entrance examination), and (3) policies relating to the content, scope and language of instruction. Our aim was to understand better the interaction of these policies, that is, how the effects of one policy are reinforced or counteracted by other policies.

#### A. SUMMARY AND SCHEDULE OF KEY RESEARCH ACTIVITIES IN FY89

##### 1. Target Population and Sampling Plan

The research carried out in FY89 expands on the findings of pilot studies of three schools and rural communities carried out by the BRIDGES project in 1988. To examine issues raised by the pilot studies, a larger study was carried out with a more representative and precisely defined target population, which was

comprised of sixth grade students and teachers in predominantly rural areas of the country. From the total 31 school cantons in the country, three were excluded as predominantly urban, two because they were still disrupted from recent ethnic violence, and five were excluded because they were judged to be too inaccessible to permit the application of probability sampling methods. From the remaining 21 cantons a multistage cluster sample was drawn. The final sample consisted of all the students in 47 sixth-grade classes selected from 47 schools in 24 directorships (the local term for school clusters) or a total of 1,946 students. The sample was executed almost entirely according to plan (with the exception of one satellite school that was replaced by another from the same directorship).

## 2. Development of Instruments

Two sets of test instruments were developed for administration to students, one assessing performance in the domains of reading comprehension and written composition, and the other dealing with problem solving in mathematics and science (with emphasis on agricultural applications). Then each set of tests was produced in both French and Kirundi, resulting in five versions in all: French comprehension and composition (with comprehension text in standard French); the same examination with comprehension text in simplified French; Kirundi comprehension and composition; French mathematics, science and agriculture; Kirundi mathematics, science and agriculture. Within the tested classes, these five test forms were distributed in a predetermined order so as to create unbiased

subsamples taking each test. Extensive principal and teacher questionnaires were also designed to obtain data on aspects of school organization and teaching that were of particular interest (e.g., qualifications of school staff, supervision of staff, variation in implementation of double shift and language policy, syllabus coverage, preparation for examinations, and teacher assessment skills).

### 3. Classroom Observation of Experimental Variation in Language of Instruction

In order to better understand the possible effects of language of instruction on student performance, an experiment was designed in which teachers were asked to present a lesson on calculation of simple interest in French and Kirundi. According to the national syllabus, this topic is introduced in sixth grade during the final months of the school year and is frequently examined on the secondary school entrance examination. Lesson guides for this lesson were made available in French and Kirundi to all teachers, the French being from the standard teachers' guide and the Kirundi from a draft teacher guide prepared by the Ministry for future use. The blackboard demonstrations and related exercises in the lesson were divided into two parts, and each of the 47 teachers was asked to give both parts, one in Kirundi and the other in French. Half of the teachers were randomly selected to begin the lesson in French while the others began with Kirundi. Research assistants were trained to make notes on the teacher's presentation and student-teacher interaction and to expand these notes after the

lesson into as complete a narrative as possible. In addition, sixteen lessons were tape recorded and transcribed.

4. Schedule. The design of the study and a sampling plan were negotiated in December 1988 after the first interruption of the year (see obstacles below). The following schedule was set up and adhered to after the second interruption of the year (also described below).

a. Preparation for data collection (January-March 1989).

- Obtaining authorization and cooperation necessary to carry out fieldwork in schools selected in probability sample.
- Determination of measures needed to protect confidentiality of data.
- Development and pretesting of proposed instruments (with translation from English to French and Kirundi).
- Printing of instruments and machine-readable answer sheets.
- Recruitment and training of research assistants.

b. Data collection (April-May 1989). All data collection was completed on schedule. Research assistants spent approximately six to ten days at each site.

c. Data coding, analysis and reporting (June-September 1989). Initial coding (including rating of student compositions)

and data analysis took place during June in Burundi, followed by major data analyses at McGill University in late June and July, and the writing of reports at McGill, MSU and CPF during the rest of this time.

## B. RESEARCH RESULTS AND FINAL CONCLUSIONS

Empirical research for the BRIDGES Burundi project has focused on concerns about the quality of schooling in developing countries with extremely limited resources. The project has had both internal and external effectiveness components. The external effectiveness component has addressed the following dilemma: in primary school systems approaching universal enrollments, how much should the primary schools focus on preparing students for selective secondary schools and how much on preparation for self-employment in agriculture or other productive occupations. The internal effectiveness component has been especially concerned with policies that interact in their implementation, with the identification of policies that counteract other policies and with policy changes which reduce these contradictions and obstacles to improvement. The results can be summarized as follows:

### 1. Improving Measurement of Student Learning and Schooling Outcomes

The national secondary school examination is designed to select a small elite to continue on to secondary school, not to assess how much other less able students have learned. This examination does not cover certain subjects and topics that all students should learn and it does not test student ability to

produce written text. The tests developed for the BRIDGES project address these concerns. They show that most students performed poorly under both language conditions.

BRIDGES has demonstrated a need for a more general assessment mechanism that could be used regularly to evaluate how well schools are doing. Such a mechanism should provide better coverage of what is supposed to be taught, a balance of testing in French and Kirundi, and a basis for certification of primary school completion as well as selection for secondary school. Policy options that will be proposed for consideration include: expansion in the scope of the present examination with more emphasis on agriculture-related science and home economics; introduction of written composition in the examination; use of Kirundi as well as French for assessment of all subjects so that it will be possible to determine how much of student difficulties are due to lack of knowledge of French and how much to lack of knowledge of the subject matter being tested.

## 2. Ensuring Better Coverage of the National Syllabus

The primary school curriculum in Burundi and especially the standards of performance required for success on the secondary school entrance examination are probably well beyond what is expected of grade six students not only in other African countries, but in many industrialized countries as well. With double shifts the school day is too short for teachers to adequately cover and students to learn the knowledge and skills specified in the syllabus and required for examination success. Many teachers

combine shifts and classes to increase teaching time and curriculum coverage. Teachers also reduce the scope of instruction by neglecting the teaching of practical subjects not covered on the secondary school entrance examination. These adaptations by teachers were associated with higher performance on the BRIDGES examinations.

Hence the ministry is faced with a choice between finding ways to increase instructional time and/or to reduce or consolidate instructional content. Policy options proposed for consideration include: work with teachers and school directors to design and experiment with new school schedules which, through combining shifts on certain days, would increase student instructional time while decreasing teaching hours for teachers (the paper Empirical results and conventional wisdom referenced below gives a specific example); consolidation of agriculture, home economics and parts of the etude du milieu syllabus into an integrated science curriculum; more guidance from the ministry on when combining of classes is likely to be beneficial and when it is not; elimination of topics from the school syllabus which are considered least important for future student well-being.

### 3. Achieving a Better Balance between Achieving Literacy in French and in Kirundi

As long as admission to and performance in secondary school requires good knowledge of French, the learning of this second language will remain important and indeed tend to dominate primary school instruction. However, BRIDGES research indicates that in

most subjects students are better able to understand instruction and demonstrate competence in Kirundi than in French (surprisingly, the improvement in the measurement of nonlanguage outcomes that result from the use of Kirundi was greater for the more able students than for the less able). In fact, many students have great difficulty understanding French when it is used as the language of instruction in fifth and sixth grades. French has therefore become as much the object as the medium of instruction in other academic subjects taught in fifth and sixth grades. Nevertheless, the development and maintenance of literacy in Kirundi is important to increasing the effects of schooling on later productivity and health.

Hence the Ministry of Primary and Secondary Education is faced with the task of simultaneously improving the teaching of French in primary school while expanding the use of Kirundi for the learning of certain subjects. To this end, policy options proposed for consideration include: use of French earlier in primary school as the medium of instruction for certain subjects, notably mathematics where BRIDGES examinations and classroom observations failed to show an advantage to the use of Kirundi; maintenance of Kirundi as the language of instruction for science, agriculture and home economics in fifth and sixth grade instead of French as is currently the case; encourage more language switching in situations where teachers can thereby improve their instruction, including the use of French terms in Kirundi lessons when the Kirundi terms are not available or not readily understood by students;

experimentation in pilot schools to arrive at the most suitable mix of French and Kirundi.

#### 4. Monitoring and Rationalizing Repetition Rates

Rates of repetition and the knowledge gained through repetition are important factors in judging the efficiency of educational systems. In Burundi the repetition rates at sixth grade are much higher than ministry guidelines suggest should occur. The extreme selectivity of the secondary school entrance examination (10% pass rate) and the use of French as the exclusive medium of instruction in fifth and sixth grade are in part responsible for these high rates. BRIDGES research suggested, however, that the high rates are partially justified in the sense that repeaters performed much better than nonrepeaters on the BRIDGES examinations.

Hence repetition policy might well be reconsidered and mechanisms established to maintain repetition at levels found to be most beneficial. Policy options proposed for consideration include: alternative methods of controlling repetition (such as setting a quota for repeaters to be admitted to secondary school or establishing a minimum score on the national examination for students to be able to repeat); better means of monitoring repetition and identifying repeaters (e.g., by assigning unique identification numbers to pupils in first grade); monitoring the extent to which gender, social status of parents, region or ethnicity lead to inequities in rates of repetition.

## 5. Improving School Management and Teacher Supervision

The availability of an adequate number of competent, engaged teachers is a key to school effectiveness. In Burundi, as in many other countries, teacher absenteeism and lack of punctuality are a problem in many schools. There is a lack of substitute teachers at many schools. BRIDGES research further indicates that amount of supervision of teachers by the school director has a positive effect on test scores. Now that universal primary education is close to being achieved it may be useful to consider whether present school directorships or clusters permit effective supervision. The number of satellite schools, their size and distance from core schools all are likely to influence the amount of attention such schools receive from school directors. Transportation to satellite schools, for instance, is a serious problem for many school directors who either do not have or have only limited access to vehicles, motorcycles or even bicycles to enable them to carry out their responsibilities.

Policy in this area needs to provide adequate supervision for all schools while at the same time finding measures that could be taken, without too much cost, to provide a sufficient number of motivated and competent teachers. Policy options proposed for consideration include: reduction in the number of schools supervised by a single director where distance or number of schools involved is excessive (e.g., by increasing number of directors); provision of motorcycles or bicycles to directors who need to supervise satellites that are too distant for walking; assignment

of some supervision duties to senior teachers who have demonstrated their capability to do this through demonstration teaching; improvement in facilities provided teachers at satellite schools, especially housing (possibly through provision of materials from which teachers can construct their own permanent housing).

#### 6. Strengthening the Contribution of Schooling to Rural Development

BRIDGES results are consistent with the literature in suggesting that agricultural productivity benefits most not from trying to teach specific skills in school, but from literacy, science and general problem-solving skills. In the Burundian context, schooling appears to have more potential for increasing food crop productivity than cash crop productivity. But currently in Burundi, instruction in practical subjects largely lacks scientific content. Agriculture classes usually involve application of cultivation skills that students in rural areas have already learned at home. Cash crops are emphasized. The time allocated to these agriculture classes is minimal.

Policy changes must therefore take place if the impact of schooling on agriculture is to be increased, benefitting the large majority of primary school students who will have to earn their living from agriculture in the foreseeable future. Policy options proposed for consideration include: adoption of an integrated science curriculum with emphasis on experimental activities carried out in the school garden (e.g., to determine effects of varying amounts of fertilizer or pesticides); within the present curriculum

(if continued), more emphasis on teaching scientific knowledge related to safe and effective use of new production technologies (e.g., new varieties, fertilizers, pesticides); more emphasis on food crops as opposed to cash crops; experiments in giving agricultural extension agents more responsibility in primary schools for teaching, supervising or evaluating student performance.

C. INTENDED OR ACTUAL PRODUCTS FROM RESEARCH COMPLETED

Results of the Burundi project were reported as follows in FY89:

- T. Eisemon, D. Kana, G. Manirabona, R. Prouty, J. Schwille, & F. Ukobizoba. Does schooling make a better farmer? Schooling and agricultural productivity in Burundi. Overall synopsis of initial analyses of 1988 data and intended for inclusion in forthcoming special issue of International Journal of Educational Research.
- T. Eisemon, R. Prouty & J. Schwille. What language should be used for teaching? Language policy and school reform in Burundi. Journal of Multilingual and Multicultural Development (forthcoming).
- T. Eisemon & J. Schwille. Examinations policies to strengthen primary schooling in African countries. Paper prepared for World Bank Seminar on Using Examinations and Testing to Improve Educational Quality, Lusaka, Zambia, November 1988.

- T. Eisemon. Becoming a modern farmer: the impact of primary schooling in Kenya and Burundi. Presented at Conference on Indigenous Knowledge Systems and International Development, Washington, D.C., December 1988 and intended for inclusion in D. M. Warren, L. J. Slikkerveer and S. O. Titilola, eds. Indigenous Knowledge Systems: Implications for Agriculture and International Development. Ames: Iowa State University, in press.
- B. Nyaburerwa, O. Bazikamwe, G. Maniye, F. Ukobizoba, D. Kana, T. Eisemon, R. Prouty, J. Schwille. Problematique de l'enseignement primaire dans le cadre du developpement rural. Paper prepared for annual meeting of USAID BRIDGES project, Bangkok, Thailand, January 1989 (includes 8-page English condensation of French original).
- T. Eisemon and J. Schwille. Should schools prepare students for secondary education or for self-employment? Addressing a dilemma of primary schooling in Burundi and Kenya. Elementary School Journal (forthcoming) (also presented at annual meeting of the Comparative and International Education Society, Cambridge, MA, April 1989).
- J. Schwille, T. Eisemon & R. Prouty. Between policy and students: the reach of implementation in Burundian primary schools. Paper prepared for annual meeting of

the Comparative and International Education Society,  
Cambridge, MA, April 1989.

- T. Eisemon, J. Schwille & R. Prouty. Empirical results and conventional wisdom: strategies for increasing primary school effectiveness in Burundi. Synopsis of results of initial analyses for FY89 and intended for presentation at World Bank conference on effective schooling in developing countries, Washington D.C., September 27-28, 1989.
- T. Eisemon, J. Schwille & R. Prouty. Testing in a metropolitan language: its implications for measuring instructional outcomes and impact on student repetition in Burundi. Unpublished manuscript, September 1989.

The following presentations were largely syntheses and reformulations of earlier papers:

- J. Schwille. Strategies for improving the effectiveness of Burundian primary schools, given existing access and selection policies. Report prepared for annual meeting of USAID BRIDGES Project, Bangkok, Thailand.
- Presentations by Ukobizoba (CPF), Eisemon and Schwille in session on "Cognitive Effects of Schooling on Agricultural Practice in Kenya and Burundi," at the World Congress of Comparative Education Societies, Montreal, June 1989.

**D. KEY TRAINING ACTIVITIES CARRIED OUT DURING FY89**

As with the first year of fieldwork in Burundi, extensive informal training was provided to CPF and Ministry of Primary and Secondary Education staff in the various facets of research design and policy analysis. In FY89 these included:

1. Project management (e.g., laying out timelines, estimating staff requirements, USAID accounting procedures).
2. Conceptualization and specification of research questions and designs.
3. Probability sampling.
4. Instrument development (with emphasis on achievement tests and considerations of curriculum and instructional validity).
5. Interviewing.
6. Systematic classroom observation.
7. Achievement test administration procedures (with emphasis on confidentiality requirements and the use of machine-readable answer sheets).
8. Data coding, management and analysis.
9. Planning of conference to discuss results and policy implications.
10. Reporting to audiences of policymakers.

This training was conducted during three visits of the BRIDGES team in December 1988, February 1989, and June 1989, each two weeks in length, plus a special training workshop for research

assistants, conducted by Robert Prouty and CPF colleagues in March 1989, as well as various short visits by Robert Prouty alone.

**E. MAJOR CONSTRAINTS OR IMPEDIMENTS**

Once again the Burundi project ran into major obstacles which had to be overcome to permit completion of the project.

1. At the beginning of FY89 the project was delayed because of the ethnic massacres which took the lives of thousands of people in August 1988 and for which the Burundian army was in large part responsible. Between the massacres in August and Prouty's visit to the project October 24-26, 1988, no work in the field could be done and it was unclear whether further work would be possible. A Congressional hearing and resolution in September 1988 suggested that continued U.S. aid would be contingent upon Government of Burundi efforts to address ethnic inequalities and government repression. President Buyoya of Burundi responded very favorably to the concerns raised by the world community, reshuffling the government to appoint a Hutu prime minister and more Hutu ministers and taking other actions to address the grievances of the majority Hutu population. From that point on to the present the BRIDGES project received excellent cooperation from government authorities (including help in settling the financial dispute described below). In December, 1988, the visiting BRIDGES team held a meeting of one hour, 15 minutes with the new Minister of Primary and Secondary Education in which he expressed much enthusiasm and support for the project.

2. Another major delay followed when our subcontractor CPF initially refused to change the exchange rate used in computing its budget to take into account the devaluation of the Burundian franc. CPF demanded a fixed exchange rate at the level of the first year (\$1.00 = 120 Fbu). Since there had been a devaluation of the franc of 25% during the first year, it was explained that the initial rate could not be continued since that would lead to misrepresentation of costs in this cost-reimbursement contract. At first consultations with the MSU contracts and grants office as well as Ministry of Education and local USAID officials failed to reveal any way out of this impasse. Finally, during January, CPF accepted the necessity of being reimbursed according to the current exchange rates. However, enough time had been lost in this delay to force certain changes in the scope of work, leading to a somewhat less advantageous research design.

3. Work on the survey of the relation between education and work in the modern private sector has to be suspended for the second year. There were three reasons for this suspension:

- The pilot survey indicated that the larger scale survey planned for the second year could not be done without more interviewing than resources would permit, the second year having been planned largely as a mail survey.
- Resources for CPF work had been reduced as a result of across-the-board cuts in S&T funded parts of the BRIDGES project.

-- Key personnel for this component were lost to other jobs, both at CPF (Juvenal Ndayikeza and Jean-Paul Rutabingwa) and within North America at Research Triangle Institute (John Lawrence).

## **PAKISTAN**

### **A. SUMMARY AND SCHEDULE OF KEY RESEARCH ACTIVITIES IN FY89**

The largest set of activities in FY89 was in the generation and use of information on educational policies. A major effort was a random sample survey of nearly 500 primary schools, 1,000 teachers, and 11,000 students. With the collaboration of the four provincial departments of education, the Academy for Educational Planning and Management (AEPAM), and 100 field workers this survey was successfully completed. The study aims to understand characteristics of schools, teachers, administrators, and supervisors across Pakistan and to explain such outcomes as achievement in mathematics and science, retention, and dropouts. Preliminary reports have been completed and analysis will continue in FY90. BRIDGES staff working on the survey included Fernando Reimers, Noel McGinn, and Donald Warwick. The principal collaborator from AEPAM was Sarfraz Khawaja who was joined by Aslam Bhatti and Nasim Quasrani.

A related study was the research on classroom management and instructional practices carried out under the direction of Andrea Rugh. The aim of this study, which required intensive observation of classrooms in 32 schools, was to analyze teaching strategies,

their impact on learning, and their relationship to teacher training and school supervision. The main collaborators from AEPAM were Ahmad Nawaz and R. A. Farooq. Also completed was a study on girls' access to education carried out by Mary Anderson of BRIDGES in collaboration with Nuzhat Chaudhry and Islamauddin Baloch of AEPAM. In addition, further information was collected on educational policy and the implementation of innovations through interviews with government officials. Particularly helpful were a set of interviews carried out by Huma Nauman, who had been hired by BRIDGES and AEPAM. Other interviews, including some done by Carol Weiss of the Harvard Graduate School of Education, focused on the utilization of research information by policymakers in Pakistan.

A second set of activities was concerned with the improvement of data systems in Pakistan's educational system. Work on an Educational Management Information System (EMIS) continued in Sind. One part of this work was the development of a database about educational systems within the province. Building on information from a school mapping survey, BRIDGES was able to assist the provincial department of education build a database with information on school facilities, teachers, enrollment, and costs. A second part was the development of a computer-based method of tracking educational systems (SYSTRACK), such as progress on school construction. BRIDGES consultants included Thomas Cassidy, Ernesto Cuadra, and Noel McGinn. Ikram Qureshi of AEPAM has also played an active role in this work.

Efforts were made to extend the work begun in Sind to Baluchistan. Luis Crouch, Thomas Cassidy, Donald Warwick, and Fernando Reimers made visits there. In Islamabad Ikram Qureshi demonstrated both SYSTRACK and the data base from Sind to the senior planning official from Baluchistan. BRIDGES also began a study of the costs and financing of primary education. With assistance from Mun Tsang, the sample survey of schools was able to include items concerning costs. Tsang likewise carried out a seminar at AEPAM on costs and financing. Also, using household data from a national survey, Tsang studied household expenditure on education and assessed the role of household expenditure for financing quantity and quality improvements in primary education in Pakistan.

The third area of activities was the design of methods to increase awareness of policy options. A major accomplishment of the entire BRIDGES project was the development of the first model of OPES, a heuristic tool for exploring which policies can increase learning and other desired outcomes without raising costs. Development of OPES has been the responsibility of the Research Triangle Institute, which also helped to initiate the System for Tracking Educational Progress (STEP). If suitable to the needs of Pakistani officials, these techniques may be used in training seminars during FY90.

## **B. CONCLUSIONS**

The following are some conclusions drawn from reports on field research (see below) and other BRIDGES activities in Pakistan.

1. The background and classroom practices of teachers are strong predictors of the achievement of Class 4 and Class 5 students in mathematics and science. Particularly important are the level of the teacher's formal education, the number of classes taught, the gender of the teacher, and the number of exercises assigned from the textbook in mathematics and science. The achievement of their students in mathematics and science rises with the teacher's formal education and the number of exercises assigned from textbooks in mathematics; it declines with an increase in the number of different classes taught. The students of female teachers have lower scores in mathematics and science than do those of male teachers. There is no difference in achievement in science by gender. The survey findings show little or no relationship between achievement in mathematics or science and whether the teacher had been involved in practice teaching or had received in-service training.

2. School characteristics, including enrollment, number of teachers, student/teacher ratios, number of shifts, and the physical facilities available, are weak predictors of student achievement. Survey data show that the background and practices of teachers are better predictors of achievement than the physical and organizational characteristics of the schools in which they teach.

3. Intensive observation and recording of instructional practices in 32 schools show that there are differences in the practices used by more and less effective teachers. More effective

teachers differed from those who are less effective on such practices as the use of review in instruction, the way in which subject matter is presented, the clarity and pacing of presentation, the use of guided practice with new materials, the assignment and correction of homework, and methods of behavior control.

4. Mosque schools have been effective in expanding the access of girls to school. When they were opened in areas where other government primary schools do not exist, they were particularly effective in promoting access. Schools, including mosque schools, had the greatest impact on girls' participation when they were located within what the parents considered a safe distance, usually within one kilometer. The Imam is a central figure in increasing the attractiveness of mosque schools to parents.

5. There have been sharp differences in the implementation of five educational innovations in Pakistan: the use of Learning Coordinators to improve supervision and the quality of teaching; the introduction of teaching kits; mosque schools; the construction of residences to provide accommodation for women teaching in rural areas; and the Nai Roshni Schools, a project of Drop-In education for children who had never attended or who had left school. Learning Coordinators and mosque schools have been successfully introduced, though with some problems. The program of residences was a failure because few women were willing to live in them. The Nai Roshni program, now eliminated by the government, ran into

serious difficulties by mixing the education of students with politically-based appointments of teachers. The teaching kit has been used, but suffered from being a top-down innovation thrust upon teachers who often did not understand how to use the items it contained or had no place to store it.

6. A major criterion in judging the success of educational management information systems is whether they serve the needs of the intended users. A successful information system requires not only accurate data and computers in which to store and analyze it, but clients who understand the results and see their applicability to their own problems in education. BRIDGES' experience in Sind suggests that developing client interest in using data may be a slow process, particularly when the officials involved are often rotated in and out of their jobs.

7. Households spent less than one percent of their income on education. In primary education, household educational expenditure accounts for one quarter of per student total expenditure. Widespread poverty severely limits the potential of household expenditure as a source for financing improvements in primary education. Other financing strategies, such as the broadening of the resource base of primary education and decentralization in taxation, should be seriously considered.

### C. PRODUCTS

#### 1. Generation of Information on Educational Policies

Several preliminary reports, summarized below, have been prepared by staff members and counterparts of BRIDGES. All of the

papers cited were distributed to participants in a conference organized by BRIDGES and AEPAM in July, 1989 (BRIDGES-Pakistan National Conference on Policy Options for Better Education Outcome at the Primary Level). Owing to the staff present, discussions focused on the results of the sample survey of schools. The paper titles were:

- The Implementation of Educational Innovations in Primary Education in Pakistan.
- How Do Public Primary schools in Pakistan Differ across Provinces?
- Do Differences between Schools and between School Administrators in Pakistan Contribute to Differences in Student Achievement?
- A Profile of Teacher Characteristics in Pakistan.
- Teacher Characteristics and Student Achievement in Math and Science.
- Language of Instruction in Primary Schools of Pakistan.
- The Impact of the Mosque Schools Policy on Girls' Access to Education in Pakistan.
- Effective Classroom Practices in Primary Schools of Pakistan.

In addition, a paper entitled "Household expenditure and other alternatives for financing primary education in Pakistan" was prepared.

## 2. Improvement of Data Systems

Work on a data base continued in Sind. The computer-based technique for tracking systems (SYSTRACK) was also developed and applied in that province. Discussions were held on applying both of these techniques to Baluchistan, which received a computer through BRIDGES to assist its work on educational information.

Initial discussions about collaboration were held with the Educational Planning Unit in the Ministry of Planning. Once agreement was reached BRIDGES assisted in the purchase of a computer for that unit, through the work of Luis Crouch, began to develop a work plan for FY90.

### .. Design of Methods to Increase Awareness of Policy Options

As discussed earlier, the Research Triangle Institute developed the first model of OPES. It has elements of a model, a game, and a knowledge base. One helpful part is access to about 50 one or two page summaries of the world's most effective policy interventions. Further refinements were also made in the System for Tracking Educational Progress (STEP).

In FY89 Luis Crouch worked with USAID in developing a model for projecting primary education costs and budgets under different scenarios. He also worked with USAID on preparing a list of simple indicators for monitoring the educational sector in Pakistan. He had further discussions with USAID about whether a MIS was necessary within the mission itself. He recommended that USAID should fund the improvement of Pakistan's own EMIS and use the indicators coming from that source.

#### D. TRAINING

The following were the main training activities in FY89:

1. Intensive training of 100 coordinators and interviewers in the sample survey of schools. This activity involved oral presentations, role-playing on how to conduct interviews, and a manual explaining general field procedures and the specific content of the questionnaires. Informal training continued when Fernando Reimers, Noel McGinn, and Donald Warwick spent several weeks accompanying the teams to sample schools and reviewing problems in carrying out the survey. In response to those observations some changes were made in field procedures.

2. Training given by Andrea Rugh to her AEPAM counterparts on the design of instruments for the classroom observation study, supervised observation in schools to assess instructional practices, and the analysis of the resulting data. One AEPAM staff member, Ahmad Nawaz, visited Harvard University to work with Dr. Rugh on this project.

3. A seminar given at AEPAM by Mun Tsang on the collection and analysis of data on the costs and financing of education.

4. A seminar by Noel McGinn and Tom Cassidy on the utility of microcomputers for educational administration, planning, research, and policy analysis was held at AEPAM for senior education administrators from all four provinces and the federal government.

5. A seminar by Thomas Cassidy and Mary Rice on the applications of microcomputers and EMIS to educational planning and policy analysis.

6. A seminar by Luis Crouch, Luis Cubeddu, and Tom Cassidy on the uses of computers, including STEP, in educational planning and management.

7. Systematic training on the design of education information systems and the use of microcomputers was provided by BRIDGES staff to the Planning and Monitoring Cell and Engineering Works Department in the Sind Department of Education.

8. A one-month visit to Harvard by Sarfraz Khawaja, Director at AEPAM and the principal counterpart in the survey of schools. Among other activities Khawaja took part in designing the questionnaires used in the survey.

9. Attendance by four senior Pakistani officials at the 1988 BRIDGES Annual Meeting in Bangkok, Thailand. They were Laeeq Ahmad Khan, Director General of AEPAM; Shanaz Wazir Ali, Member of Parliament and now Minister of State for Education; Anwar Khetran, Secretary of Education for Baluchistan; and Iftikar Ud Din, Secretary of Education in Northwest Frontier Province.

10. Five senior-level education officials from Pakistan attended a one-month training program at Harvard University in August of 1988. They were among a group of 24 education officials from six developing countries who came together to discuss common education issues and receive training on the uses of microcomputer

technologies in educational planning, research, and policy analysis.

11. Training given to two AEPAM staff members, both doctoral students at Harvard University, in the development of codes for open-ended questionnaire responses on the sample survey of schools and in the procedures for coding such material and entering it into a computer.

**E. MAJOR CONSTRAINTS TO THE IMPLEMENTATION OF THE FY89 WORK PLAN**

The greatest single constraint is the shortage of staff at AEPAM for full collaboration with BRIDGES. This shortage was particularly evident in the conceptualization, design, and field work of the sample survey of schools. BRIDGES received helpful administrative support from AEPAM, and one of their staff members was responsible for coordinating the field work in the federal district. There were many opportunities for learning about how to design and conduct research that were missed because key staff members were occupied with other assignments. Part of the gap was filled by the 100 or so field workers recruited by BRIDGES in the four provinces, but they were not part of AEPAM. As a result, the work was done, but when it came time to write up the results of the survey there was no one at AEPAM thoroughly familiar with how it had been designed and with the peculiarities of field work in each province.

Collaboration with AEPAM also became complicated when its Director General was removed and replaced by an acting head. While the work of BRIDGES did go on, the gap in authority meant delays

in reaching agreement about key matters, such as whether the conference mentioned should be held, who should present papers, whether and how BRIDGES should work with the Planning Ministry, and the specific provinces in which future work on management information systems should be carried out.

## **SRI LANKA**

### **A. KEY RESEARCH ACTIVITIES DURING FY89**

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 formulation, 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 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 (FY87) with the expectation that up to three phases of research studies would be attempted. Phase 1 consisting of Projects 1, 2, & 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. Phase 2 consisting of Projects 4 & 5 was begun in January 1988 with scheduled completion in September of 1989, but the fieldwork also has been delayed.

Because of these delays, the overall Sri Lankan plan has been restricted to two phases of research studies with targeted completion in December, 1989.

Phase 1. Three major research projects undertaken for FY87-88 were:

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

Phase 2. Two additional research projects initiated in FY88 - (January) based on preliminary findings from the above are:

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

#### **B. RESEARCH RESULTS**

Phase I. 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 I 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. Over FY89 the draft reports have been revised and a final report will be available in December, 1989.

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

### C. MANAGEMENT REFORMS AND PRINCIPAL'S EFFECTIVENESS

Over FY89 important new work has been carried out on the specification of groups of schools and of indicators of effectiveness that are appropriate to each of these groups. A new background chapter outlines this work. The chapter argues that much existing effectiveness work fails to take into account the underlying hierarchy of school systems, and thus inappropriately seeks to compare schools located at different points in the hierarchy according to a common standard. This chapter illustrates the systemic constraints that stand in the way of low status schools achieving high quality education or high internal efficiency; even so, these schools may be responsive to the needs of their local communities. A contingent methodology for evaluating the effectiveness of schools is presented which enables greater consideration for the systemic constraints faced by schools and a clearer recognition of the goals schools set out to achieve (as contrasted with those imputed by the researcher's evaluation design).

The study then presents reports focusing on two distinct policy initiatives: the division/cluster reform and programs for training principals.

Training: 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 contexts 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.

Clusters following the conventional design of networking circa ten rural schools have been attempted in at least ten Third World countries with moderate to no success. The original Sri Lanka 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 III. 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 non-cluster schools in most of the above respects.

The above differences were also mirrored in several measurements of school outputs, viz 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.

#### **D. 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 to 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 4th 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. Also it raises questions about the appropriateness of current teacher training practices for the conditions of isolated rural schools.

#### **E. 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.

## F. TEACHING AND TEACHER EDUCATION

Phase 2. For the preparation of primary education, Sri Lanka relies on three modes of teacher education: an in-service program in teacher colleges that receives A-level graduates with teaching experience for two years of institutional training and one year of supervised teaching, an in-service program accepting A-level 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 classrooms.

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 addressed in this study has been, which of these modes 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.

Workshops over FY88 and FY89 developed a sophisticated methodology for comparing these three modes. Three major effect-

iveness 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 were subsequently pilot tested. 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.

Common to all of the effectiveness measures are gain scores. For example, concerning teacher knowledge, it is 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 1-2 years (T3). To expedite these measurement, it was decided to use a simulated chronological design where groups of teachers representing each of the programs are studied at each of the above stages, but with the time span truncated to one year. Thus new entrants to the programs in 1988 are being 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 has been required to gain a meaningful sample of the T3 subgroups.

The field work for this study began in January of 1989, and by September, 1989, complete results have been obtained on the costs of the respective programs. These indicate dramatic differences with the distance education programs being one-tenth the cost of colleges of education and one-fourth the cost of the teacher training colleges.

The data for the impact of the respective programs is still being collected. However, the preliminary findings do not suggest dramatic differences. Draft reports are now under preparation.

#### G. DECENTRALIZATION

A decentralization study was 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 is 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 has led to the following propositions:

1. A Clear Objective. The vaguer the objective(s) and/or the more numerous the objectives, the more problems in Implementation.

2. 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.

3. 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 idea, if they can find an unoccupied niche.

4. Influential Promoter. It helps if a key person such as the Minister or the Secretary is keenly interested in Implementation; local level politicians and officials also can help.

5. 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.

6. Complexity of Joint Action. Ideas that only require one individual or office for Implementation have the greatest chance of realization. To the extent they require common action by several levels in a given organization and/or the cooperation of more than one organization, the chance of Implementation decreases.

7. 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.

8. Gamesmanship. Ideas that are cleverly advanced with a proper understanding of the political realities have a better opportunity for Implementation.

These 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 have provided vital information for the current Sri Lankan debates on educational reform. For example, the study supporting the efficacy of the division/clusters option has led to its incorporation in the new decentralized management reform. The study on training has influenced the direction of the National Institute of Education's

Training Program. And the study on Teacher Training is now being carefully reviewed at the Ministry of Education.

#### H. PRODUCTS

The following products are currently available in low-cost binding:

1. Summary report of the three projects including both background chapters and a concluding chapter on policy implications. The report of 230 pages is being revised for completion in December of 1989 as a BRIDGES publication with the tentative title, "Clusters and Related Management Reforms: How These Can Improve Schools."

2. 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.

3. 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.

4. A statistical volume describing various characteristics of the context and the schools of the six districts where the research was undertaken.

5. A Booklet describing and printing the instruments for Projects 1 and 3.

6. The codebook describing the variables used in the analysis for Projects 1 and 3.

7. 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, is incorporated as part of the training materials developed by BRIDGES for workshops on policy analysis and planning.

8. Preliminary draft reports for particular findings of the teacher education and decentralization studies have been prepared, but final reports are scheduled for December, 1989.

#### I. KEY TRAINING ACTIVITIES IN FY89

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 components, as we have been working with newly recruited staff that have 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. In addition, over the past year, we have organized a number of 1-3 day workshops to carry out training in such areas as Attitude Measurement, Data Inputs, Statistical

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Analysis, Conduct of Field Work, Preparation of Field Reports, Word Processing.

#### **J. MAJOR CONSTRAINTS AND IMPEDIMENTS**

Delay in field work. Due to local disturbances, field work has often been delayed and alternate approaches have had to be devised. If all goes well, the final phase of data collection for the Teacher Education project will be completed in late September. That effort should complete the data collection requirements of the project. Over the latter months of 1989, the U.S. and Sri Lanka groups will attempt long-distance collaboration to complete the various reports.

#### **THAILAND**

##### **REPORT OF FY89 ACHIEVEMENTS**

FY89 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.

**A. SUMMARY AND SCHEDULE OF KEY RESEARCH ACTIVITIES IN FY89**

**1. Analysis of Survey Results**

Entering, cleaning, analyzing data and producing draft reports from our national survey of primary schools in Thailand were the major activities during FY89 of the subteams at Michigan State University (MSU) and the Office of the National Education Commission (NEC) responsible for the quantitative analysis part of the project during FY89.

The survey includes a national probability sample of 400 primary schools, 12,000 sixth grade students, 2,000 teachers, and 400 principals, along with subsamples of 1,000 parents and officials at the national and provincial levels.

The data were used to: 1) describe the cost and distribution of resources available for education across Thai primary schools (public, private, urban and rural); 2) examine relationships between teaching practices and student outcomes; 3) examine the association between characteristics of school management and

teaching practices found predictive of student achievement; and 4) evaluate the independent contribution of school management inputs and processes for student learning. Findings are discussed in the next section of this report.

## 2. Analysis of School Clusters

The MSU-NEC teams responsible for the qualitative studies devoted the first quarter of FY89 to the analysis and writing of a report on a study of school cluster influence on primary school quality. The data collection phase of this work was carried out during FY88 in two school clusters, representing a pilot study and an in-depth study.

## 3. Multisite Case Study

Using preliminary results from the survey analysis, the MSU-NEC teams responsible for the qualitative studies designed and carried out a multisite case study of 8 primary schools in four regions of Thailand during the last two quarters of FY89.

The study focused on the following variables identified in the survey as strongly related to student achievement: principal leadership; teacher knowledge and commitment (including participation in school decisions); school-community-temple relations and staff specialization. The purpose of the multisite study was to discover the ways these factors interacted to create high student achievement. The sample consisted of four matched pairs, one in each of four regions in Thailand, in which everything but student achievement was held constant (e.g., school size, SES, pre-primary education, central Thai, infrastructure and

remoteness). Urban and private schools were not included in the sample, since the overwhelming number of schools in Thailand are public schools located in rural areas. For similar reasons very large and wealthy schools were also excluded from the sample.

#### 4. A Low-cost Learning System: RIT

During the first quarter of FY89, the IIR researcher responsible for a comparative study of low-cost learning systems in several BRIDGES countries wrote a draft of her analysis of Thailand's Reduced Instructional Time (RIT) program and presented it for review at a team meeting in December, 1988.

#### B. RESEARCH RESULTS AND TENTATIVE CONCLUSIONS

Results of studies completed during FY89 (or revised for publication) are described here. Since the NEC/BRIDGES research project is to continue for a fourth year, conclusions presented here are not final, but represent work in progress.

##### 1. 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, in their BRIDGES-sponsored reanalysis of the 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.

2. The Distribution of Resources for Primary Education and its Consequences for Educational Achievement in Thailand

Using data from the national survey, Raudenbush and Bhumirat found considerable support for the hypothesis that the effect on pupil achievement of increasing educational resources (e.g., buildings, teachers, books) depends on the current availability of those resources. The effect of investing in educational resources is positive and the magnitude of that effect is greatest in educational settings where resources are currently scarce. But the magnitude of that effect diminishes as more resources are added. They found that pupil-teacher ratio, school spaciousness, school size, textbook provision, teachers' utilization of materials, and the provision of pre-primary education were nonlinearly related to pupil achievement in ways which imply that the likely effect of adding resources diminishes as more of those resources become available.

This finding helps explain why educational resources are more predictive of achievement in developing nations (where resources are scarce) than in developed nations (where resources are more abundant). Moreover, this finding also has important implications for policies which reallocate resources within developing nations such as Thailand. Because the availability of resources varies

from region to region, school to school, and child to child within a country, the hypothesis implies that the effect of adding resources will also vary. This reasoning implies that policies aimed at increasing the equity of the distribution of resources are also cost effective for increasing the overall achievement in a society.

3. Predictors and Consequences of Primary Teachers' Sense of Efficacy and Student Perceptions of Teaching Quality in Thailand

Using data from the national survey, Raudenbush, Bhumirat and Kamali constructed quantitative indicators of teachers' sense of efficacy and their students' perceptions of instructional quality. After establishing the link between these indicators and student achievement, they found that teachers' experience in inservice education programs, their exposure to classroom supervision, and their access to instructional materials increased their own sense of efficacy and their students' perception of the quality of their instruction. These findings suggest that policy initiatives which support, encourage and expand the capacity of teachers and administrators to collaboratively improve the quality of their schools may prove particularly effective.

4. Private Resources and the Quality of Primary Education in Thailand

Tsang and Kidchanapanish, using the national survey data, studied the characteristics and determinants of three categories of private resources to primary education in Thailand: direct

private costs of education, household contributions to school, and indirect private costs of education. They found that private resources to primary education are substantial and are an important source for financing educational inputs that are directly related to student learning. They also found that there are significant variations in such resources among different types of schools (public rural, public metropolitan and private) and students of different backgrounds. They learned that, in general, private resources to education are related to both family and school factors. Finally they found that the economic burdens of private resources to education are heavier for lower income, less wealthy, and agricultural households. To mitigate the negative effects of private resources, they suggest consideration of a policy option to redirect some public resources from the affluent urban population to the poor and rural population.

5. Accountability, Capacity-building and Enduring Dilemmas: Policy Initiatives in Thailand from 1980-1988 to Improve Primary Education

This study examines the conceptual framework underlying a series of reform initiatives implemented between 1980 and 1988 to improve primary school quality in Thailand. The research is based on a comprehensive literature review of material in English, interviews with Thai policymakers and fieldwork as part of the BRIDGES research in Thailand. Wheeler, Raudenbush, Kunarak and Paigna found two approaches dominated the Thai approach to school improvement during these years. The accountability approach used

regulations, requirements, testing and hierarchical patterns of decision-making to control and improve education. It assumed that teachers needed direction from above, especially poor teachers who might otherwise do little or no teaching. Rewards and incentives were primarily extrinsic, such as salary promotions (double promotions). Public ranking of test results was used as a way to stimulate greater effort by individual teachers. In contrast, as the capacity-building approach evolved, it emphasized more collaboration and cooperation to improve the quality of teaching. Under this approach, participation was emphasized in the belief that teachers and principals would collectively develop goals for improving the quality of education in individual classrooms. Teachers were assumed to be competent and sincere in their desire to improve. The most important rewards were often intrinsic, i.e., internal, as the result of participation to define and achieve goals for improvement.

The two approaches led to increased test scores and a greater focus on the academic purpose of schooling. By the latter part of the decade, however, tensions between the two approaches surfaced, especially as the accountability approach gained ascendancy, and further progress appears threatened. Changes proposed go beyond recommending that increased attention be given the capacity-building approach to restore the balance. It is argued that continued improvement in primary school quality may depend on new ways of conceptualizing policy choices to address a series of dilemmas.

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6. School Clusters in Thailand: A Management Strategy for Improving Primary School Quality

Drawing on case studies of two school clusters, Wheeler, et al. show that under certain conditions, school clusters can play an important role in improving primary school quality. School cluster influence, however, depends on how receptive the school is to cluster initiatives, which they show is directly related to principal leadership. They also show that school cluster influence is affected by certain contextual factors over which the cluster has little control such as the local wealth of communities surrounding individual schools belonging to a particular school cluster (which can lead to inequities in community donations) and national policy which recently has emphasized more an accountability approach to school improvement over a capacity-building approach (which has undermined the cluster's historical emphasis on capacity-building and has led many clusters to become just another link in the administrative chain of command from Bangkok to the provinces, the districts and, finally, individual schools). Sustained school improvement, it is argued, may well necessitate not only a renewed national emphasis on capacity-building as well as accountability, but also a multilevel approach to change. A model is proposed whereby national administrative levels would also make adjustments in the allocation of public funds, providing additional funds to impoverished areas to compensate for base level differences in community wealth. District offices might emphasize more the accountability approach while supporting the school

cluster's capacity-building initiatives. The school cluster, while assisting the district office with its accountability responsibilities, might emphasize the capacity-building approach.

**C. INTENDED OR ACTUAL PRODUCTS FROM RESEARCH COMPLETED**

**1. Quantitative Analysis**

a. Pre-primary Education Policy and Primary School Outcomes in Thailand by Dr. Stephen Raudenbush, Ms. Somsri Kidchanapanish and Mr. Sang Jin Kang. A secondary analysis of the 1982 primary school efficiency data set. The paper examines contributions of pre-primary education for student achievement and proposes policy options to improve primary school quality.

b. The Distribution of Resources for Primary Education and its Consequences for Educational Achievement in Thailand by Drs. Stephen Raudenbush and Chinnapat Bhumirat analyzes data from the BRIDGES national survey conducted in cooperation with ONPEC to examine the relationship between student achievement and the distribution of educational resources such as buildings, teachers and books.

c. Predictors and Consequences of Primary Teachers' Sense of Efficacy and Student Perceptions of Teaching Quality in Thailand by Drs. Raudenbush, Bhumirat and Mr. Mohamed Kamali uses data from to national survey to examine teachers' sense of efficacy and their students' perceptions of instructional quality.

d. Private Resources and the Quality of Primary Education in Thailand by Tsang and Kidchanapanish uses the national survey data to study the characteristics and determinants of three

categories of private resources to primary education in Thailand: direct private costs of education, household contributions to school, and indirect private costs of education.

2. Literature Review and Fieldwork

a. Accountability, Capacity-building and Enduring Dilemmas: Policy Initiatives in Thailand from 1980-1988 to Improve Primary Education by Drs. Wheeler, Raudenbush, Kunarak and Passigna examines the conceptual framework underlying a series of reform initiatives implemented between 1980 and 1988 to improve primary school quality in Thailand. The research is based on a comprehensive literature review of material in English, interviews with Thai policymakers and fieldwork as part of the BRIDGES research in Thailand.

3. Qualitative Studies

a. School Clusters in Thailand: A Management Strategy for Improving Primary School Quality by Dr. Wheeler, et al. draws on case studies of two school clusters to show that under certain conditions, school clusters can play an important role in improving primary school quality.

4. Quantitative/Qualitative Studies Integrated

a. Local Initiatives and Their Implications for a Multilevel Approach to School Improvement in Thailand by Drs. Tsang and Wheeler integrates findings from the survey on cost analysis and the case studies of two school clusters. The paper describes and evaluates two related strategies at the local level for improving

the quality of primary education in Thailand: community support for schools and school clustering.

**D. KEY TRAINING ACTIVITIES CARRIED OUT DURING FY89**

Informal training, principally in multisite case study research, comprised the major contribution by MSU to the NEC in this area. NEC staff formed the nucleus of the team which collected the data for the case study of a school cluster. All NEC team members participated in the various cross-site meetings where data was analyzed across schools. Several members worked closely with the MSU team leader during the writing stage, taking responsibility for different sections.

In the quantitative area, the NEC team members working on the cost analysis phase of the project benefitted from the leadership provided by the MSU team member in this area. His knowledge of specific techniques improved the NEC's understanding of this approach and enabled them to carry out their own analysis on a part of the data. In terms of survey analysis, NEC staff received advice and suggestions from the MSU team member in this area, which improved the quality of the NEC's analysis.

**E. MAJOR CONSTRAINTS AND IMPEDIMENTS HINDERING THE COMPLETION OF THE FINAL PHASE OF THE RESEARCH PROGRAM**

The major impediment for the NEC/BRIDGES work proved to be the amount of time it took to enter and clean the data from the national survey. The survey was completed in March, 1988. It took nearly 10 months to complete the entering and cleaning phases for all the components of the study (survey and cost analysis). By

sequencing the work, NEC and MSU staff were, nevertheless, able to analyze portions of the survey data in time for presentations at the Second Annual BRIDGES meeting in January, 1989 and a policy conference in Cairo during the same month. Work on the cost analysis phase was begun but did not proceed as far as originally planned. The sheer magnitude of the task proved to be the major reason for this delay. Survey responses from 400 school principals, 2,000 teachers, 12,000 sixth grade students and 1,000 parents and provincial officials required the full attention of the NEC staff for several months. Now that all the data have been entered and cleaned, the analysis in each area is underway.

The second major impediment for the project during FY89 proved to be the inadequate computer facilities of the NEC. The NEC had to rely on the National Statistical Office (NSO) to run its programs, given the size the data set. This led to considerable delays in analyzing the data, since the NEC had to wait its turn along with other government agencies. Beginning in August, the MSU team requested additional computer assistance for the NEC. By December, this request had been granted and in early January, 1989, the NEC had a computer of sufficient size and speed in place so that analysis could proceed in a timely fashion from then on.

Both these developments meant that more analysis remains to be done on the survey during Year Four than was originally anticipated. It also meant that the multisite case study had to be delayed until August, rather than June, which means that more

analysis has to be done during Year Four than originally anticipated.

## SOFTWARE DEVELOPMENT AND TRAINING: SUMMARY OF FY89 ACTIVITIES

### A. SOFTWARE DEVELOPMENT

During this fiscal year, work continued on the main BRIDGES microcomputer-based educational planning and policy analysis software tools. In some cases this involved the completion of software already under development while in others the development of the software was begun.

Three software activities which were outlined in the RTI FY89 work plan were not carried out due to lack of funds and other reasons. The Host facilities improvements activity and the Game were dropped due to lack of funds; the cost projection model was also not developed in part because of lack of funding and in part because it was never possible to get together with MSU collaborator Mung Tsang.

In partial replacement of these three modeling activities, RTI took the initiative and developed three low cost software products which should prove useful adjuncts to the remaining set of RTI-developed products. These are described below in subsections 4 and 5.

#### 1. Completion of GENDER

The GENDER system was conceptualized and developed largely during the previous fiscal year. During this fiscal year, some minor changes in the software were made based on users' comments

and based on the comments on participants in the BRIDGES WID seminar held in the summer of 1988. In addition, a User's Manual was written and reproduced.

## 2. OPES

The BRIDGES educational planning model software was conceptualized, programmed and tested during the year. Called "OPES" (Optimizing Policies for Educational Systems), the software permits the understanding of the tradeoffs between educational goals, the constraints in reaching those goals and the efficacy of policy options.

Harvard provided RTI a the "knowledge base" for the OPES software which contains short literature reviews of the relationships between various educational inputs and outputs. Work on this aspect is expected to continue in FY90.

A brochure was published and distributed for OPES. Full documentation is to be written.

## 3. STEP Tutorial Manual

The STEP system was completed during FY88. During FY89, the only work that took place on STEP was a few minor "bug fixes" and completion of two chapters of a tutorial and installation manual written by Mary Rice.

## 4. Transition Rate Estimator

In response to a perceived important gap in the arsenal of planning tools at educational planners disposal, RTI developed the initial version of a transition rate estimator which uses minimal data. In the STEP system, two methods are present: the so-called

"standard" method and the method developed by Scheifelbein. RTI's innovative method uses a linear programming technique to estimate drop out and repeater rates using a little as two years of enrollment data.

An interactive software package was developed to facilitate use of the package which is still being tested.

5. Simple Enrollment Projections Package ("MINPROJ")

As an adjunct to the STEP system, RTI developed a very easy-to-use enrollment projections software package currently called "MINPROJ". First developed in the field for use in Pakistan, the package fits on a single 360K floppy diskette and can be learned in about 15 minutes.

The software is still being tested and some further development is planned during FY90.

6. Education Impacts Model ("EIM")

Major progress took place on the education impacts model (currently called "EIM") during the fiscal year. This model is designed to show the relationships between educational attainment and economic development as well as between education and other social sectors such as health. During the fiscal year the major statistical work on the model was completed. An international data base was established using World Bank data and the various equations were estimated and selected for inclusion in the model.

A software strategy is currently being prepared and the model is being assembled. A first version of the model should be ready by mid-November.

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## B. DISSEMINATION AND TRAINING

During the period a number of significant dissemination activities took place. Most of these activities were part of BRIDGES organized events but some of them were initiated in conjunction with an RTI person's travel to a country or region on other business. Such were the cases in Dijon, Bamako and Malawi.

During the period BRIDGES software was requested and distributed to over 30 institutions. A computerized data base system has been set up to keep track of users and to allow updates to be distributed as they become available.

In addition to the various brochures connected with the specific models, Luis Crouch prepared a color computer "slide show" of the effects of education on development and the expected impacts of the Pakistan Educational Development (PED) project there. Scott Moreland used BRIDGES work part of the basis of an article to be published in a book on decision making by the University of Illinois. Similarly, Luis Crouch wrote a paper on the linear programming transition rate estimator which was accepted for publication in the Economics of Education Review.

Events at which BRIDGES software was shown by RTI staff have included this period:

1. Demonstration, Second Annual BRIDGES Meeting, Bangkok (January, 1989).
2. Discussion, CIE/S Meeting, Harvard (April, 1989).
3. Demonstration, USAID Malawi (June, 1989).

4. Demonstration/Seminar World Bank (EDI) organized Workshop on Educational Technology in Adana, Turkey (November, 1988).
5. Demonstration/Seminar, IREDU, Dijon (June, 1989).
6. Demonstration/Seminar, Ministry of Education, Mali (June, 1989).
7. Demonstration, BRIDGES Egypt Conference, Cairo (February, 1989).
8. Demonstration, USAID/S&T/ED (September, 1989).
9. OAS STEP Training for 6 Officials from the Caribbean (at RTI, September, 1989).
10. World Bank (EDI) staff training for Bank, AID, and contractor staff (December, 1989).
11. Training Seminar, OAS, Trinidad & Tobago (October, 1988).
12. Demonstration/training for Ministry of Education and Planning Commission Officials, Pakistan (November, 1988).
13. Training for Planning Commission Officials, Pakistan (August, 1989).
14. Demonstration/training for Educational Planning Unit Officials, Egypt (June, 1989).

**C. COUNTRY ACTIVITIES**

**1. Pakistan**

RTI involvement in BRIDGES Pakistan activities continued in November 1988 with a training visit by Luis Crouch and Luis Cubeddu. Training for Education officials from all provinces was carried out. Discussions were held with Academy of Educational

Planning and Management (AEPAM) officials regarding software development that might be undertaken jointly by AEPAM and RTI. Luis Crouch also traveled to Quetta to offer some specialized training and discuss future BRIDGES work in Quetta in the MIS area.

In February of 1989 a follow-up visit by Luis Crouch concluded that work in Quetta was unlikely to yield any results unless BRIDGES could find a way to station someone on site on a long- or medium-term basis. Similarly, there had been relatively little progress at AEPAM in development and expression of interest in work in the planning software area. It was concluded that the Planning Commission, Education Division was a more fruitful institution with which to cooperate in the planning area, and arrangements were made to begin this collaboration. Crouch held discussions with Dr. Musarrat Ali Khan in particular. During this visit, Crouch also worked closely with the USAID Mission to produce a model for projecting enrolment in Baluchistan and NWFP, which was used in the process of designing the PED program for these two provinces.

In August of 1989 Crouch visited Pakistan again. Work with the Education Division of the Planning Commission got fully under way. Crouch negotiated the purchase and installation of a micro-computer system for the Division, and began training in its uses for educational planning purposes. At the same time, Crouch developed a set of computer graphics to accompany the enrolment projections. These graphics, and the underlying projections, were used in a process of policy dialogue with provincial education authorities.

## 2. Egypt

During this period, work resumed on the RTI component of the BRIDGES Egypt subproject. Scott Moreland traveled three times to Cairo on behalf of the project. In late December, 1988 and early January, 1989, Moreland visited Cairo to discuss with Ministry of Education and USAID officials the best strategy for resuming work after a nearly 18 month interruption. It was decided to conduct two one week seminars at the newly created Educational Planning Unit (EPU) of the MOE.

In connection with a BRIDGES-sponsored seminar on educational policy and reform, Moreland again visited Cairo in February, 1989. At the conference he demonstrated BRIDGES developed software, including the newly-developed OPES (see above).

In June, 1989, Moreland conducted a one week training course at the new offices of the EPU. The workshop consisted of an introduction and overview of the various BRIDGES software as well as other software developed by the World Bank. The purpose of the seminar was to expose EPU staff to the various planning tools so that they could make an informed choice regarding which software should be applied to Egypt. As a result of the discussions held at the end of the workshop, it was decided to focus on STEP during the second workshop.

Due to scheduling problems the second workshop has been postponed until the Autumn of 1989.

### 3. Indonesia

BRIDGES/RTI activities in Indonesia got fully under way in June 1989, with the visit of Luis Crouch to Jakarta. Extensive discussions were held with Dr. Boediono, Chief of the Informatics Center of the Research and Development Division at the Ministry of Education, on the scope and specifications of the modeling work to be carried out. Discussions were also held with Richard Pelczar, of the EPP/IEES project, and with Norman Rifkin of USAID/Jakarta. Crouch also demonstrated applications of multidimensional spreadsheet software to highly disaggregated planning problems to a wide audience of Ministry planners. Finally, Crouch also held various discussions with officials from the Ministry of Labor and the Central Bureau of Statistics, who are concerned with the issues of enrollment projections and how they feed into projections of labor supply by level of education.

## **THE COST-EFFECTIVENESS OF DISTANCE EDUCATION FOR TEACHER TRAINING**

### **A. REPORT OF RESEARCH ACHIEVEMENTS IN FY89**

#### **1. Key Research Activities--October 1 to May 31, 1989**

Three main categories of activities have absorbed our attention during the above eight-month period, namely:

a. completing the research on the private costs and expected benefits of teacher training through distance education in Indonesia (to be referred to hereafter as Phase I);

b. furthering the research on the cost-effectiveness of distance education for teacher training--also called the cost-

effectiveness of alternative approaches to teacher training (to be referred to hereafter as Phase II);

c. continuing to provide technical assistance on the cost study aspect of the research on the cost-effectiveness of alternative approaches to teacher education in Sri Lanka.

## 2. Phase I

Most of the research for this study of private costs and expected benefits was completed during the previous fiscal year. During this year reports (all originally written by researchers from the Open University Research Center [UTRC] in the Indonesian language) were reviewed, revised, translated and submitted for publication. A full-scale report has been produced in the Indonesian language which covers all aspects of the research. This will be disseminated nationally (in Indonesia). In addition, three article-length papers have been produced and translated into English, namely: "The Private Costs of Distance Teacher Education in Indonesia," "The Expected Benefits of Distance Teacher Education in Indonesia," and "Teacher Training by the Indonesian Open Learning University: The Relationship of Private Costs and Expected Benefits to Enrollment Decisions." The Indonesian versions will be published and distributed locally; the English versions will be submitted for publication to BRIDGES and appropriate international journals on distance education. The third paper was presented at the BRIDGES annual meeting by Aria Djalil, Director of the UTRC, and D. Nielsen.

### 3. Phase II

This study of the cost-effectiveness of various approaches to teacher training was launched in July of last year. During the early part of this fiscal year (FY89) the Indonesian team and I reviewed data from the pre-test of Phase II instruments (those to measure teacher mastery of subject matter, teaching skills and desirable professional attitudes; those related to costs) and made revisions. We also conducted trials of micro-teaching and the use of micro-teaching observation forms. By mid-October the research instruments had been finalized and data collectors trained in their use. From late October through late November the first round of Phase II data was collected (that for new students in each of three kinds of training programs as well as for one group of Open University completers). During December and January the first round data was coded, entered into the computer, and preliminarily analyzed. During February a workshop was held in Jakarta in which the creation of scales and more advance data analysis were covered. Also, at that time the institutional cost analysis was initiated, beginning with instrument construction and moving to a data collection trial at one of the teacher training universities. (The events in February took place during a visit to Jakarta by D. Nielsen.)

During March the UTRC staff worked on the development of a scale codebook and then proceeded to run scale results for the first round of data collected. During April and May staff members completed the second round of data collection, that from training

program completers. Institutional cost data collection was also completed.

4. Cost Study: Sri Lanka

In October, during a visit to Colombo by D. Nielsen, private cost data, which had been collected during the previous two months, was reviewed and coding routines finalized. In addition, institutional cost data was collected from four colleges (two Colleges of Education and two Teacher Training Colleges). During November D. Nielsen wrote up the research design which had been agreed upon and which was already being followed (but which had not been written up in detail). In February, during a subsequent visit to Sri Lanka by D. Nielsen, a full set of cost data was collected from the distance education program and supplementary cost data were collected from the colleges (including some from student groups which had been missed). Shortly after that D. Nielsen did a preliminary analysis of cost data and used that as a basis for the development of cost-analysis guidelines which he sent to the Sri Lanka (National Institute of Education) research team. This team used these guidelines in completing a preliminary data analysis during April and May.

The chronology of activities covering all three categories was as follows (references are to work in Indonesia unless otherwise indicated):

- |  |         |
|--|---------|
| a. Review Phase I research report                    | Sep. 88 |
| b. Finalize and review Phase II research instruments | Sep. 88 |

- c. Pre-test Phase II research instruments;  
try out micro-teaching procedures Oct. 88
- d. Train data collectors Oct. 88
- e. Review private cost data and collect  
institutional cost data (Sri Lanka) Oct. 88
- f. Develop research design for Sri Lanka  
cost-effectiveness research Nov. 88
- g. Re-analyze Phase I data Nov. 88
- h. Collect first round of Phase II student  
data Oct.-Dec. 88
- i. Prepare paper on Phase I results for  
BRIDGES annual meeting Dec. 88-Jan. 89
- j. Present paper on BRIDGES Phase I findings  
at annual meeting Jan. 89
- k. Present paper on BRIDGES Phase II work-in-  
progress at BRIDGES conference in Cairo Jan. 89
- l. Conduct workshop on Phase II data processing  
and analysis; research report writing Feb. 89
- m. Begin collection of institutional cost data Feb. 89
- n. Collect remaining institutional cost data  
including that for distance education  
(Sri Lanka) Feb. 89
- o. Work on proposal for a possible follow-up  
to BRIDGES in Indonesia Feb.-Mar. 89
- p. Develop cost analysis guidelines for Sri  
Lanka Mar. 89

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- q. Prepare BRIDGES Phase I papers for publication Apr.-May 89
- r. Collect second round of Phase II student data Apr.-May 89
- s. Complete cost analysis (Sri Lanka) Apr.-May 89

**B. PLANNED RESEARCH ACTIVITIES (JUNE 1 TO SEPTEMBER 1988)**

In early June, D. Nielsen will return to Indonesia for a three-week visit. During that time he will work with UTRC staff members on the analysis of cost and effectiveness data for the Phase II project. Also, they and he will make certain that Phase I research results are being disseminated through appropriate local channels. At the end of the visit they will conduct a small-scale workshop on the preliminary findings of Phase II to which the collaborators from various colleges will be invited. (The latter may need to be cut if funds run out.) That visit will also be used as a time to plan project activities and budgets for FY90, which will begin in October. During July and August final data analyses will be conducted (both in Indonesia and the USA) and preliminary reports written. Nielsen will return in September to review the preliminary report and work with UTRC staff members on revisions.

During July and August, Nielsen will also work with Sri Lanka counterparts in outlining and then drafting chapters on cost-analysis and cost-effectiveness for the Sri Lanka teacher education study.

The planned sequence of activities will be as follows:

1. Finalize and submit Phase I papers for publication May-June 89
2. Analyze Phase II cost and effectiveness data June-July 89
3. Conduct workshop on preliminary Phase II findings July 89
4. Write first draft of Phase II report Aug. 89
5. Draft cost and cost-effectiveness chapters (Sri Lanka) July-Aug. 89
6. Review first draft of Phase II report Sept. 89

**C. RESEARCH RESULTS (TO DATE)**

1. Phase I

Research results are already available for Phase I. They have been reported in the papers mentioned above. A brief summary is given below:

The project focused on teachers enrolled in UT upgrading courses in Science and the Indonesian language at both the lower and upper secondary level. A sample of 311 responded to a mailed questionnaire, about 69% of those enrolled in the courses at 16 of the universities' 32 regional centers. "Enrollment decisions" were operationalized as intention to drop out and intention to reduce "course load."

Students paid on the average about Rp 213,000 per year for open university courses, an amount considered high when compared with that paid for conventional universities. The highest category

was fees followed by learning materials, transportation and foregone income. There was a high variation in the amount paid per year (Rp 45,000 to Rp 873,000) and per credit hour (Rp 2,000 to Rp 60,000). The amount paid on many of cost categories was related to background, especially the location (remoteness) of the participant's work place (those from remote areas pay more overall, especially for transportation and accommodations), and the field of study (BA level students spend more on books than diploma students). About half of the students indicate that they spend more than expected; this is especially so for those from the remote areas with respect to transportation and accommodations.

With respect to enrollment decisions, very few (6%) indicated they did not plan to enroll next year. Somewhat more (14%) indicated they would or might drop out altogether. On course load decisions, a little over 30% indicated they would drop courses, whereas fully 45% indicated that they would take fewer courses next year. Cost factors that were cited by many students as reasons for drop-out were new modules (13%), tuition (12%), and transportation (to tutorials, etc.) (8%). Correlation analysis revealed no significant correlations between the actual costs of factors and the DROP-OUT scale. There were, however, significant correlations between five of seven of the non-monetary cost factors and DROP-OUT, the strongest being emotional drain (.25) and disruption of family life (.21). Also, higher than expected costs for transportation and foregone income were significantly correlated with DROP-OUT ( $r = .13$  and  $.25$ ). There were no significant

correlations between actual costs and the COURSE LOAD REDUCTION scale, except in the case of the factor foregone income (.18). As with DROP-OUT, there were several non-monetary cost factors correlated with COURSE LOAD REDUCTION, the following four (of seven) with correlations of .20 or better, emotional drain, disruption of family life, decline of general well-being, and loss of leisure time. The strongest correlations in the study were between higher than expected cost factors and COURSE LOAD REDUCTION (all were significant with coefficients ranging between .17 and .39) and between a subjective affordability scale ("I can't afford...") and COURSE LOAD REDUCTION (.48). The latter seem to indicate that enrollment decisions are influenced not so much by what students have to pay, but by how much they have to pay in relation to what they expected to pay and to what they can pay (affordability). Finally, with respect to expected benefits and enrollment decisions, only one highly significant correlation was found, a negative one between the expectation of improved professional ability and DROP-OUT.

It is expected that Indonesian policymakers will be able to use these findings in increasing their sensitivity to nonmonetary costs and foregone income, improving initial communications about costs so that expectations are more realistic, and directing special assistance towards the particularly vulnerable, those whose costs are a relatively high proportion of their incomes.

## 2. Phase II

No results are available yet.

### 3. Cost-Study: Sri Lanka

Only preliminary results are available so far. The data seem to reveal a very wide variation in costs per student across the three programs: Colleges of Education (pre-service); Teacher Training College (in-service upgrading); Distance Education (pre-service upgrading). The Colleges of Education are comparatively expensive and the Distance Education program much cheaper (by several orders of magnitude). Teacher training colleges are in the middle but on the cheap side. There are also differences in effectiveness scores among those from the various programs. In general, College of Education students make the most gains (since they have never been exposed to teaching before), but there is not much difference in the mastery levels at the end of the programs. We are awaiting final computations (including complete data from the distance education program) before any attempt to derive cost-effectiveness ratios can be made.

#### D. INTENDED PRODUCTS (BY SEPTEMBER 1989)

The main products by the end of this fiscal year will be the final reports and papers from Phase I and draft reports from the cost-effectiveness research from both Indonesia and Sri Lanka. In more detail, the products will be:

##### 1. Phase I

- A complete report on Phase I research findings in the Indonesian language;
- Research articles/papers in both English and Indonesian on three topics, as follows:

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- private costs of distance teacher training;
- expected benefits of distance teacher training;
- the relationship of private costs and expected benefits to enrollment decisions.

## 2. Phase II

A draft research report on the cost-effectiveness of alternative approaches to teacher education in Indonesia in English and the Indonesian language.

## 3. Cost-study: Sri Lanka

Drafts of two chapters for the Sri Lanka study: one on the cost study, and one on cost-effectiveness.

## E. TRAINING ACTIVITIES

### 1. Indonesia

My visits in October and February were occasions for intensive training. The training has focused on two general skill areas: 1) research methods, and 2) report writing. The training on report writing has come as we have outlined the research reports, deciding how to present the findings in tables, graphs and text. It has been furthered at the time we review drafts together and I give feedback on how to improve the presentation of findings. Much training has gone into the drafting of the Phase I research papers, which were formatted as journal articles to give UTRC staff members the push for keeping high standards of quality and to give them some professional exposure and perks. The training on research methods has come as we worked in Phase II. We covered instrument construction and pre-testing, micro-teaching and micro-teaching

observation, coding and codebook formulation, scale construction and data reduction, and fitting the analytical procedure to the research questions. We have also advanced the collaborators' skill in using data analysis software (SPSS PC+).

## 2. Sri Lanka

Training in Sri Lanka also mostly took place during my visits. Besides the regular on-the-job training, Dr. Gunawardena scheduled more formal training events during my two visits in FY89. First, I gave a workshop on cost-effectiveness and second I gave a symposium talk on using distance teacher education in a cluster school setting. More informal training has taken place as we collected cost data together and developed approaches to cost data analysis. Since opportunities for travel to Sri Lanka are limited, my last training effort vis-a-vis Sri Lanka was done through distance education. I wrote "self-instructional" guidelines (complete with worksheets) for NIE staff use in analyzing the cost data.

## F. CONSTRAINTS AND IMPEDIMENTS

The main constraints to work in Indonesia have been financial. Cuts in our budget have meant that I have had less time to spend in Indonesia and fewer resources than expected for workshops. These constraints have been dealt with in part by pushing some of the workshop activities planned for FY89 into FY90. Another difficulty, which was not anticipated at the beginning, is the fact that new enrollments in the Open University teacher training

program have fallen off recently making it difficult for us to achieve our sampling target for that critical group.

The main constraints in Sri Lanka have been political. Political turmoil in the country has closed schools, interrupted transportation and slowed research progress. There is also the problem of government reorganization. The Distance Education Program is currently being shifted out of the NIE into the Ministry and in the ensuing confusion no new students are being enrolled, which is making it impossible to collect a critical batch of data. It is hoped that the problem will be resolved soon enough for us to collect data from this critical group in time.

## **SUSTAINABILITY OF LOW-COST LEARNING SYSTEMS**

### **A. FY89 RESEARCH ACTIVITIES/ACHIEVEMENTS**

#### **1. Key Research Activities to Date (October 1988 to May 1989**

Revised research questions. The research study, "Sustainability of Low-Cost Learning Systems," is a modification of "A Post Hoc Analysis of Low-Cost Learning Systems." The new title reflects the changes made in the statement of the research questions to emphasize those aspects which, based on feedback received through Dean Nielsen from Dr. Moegiadi's office and the HRD Section of the USAID Mission in Jakarta, would be of interest to education planners and policymakers of Indonesia and, presumably, to those of other developing countries as well.

This multi-site case study focuses on the implementation of innovative instructional systems (now commonly referred to as "Low-

Cost Learning" or "LCL" Systems) developed in several Third World countries to enhance the efficiency of their primary education system.

The research questions have been reworded as follows:

(a) Which components of the original LCL system are actually being implemented in the schools in each country? The investigation takes into account: (1) components that have endured the test of time and which have been sustained over the years in the schools using the LCL system; (2) components that were dropped from the system, and the reasons for dropping them; and (c) components that were invented or introduced after implementation to meet unique needs and situations that emerged during the implementation.

(b) How has the implementation of each LCL system been financed over the years? This question has direct bearing on the issue of sustainability of the system. That is, the extent to which the system or its effective components can be sustained depends to a large extent on whether or not continued funding is assured under regular budgets on the national, regional, or provincial level.

(c) Which components are perceived to contribute the most to the success/effectiveness of each LCL system in terms of improved student learning and more efficient operations by teachers and administrators? Components are considered as contributing the most to the effectiveness/success of the system if: (1) they are identified by the students (and teachers/ administrators) as those that help them best to learn, and (2) they are identified by

teachers/administrators as those that help them best to function efficiently.

(d) What costs have been associated with the implementation of the system components in each country's primary education system? The cost analysis focuses on marginal unit costs--i.e., the net costs of or savings realized from the utilization of each system component.

## 2. The Cases

The original list of countries and their respective instructional systems are given below. The criteria used for this selection were: (a) the instructional system is being implemented in primary schools in the country being investigated; and (b) prior evaluations and/or cost analysis studies have reported the system to be cost effective or as having potential for cost effectiveness.

|              |   |
|--------------|---|
| Bangladesh:  | UPE/IMPACT (Universal Primary Education's Instructional Management by Parents, Community, and Teachers) |
| Belize:      | PPTT (Posterized Programmed Teaching Technology)  |
| Indonesia:   | PAMONG (Pendidikan Anak Masyarakat Orang Tua Guru)--the Indonesian counterpart of "IMPACT"              |
| Liberia:     | IEL (Improved Efficiency of Learning)   |
| Philippines: | IMPACT (Instructional Management by Parents, Community, and Teachers)                                   |
| Thailand:    | RIT (Reduced Instructional Time)  |

It will be recalled that Malaysia's INSPIRE was included in the original proposal because of its potential cost-effectiveness for rural environments, but was dropped after some discussion with D. Nielsen because, although the program's goal was to improve the quality of instruction in rural schools, there had been no emphasis on minimizing or reducing educational costs. Two other countries dropped from the study are Bangladesh and Belize. The former was judged as no longer meeting the major criteria for selection stated above in light of new information from the Director-General of Primary Education of Bangladesh that the Directorate had decided to discontinue the use of the UPE/IMPACT system after the 1988 school year ended last December. This decision was reached when results of a recent World Bank evaluation had failed to show that the system produced greater learning gains among the students. Furthermore, the report indicated that the manner in which the system was being implemented in the schools did not seem to make it more economical than the traditional system.

Belize was also dropped from the study primarily because of budgetary constraints--i.e., keeping the Belizean PPTT system in the study would have required spending over and above BRIDGES' current budgetary allocation for this subproject. Barring further constraints and/or unforeseen events, the research study on LCL systems now includes Thailand, Indonesia, the Philippines, and Liberia.

### 3. Data Collection

Data collection in general has gone more slowly than anticipated due mainly to differences in the school calendars of the participating countries and the need to accommodate suggestions from the Education Ministries and research collaborators regarding preferred schedules for visits and data collection activities.

Cost data were collected in Thailand last December and in Indonesia last February. Data collection for Thailand is complete except for a few minor pieces of information that can be obtained through correspondence with the key informants. Data collected on the Indonesian PAMONG system are mainly from East Java. Dr. Terasmihing of the University of Palangkaraya still has to submit the data he collected from small schools in Central Kalimantan. Dr. J. Socrates of INNOTECH has agreed to collect some more recent data on the Philippines' IMPACT system, to be sent after the schools open again in June. Data collection in Liberia is scheduled for the last week of June and the first week of July, pending travel clearance from USAID.

### 4. Projected Activities--May to September 1989

|           |   |
|-----------|---|
| May       | Prepare 1990 work plan for IIR's Subproject II.   |
| June-July | Analyze questionnaire/interview data on SDK and SDP applications of PAMONG and costs in Central Kalimantan, Indonesia, through Dr. Terasmihing, University of Palangkaraya, and on IMPACT/Philippines implementation costs through Dr. J. Socrates of INNOTECH. |

Data collection on Liberia's Primary Education Project (PEP), formerly the IEL Project.

Train Liberian research collaborators in qualitative research methodologies--i.e., how to conduct the open-ended interviews (e.g., how to ask probing questions to elicit the most accurate answers to the core questions); how to administer the student questionnaires to obtain the most truthful answers.

Aug.-Sep. Finalize drafts of country reports for final review by and discussion with research collaborators in Indonesia, Philippines, and Thailand prior to dissemination.

**B. RESEARCH RESULTS TO DATE AND TENTATIVE CONCLUSIONS**

**1. Thailand's Reduced Instructional Time**

Components in operation in small schools. The current implementation of the RIT system in over 6,000 small schools in Thailand has retained most of the original components since large-scale implementation was initiated in 1982. The basic components in operation are: (a) systematically designed, recyclable instructional materials; (b) differentiated staffing; (c) flexible organizational and management systems; (d) competency-based, on-the-job teacher training; (e) flexible facilities; (f) peer group learning; (g) mastery learning; (h) modularized instruction; and (i) built-in criterion-referenced evaluation instruments and procedures.

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Procedures and materials for teacher training and supervision have been revised and are still undergoing revision in response to formative feedback from the teachers and administrators of the small schools using RIT materials. Part of the training in RIT teaching-learning procedures and classroom management is now delivered by means of videotapes which teachers and administrators can view at the district offices. Internal supervision (by principals) and in-house training has replaced much of the external supervision that prevailed in the early days.

The success of the family planning movement in Thailand has ironically produced a new kind of problem in the rural areas: the school-age population has dwindled drastically, and age ranges of the student population have increased. In addressing this problem, ONPEC initiated an organizational intervention called the "alternate intake system," which is also being used in three of the four RIT schools investigated. This is an organizational structure designed to reduce the number of classes in the school to match the number of teachers available. These schools usually have only three teachers for six classes/grades and, therefore, open alternate grades each year--e.g., in 1988, these three schools have Grades 1, 3, and 5; the following year, they will have Grades 2, 4, and 6. Students who wish to be in Grade 1 next year will have to wait until the following year for admission. Students whose ages would ordinarily classify them as fourth graders this year are either in Grade 3 or in Grade 5. This structure results in

abnormally large age ranges among students in the same class studying the same material.

## 2. How RIT Schools have been Financed

The small schools using RIT materials are funded out of budget allocations for special projects under the Office of the National Primary Education Commission (ONPEC). The instructional materials are produced in Bangkok and sent to the provinces. ONPEC supervises the RIT implementation through its field supervisors who visit the different school districts at least once every year. Regular supervision is expected to be carried out by the provincial supervisors. However, these supervisors tend to focus more on the "target" (lowest-achieving) schools in the province, which the key informants say are usually conventional schools, rather than RIT schools. The most recent policy, therefore, internal supervision and in-house training have been the rule in the RIT schools.

## 3. Effective Components

The students selected teacher presentation and peer group learning as the most effective and best-liked (preferred) process components of the RIT system. When asked the open-ended interview question, "What activity do you enjoy the most?" the students invariably said "peer group learning." The most common reason they gave for this response was that PGL allowed them to "help each other and to discuss ideas among themselves." They identified the tape-directed lessons and peer tutoring as the least effective (and least liked) activities.

The teachers/administrators also selected teacher presentation and peer group learning as the two most effective process components for improving student learning. However, the teachers changed their response to "peer group learning" and "self study" when asked to name the most effective components that promote efficient operations in the classroom.

The students, teachers, and administrators seem to agree that the most effective materials are the RIT book and the practice exercises (workbook), and that the least effective are the cassette tapes and the comic books. At first glance, this comes as a surprise because one would usually think of students enjoying the use of audiovisual aids in general, and that teachers and administrators would welcome the variety that these materials introduce into the process of instructional delivery. However, the reasons given by most of the students were that they do not really like to dance (tape-directed lessons were exclusively for music and dancing), and the comic books did not require any writing or working on practice exercises and were therefore viewed as a passive activity that may be entertaining but did not really help them to learn. Similarly, most of the teachers, particularly the male teachers, explained that they did not want to teach dancing and that the taped directions were hard to follow.

#### 4. Marginal Unit Costs

Marginal cost analysis has not been completed to date.

## C. INDONESIA'S PAMONG SYSTEM

### 1. Components in operation in the SD KECIL and SD PAMONG

The three small schools (SD Kecil) and two evening schools (SD Pamong) investigated in the province of Surabaya, East Java, implemented most of the original components of the PAMONG system. The major components in operation in these schools include: modularized instruction; active student participation through peer group learning, with students taking turns assuming the leadership role; self-study; class-teacher ratios of 2:1; direct instruction by the teacher ("classical learning" activities specified in the PAMONG modules); systematic training for teachers and administrators; and built-in criterion-referenced evaluation instruments and procedures.

The first three grades in the SDK are taught using conventional methods and traditional textbooks; PAMONG modules are used in Grades 4 to 6. A typical instructional sequence in the upper grades consists of the students studying assigned lessons in the module(s), working in small peer groups or individually, followed by "classical instruction" (direct instruction) by the teacher on the same lesson.

Cross-age tutoring is sometimes practiced, but most of the remediation is conducted by the teachers with groups or individuals, as needed. Physical facilities and materials supporting the implementation of the PAMONG system in each school seem adequate (in many instances, more than adequate).

All classes are held in regular classrooms with removable room dividers. The use of "learning kiosks" has been discontinued. Two of the SDKs were able to carry out an occasional program of voluntary teaching of vocational skills by community members (a fishing community and a farming community). "Peer tutoring" (programmed teaching by an older student, rather than a one-on-one tutoring situation among students in the same grade) is no longer implemented. Two schools have changed the class/grade combinations to facilitate classroom management.

Preliminary findings in East Java, therefore, indicate that the sustainable PAMONG components include: (a) modularized instruction; (b) peer group learning; (c) direct instruction by the teacher as specified in the modules; (d) teacher training strategies; and (e) systematic supervision. This is evident not only in the actual implementation of PAMONG components in the SDKs and SDPs, but also in the adaptation of these concepts at the secondary school and university levels. Key members of the original PAMONG staff have been asked to train module writers and assist in the design and development of modules for the open junior secondary schools. At the university level, systematic instructional design and modularized instruction are utilized in the Universitas Sebelas Maret's "Buku Pegangan Kuliah" (BPK) program. Under the BPK program, course handbooks are prepared by the faculty for use under a "self-motivated learning system" characterized by active student participation and greater interaction between students and faculty.

## 2. How SDK and SDP Schools have been Financed

The implementation of the PAMONG system in the SD Kecil and SD Pamong schools in East Java is a joint endeavor of the provincial education office (KANWIL) and the provincial government (DINAS). Under this dual management system, the KANWIL is responsible for the educational or academic aspects (e.g., curriculum, supervision) of all primary schools in the province, including the SDKs and the SDPs. The DINAS is responsible for the financial management of the "3 Ms"--manpower, money, and materials. In the case of two SDKs investigated in East Java, the local community provided financial and material support through their parent-teacher organizations. In almost all of the schools investigated, the principal also spent his personal funds to take care of school needs not covered by either the regular school budget or the aid extended by the community. Besides the usual line items (e.g., salaries, administration and supervision, facilities, equipment, textbooks, and materials and supplies), the provincial and regional budgets also make provision for special bonuses and module reproduction for the SDKs.

## 3. Effective Components of SD Pamong

In Indonesia, there is strong evidence that SD Kecil students, teachers, and administrators view peer group learning and the PAMONG modules to be the two most effective components of the system. As in the other projects, the students claim that the "sharing of ideas," the mutual help among the group members, and the leadership training help them to "learn (their) lessons well."

Teachers claim that group activities help them successfully cope with two different classes in a single classroom. Students in the SDKs indicated that the least effective process and product components (materials) are those associated with self-study and peer tutoring. Teachers (both in the SDKs and SDPs) and the older SDP students agree that self-study and group learning are the most effective in improving learning and efficient operations.

#### 4. Marginal Unit Costs

Marginal cost analysis still has to be undertaken. However, a cursory examination of the DINAS budget for East Java seems to show a relatively higher per-pupil cost for SDK and SDP (combined). A closer look at the budget breakdown, however, reveals that some expenditures are not directly related to the actual implementation of the PAMONG system in the schools. Here are a couple of examples: (a) A budget allocation labeled "survey of new locations for SDKs" also includes expenses for a comparative study of SDKs in East Java and West Sumatra. (b) Allocations for materials, supplies, and equipment include a lot of items that are routinely sent to all schools under the compulsory education program (e.g., textbooks, expensive science equipment, radio, TV sets, etc.). An analysis of costs actually needed to keep the SDKs and the SDPs in operation may result in much lower per-pupil cost.

#### **D. PRODUCTS**

##### **1. Completed**

- Preliminary report on RIT in Thailand (December, 1988). This report was presented to key informants during my last trip to Bangkok for their feedback.
- Summary Report on RIT's preliminary findings, tentative conclusions, and policy implications for Thailand.
- Introductory chapters for the country report on Indonesia's SDK and SDP applications of the PAMONG system.
- "Policy Initiatives to Improve Teacher Productivity in Thailand" (co-authored with MSU's C. Wheeler and S. Raudenbush).

##### **2. Intended**

- Country reports for Thailand, Indonesia, and the Philippines (by end of September, 1989).
- Country reports for Liberia (by mid-October, 1989).
- Final research report: "Sustainability of Low-Cost Learning Systems" (by end of January, 1990).

#### **E. CONSTRAINTS AND IMPEDIMENTS**

As mentioned earlier, data collection has been slowed down by:

- (1) differences in the school calendars of the four countries;
- (2) the need to accommodate preferences expressed by the education ministries and research collaborators regarding the timing of the data collection activities in each country;
- (3) budgetary and time

constraints that tend to adversely affect the quality of the product(s) of this subproject.

## TEXAS SOUTHERN UNIVERSITY REPORT OF ACTIVITIES FOR FY88-89

### PROLOGUE

Because of the untimely death of Dr. Calvin Matthews in 1989, Dr. Weining Chang was the sole active member of the TSU BRIDGES team. The research in Sri Lanka was undertaken with the collaboration of the National Institute for Education (NIE) in Colombo, Sri Lanka. The following report documents the TSU portion of BRIDGES activities for FY89.

#### A. SUMMARY OF KEY RESEARCH ACTIVITIES OCTOBER 1988-SEPTEMBER 1989

##### 1. A Study of Reform Policies and Efficient School Management--Dr. Weining Chang

This undertaking was a continuation of on-going research in the area of school management. Research activities during the year in support of this study included:

- Field visits to selected schools which were included in the 1987-1988 survey of school principals.
- Researching available archival information on the Sri Lankan school administrative system.
- Interviews with selected division officers, regional officers and principals in areas where experimental reform policies have been implemented.

- Obtaining students' Fifth Year Examination scores from the National Examination Centers. This task was placed under the direction of Ms. Dharmawardena of the NIE.
  - Additional analyses performed on the survey data using examination scores as the criterion data.
  - Consultations with Sri Lanka colleagues concerning the results of the new analyses on the survey data and on the preparation and writing of a related research report.
2. Complete a Study of Teacher Motivation, Performance and Policy Issues--Dr. Weining Chang

This study was a part of the T3 phase of the teacher education research. Dr. Chang participated in the general design of the T3 phase study, which included a list of questions drawn from the relevant data. These questions were incorporated into the T3 principal and teacher survey. Prior to conducting the survey a workshop, coordinated by Dr. Chang, Dr. Kularatna and Mr. Dharmadasa of NIE, was conducted to complete the presentation of final research instruments. These instruments were then administered in Sri Lanka during a period from March to June 1989.

The survey was completed on June 20. After a period allowing for the returns to be received, the collected data was to be entered into the computer. The resulting computer disks of data were scheduled to be sent to Dr. Chang for analysis. Unfortunately, as of September 1989, Dr. Chang had not yet received the data.

3. Participation in Research Design and Data Analysis for T3 Study--Dr. Weining Chang

The BRIDGES-Sri Lanka team communicated frequently and extensively concerning the study design. Integration of different parts of the program and its effectiveness were reviewed during Dr. Chang's June 1989 visit to Sri Lanka. The results were shared with personnel from the NIE in Sri Lanka and with other members of the BRIDGES-Sri Lanka team.

B. RESEARCH RESULTS AND CONCLUSIONS

1. The Principal Survey

The recent analysis of the principal survey data and the consequent additional information yielded significant results. It made possible the identification of specific policies which promoted the successful implementation for efficient management of small schools in Sri Lanka. The study enabled research to pinpoint areas in school management where the effects of these policies were clearly observable.

The survey results strengthened initial conclusions that improvements in school achievement can be enhanced by the implementation of administrative policies affecting structure, teaching content, and teacher improvement through staff training.

2. The Teacher Motivation Study

Since the data needed for final analysis has not been forwarded to Dr. Chang no final conclusions can yet be drawn for the Teacher Motivation Study. However, a general conceptual framework already exists. It has been hypothesized that frequent

monitoring of teacher performance and feedback promotes improved staff morale and increased job satisfaction, measured in less absenteeism and in less turnover. Indications are that administrative policies which promote more frequent evaluation of performance and increased feedback, and closer relationships between performance and reward/incentive distribution, will result in higher staff morale and improved teacher performance.

### C. ACTUAL AND PENDING PRODUCTS

#### 1. Actual Products

- "Policy and Efficient Management of Small Schools"--  
-Dr. Weining Chang.
- "Attitude and Attitude Measures"--Dr. Weining Chang  
(published in the research paper series of the National Institute of Education, Sri Lanka, January, 1989).
- "Constructing School Effectiveness Indicators in the Context of Sri Lanka"--Dr. Weining Chang (presented at the workshop on school effectiveness at the National Institute of Education of Sri Lanka, sponsored by UNESCO, December, 1988).

#### 2. Pending Products

- "Teacher Motivation, Performance and Administrative Policies"--Dr. Weining Chang (pending data completion).

#### **D. TRAINING ACTIVITIES**

##### **1. The Data Management Workshop, February 1-3, 1989**

The purpose of this workshop was to train a cadre of staff members at the National Institute of Education to manage data for research and evaluation purposes and to assist the NIE in creating a research data base in the NIE Research Unit. The workshop covered a two and a half day period and the fifteen people who attended were drawn from the professional staff members of the Research Unit and from staff from the NIE at large.

The workshop was designed by Dr. Chang who prepared a training manual. Ms. Yamatoto of the Japan Volunteer Program, Ms. Dharmawardena and Ms. Manjula of the Research Unit were invited to demonstrate the actual data management processes and to describe the existing data base.

##### **2. The Workshop on Survey Questionnaire for Teacher Education Studies, January 31-February 2, 1989**

This small, intensive workshop was coordinated by Dr. Chang, Ms. Dharmadasa and Dr. Kularatna. Based on an extensive list of questions prepared by Dr. Teresa Tatto of Michigan State University in association with the BRIDGES project, attendees of the workshop divided themselves into several task forces, each focusing on a specific area of the project. Workshop participants were veteran Sri Lankan educators. The workshop structure was informal and was organized to encourage collegial cooperation and mutual interaction and learning.

3. The Workshop/Seminar on Teacher Motivation, Performance and Policy Issues, June 19, 1989

This workshop/colloquium was designed to introduce to Sri Lankan educators concepts of human motivation, evaluation of performance and to policy dialogue. The seminar was organized informally and was attended by more than twenty professional staff members from the National Institute of Education and from the Staff College in Maharagama.

An abstract was prepared of the workshop's results, and efforts are being made to prepare an extensive paper for publication on issues discussed at the workshop.

**E. PROBLEM AREAS: INTERNAL CONDITIONS IN SRI LANKA**

A discussion of work undertaken in Sri Lanka during the past year could not be complete without reference to the political turmoil and violence which have engulfed the country due to tensions between the Tamil minority and the Singalese majority. There is no question that the uncertain and sometimes dangerous political climate of Sri Lanka has made research work there at times difficult to carry out. There has been continued violence in Sri Lanka since the beginning of the BRIDGES project, but the violence has worsened. By the end of 1988, the pattern of terrorist incidents had become unpredictable, widespread and no longer confined to certain identifiable areas. There were random killings even in Colombo, the capital city. Compounding the problems brought by human conflicts were natural disasters like floods and droughts during 1989. These conditions produced a

mounting death toll and large numbers of refugees. The infrastructure of Sri Lanka has been severely damaged but most services still continue to function.

In view of the internal turmoil and disruption, the perseverance and dedication of Dr. G. B. Gunawardena and his staff has been remarkable. They have been able to complete in a timely fashion most of the major tasks of the project. It is currently difficult to estimate, however, when the last remaining task will be concluded but, upon receiving the anticipated data, Dr. Chang will complete the analysis and submit a final report.

## PART II

### BRIDGES' OVERALL GOAL FOR FY90

The coming year will see the BRIDGES Project consolidating its gains to focus resources and energies on sharing a broad range of research findings and results with a wider audience of interested LDC educators, administrators and policymakers. The dissemination and use of both written reports and state-of-the-art planning tools like STEP, GENDER and OPES, which were designed and produced to help educational planners and policymakers in the developing world use their own locally generated research findings to arrive at a set of better informed decisions about the effectiveness and quality of their educational systems. The achievement of this goal will receive the Project Team's undivided attention during FY90.

#### A. HARVARD/BRIDGES FY90 OBJECTIVES

1. Complete the analysis and write-up of field research data obtained in Pakistan, Sri Lanka, Thailand, Burundi and Indonesia and select and prepare eight research products for publication.

2. Complete the development and testing of the six computer software models and their respective user manuals by July of FY90. Software packets that are still being worked on are MINPROJ for educational projections, EIM for the educational impacts model, GENDER and OPES.

3. Improve FORUM and use this as a tool for reaching senior education decision-makers and administrators with a clearly written

synopsis of policy alternatives for improving basic education which can be supported by BRIDGES research findings.

4. Complete buy-in negotiation with USAID Amman and USAID Bangkok and carry out the work specified under the relevant SOWS.

5. Carry out the dissemination activities specified under the FY90 five-step dissemination plan, which includes hosting three regional workshops, produce more publications, attendance at national and international conferences like WCEFA, and hosting a final BRIDGES Annual Meeting in September, in Washington, D.C.

6. Initiate a formal BRIDGES closing-out procedure which includes preparing the necessary reports, financial records and documentation for AID/W.

7. Coordinate the transfer of relevant information, products and gained experience to the group responsible for executing project ABEL, which is due to start in FY90.

#### B. FIVE-STEP DISSEMINATION PLAN

A five-step dissemination plan has been discussed and tentatively agreed to by S&T Educ AID/W. However, the plan, as originally conceived and agreed to, has had to be modified to fit a changed fiscal reality. After being informed by S&T Education that our FY90 budget request would need to be reduced by 25%, only the following key dissemination activities were retainable in the BRIDGES FY90 work plan:

##### 1. Publications

A previously successful dissemination strategy which was carried out through our BRIDGES Research Report Series, Development

Discussion Papers and Forum will be continued emphasizing the need to select, edit and produce eight new Research Reports by September of FY90. Research which was completed by BRIDGES researchers in six countries should generate more than 30 field research reports and over 60 case studies. Only the best of these offerings will be selected to appear as part of this quality series which will be shared with leading educators and decision-makers at the "Education for All Conference" in Bangkok, and other research symposia, like the AERA Annual Conference which will this year take place in Boston and the CIES Annual Meeting which will be held on the West Coast.

2. FORUM, a Bimonthly News Report

A new version of Forum written in non-jargonized English for a select audience of educational policymakers and senior administrators will be launched with a view to producing eight editions by the end of FY90. Each edition will select a key BRIDGES research domain and by using nontechnical language will try to present a case for and against adopting the cost-effective, do-able policy options which have been identified by BRIDGES researchers during the past four years. Each policy option discussed will be illustrated by appropriate case studies generated from BRIDGES field research. We hope that by increasing the present level of production from 150 copies to 2,000, a much larger audience will be reached to guarantee a more effective level of dissemination.

3. COMPUTER SOFTWARE and MODEL Training and Dissemination

Harvard, in collaboration with RTI and USAID Missions in Thailand, Sri Lanka and Indonesia, plans to carry out a series of software training workshops to train Mission Education Officers and host country educational planners how to use STEP, GENDER, OPES and EIM. These computer model training workshops will be financed by Harvard through an appropriate budget allocation to RTI.

Complete kits (floppy discs and manuals) of all the models produced by BRIDGES will be available through RTI, who have given the responsibility for distributing these products at cost price only.

All four planning tools will be demonstrated and used to solve appropriate educational problems during the three dissemination workshops which are being planned for January of FY90. Both Harvard and RTI will be available to follow through on requests from specific missions for more training workshops or demonstrations should these be needed. However, costs for any additional training activities would have to be born by the requesting USAID mission.

4. REGIONAL Seminars/Workshops

At the request of AID/W the regional training workshops which were being planned as a central component of our FY90 dissemination strategy will all be held during the month of January. Venues for the workshops have still to be defined, but Harvard/BRIDGES team hope to collaborate with USAID missions in LAC, AFRICA and the MIDEAST in hosting three Workshops which will bring educational

policymakers and senior managers together to discuss, use and receive information about the BRIDGES Project, its products, relevant policy and planning outcomes.

Each workshop will invite two to four representatives from neighboring countries to a three-day intensive seminar/workshop which will try to carry out the following objectives:

- a. To disseminate as broadly as possible the findings and products of BRIDGES to a select group of key policymakers and educational administrators in the three geographical regions specified above.
- b. To make educational decision-makers aware of the range of resources available to help them make informed decisions about their education systems.
- c. To introduce and demonstrate how all the BRIDGES-generated products, like the microcomputer models and various publications, can be useful in solving common educational planning problems.
- d. To make USAID Education/Human Resources Development Officers aware of what skills and experience BRIDGES and other S&T Education-sponsored projects can provide to help tackle their host country and regional education problems.

Suggestions for additional mission-sponsored buy-ins, if solicited by missions, will receive a positive response from BRIDGES/HIID management.

Workshops will involve trainers from Harvard (2), and trainers from RTI and IIR (2). Not more than three trainers from this group will attend each workshop. The following project personnel will be available to assist in this task:

Dr. Noel McGinn/HIID.

Dr. William Cummings/HIID.

Dr. Frank Dall/HIID.

Dr. Luis Crouch/RTI.

Dr. Dean Neilsen/IIR.

Assistance with the coordination of local feeding, lodging and travel arrangements for regional participants and other on-site logistical support will be provided by each hosting AID mission.

5. Other International Workshops and Meetings

BRIDGES participation in at least five scheduled conferences and meetings is being planned. These will include:

- a. Our participation at the World Conference for Education for All is being contemplated. WCEFA will be held under UN, World Bank, USAID and IDRC auspices in Bangkok, Thailand, during the first week of March of 1990. Our participation in a round-table discussion or an exhibition is being contemplated.
- b. BRIDGES will be participating in this year's AERA Annual Conference which will be held in Boston, Massachusetts, in February. A panel of BRIDGES researchers will summarize BRIDGES research outcomes and their relevance

to policymakers and planners in the seven BRIDGES countries of interest.

- c. A similar presentation will be made during the CIES Annual Meeting which will be held at Anaheim, California, during March 22-25, 1990. A group of BRIDGES/HIID researchers will present research outcomes from Pakistan, Egypt, Sri Lanka and WID for dissemination and discussion by leading international educators and U.S.-based institutions.
- d. A meeting which will be hosted by BRIDGES during September of FY90 in Washington, D.C. will bring together all the BRIDGES research findings, products and experience for sharing with key USAID and leading U.S.-based international agencies' decision-makers. An attempt will be made to make donor agency decision-makers aware of the contribution being made by BRIDGES to the rational solution of basic education problems in a variety of LDC settings.
- e. Other still-to-be-defined seminars and meetings with European universities and research institutions will be arranged to fit the dissemination commitments listed above. Discussions with the London Institute of Education, IIEP in Paris, CESO in Holland, and other interested groups are presently under way. The cost of these ad hoc meetings will be carried under existing

travel expenditures, or by organizations extending an invitation.

## **BURUNDI**

### **PROPOSED RESEARCH/DISSEMINATION ACTIVITIES FOR FY90**

#### **A. DISSEMINATION SEMINAR FOR BURUNDI OFFICIALS**

Originally, the Burundi project was to be finished by September 1989. However, although the field research has been completed as well as necessary data analysis, it was not possible to schedule a final seminar for Burundi officials to review the results of the project by that time. Because of potential conflicts with other seminars to be held by the Ministry of Primary and Secondary Education in the early fall, our ministry counterparts have expressed a preference for conference dates in late October or early November. The seminar is currently scheduled for 7-8 November 1989. A no-cost extension of the Burundi project is therefore necessary to cover the preparation and conduct of this seminar as well as preparation of the final report. Although more extensive BRIDGES follow-up to the research activities in Burundi would be desirable, such follow-up is precluded by lack of funds.

To prepare for the seminar CPF has drafted a report summarizing the results of the project in French for seminar participants. This report is now being revised by CPF in collaboration with the North American team. For the seminar it is proposed that working groups formed from ministry, CPF and other

participants be formed for each of the following topic areas (which with one exception have already been discussed above under "Research results"):

1. Improving measurement of student learning and schooling outcomes.
2. Ensuring better coverage of the national syllabus.
3. Achieving a better balance between achieving literacy in French and Kirundi in primary school.
4. Monitoring and rationalizing repetition rates.
5. Improving school management and teacher supervision.
6. Strengthening the contribution of schooling to rural development.
7. Improving the fit between schooling and both the formal and nonformal labor sectors (based on FY88 activities only).

#### **B. PRODUCTS**

In addition to the products listed above for FY89, we expect to have the report prepared by CPF for the November seminar, plus a final report. The final report will include a section reporting on the accomplishments of the seminar.

#### **C. TRAVEL SCHEDULE**

Jack Schwille will travel to Bujumbura shortly after the quarterly meeting in October for a period of three weeks in order to assist with final preparations for the seminar, participate in the seminar and carry out other close-out duties as required. Bob Prouty will likewise be in Burundi for much of the same period.

Frank Dall plans to represent Harvard project management at the seminar. It would also be desirable for Eisemon to attend the final workshop, but as of this time there are not sufficient funds to cover his trip.

## PAKISTAN

### PROPOSED ACTIVITIES FOR FY90 (OCTOBER 1, 1989-SEPTEMBER 30, 1990)

During this period BRIDGES/Pakistan will organize its activities into two overlapping parts: field research and FMIS. The staff mainly involved in field research, Donald Warwick, Andrea Rugh, Fernando Reimers, and, time permitting, Noel McGinn, will analyze the existing data on schools and classroom instructional practices, provide training to Pakistani counterparts on analysis, and work together to collect new information necessary to complete the analysis. The staff working on EMIS and related activities, such as costs, will provide assistance to the educational planning unit of the Planning Ministry and, if possible, to either the province of Baluchistan or Northwest Frontier Province. This group will include Luis Crouch, Thomas Cassidy, Ernesto Cuadra, Mun Tsang, and two additional staff members from BRIDGES. One will spend six months in Baluchistan or NWFP, if possible, and the other three months in the Planning Ministry.

The teams will work together on some questions, such as drawing lessons from field research data for an EMIS, and certain individuals may be involved in both clusters. The objective of this consolidation is to develop more coherent activities within

each team, such as the integration of work on costs with other elements of EMIS, and to provide easier opportunities for communication between teams.

**A. RESEARCH ACTIVITIES**

**1. Generation and Use of Information on Educational Policies**

A major cluster of activities includes continuing analysis of the sample survey of schools (SSS) and the Classroom Practices Study (CPS), gathering new data to answer questions raised by the first round of analysis in those studies, and integrating their findings as well as those from the completed research on access for girls. The strategy for FY90 is for Donald Warwick, Andrea Rugh, and Fernando Reimers to work together on analysis, data collection, the training of Pakistani counterparts, and the preparation of policy recommendations. Ernesto Cuadra, Mun Tsang, and other members of the EMIS group may also join in some of these activities. The aim of this strategy is to provide opportunities for shared insights in data collection and analysis as well as greater coherence in the findings that emerge from the field research. The specific activities are as follows:

a. Continuation of data analysis. By the end of FY89 BRIDGES will have produced preliminary reports on SSS and the CPS. Given the complexity of the data, those first reports will not be able to pursue many topics in depth. The results will probably show, for example, that among schools operating in comparable conditions, such as rural areas, there are differences in academic achievement, retention, and the quality of classroom instructions.

Some reasons for those differences will be identified, but several additional months will be needed to complete the analysis of data already available.

b. Gathering new data. The first phase of analysis in the SSS and the CPS may also raise new questions about schooling effectiveness or classroom practices, or show discrepancies in the results from the two studies. In the SSS one likely possibility is the need for more information on those schools judged most and least effective. From the standpoint of policy relevance it will be crucial to have the information necessary to tell decision-makers what makes for a good and a poor school. In the CPS additional data may be needed on the most and least effective schools and teachers in rural and urban areas; on the leadership roles of head teachers; and on district-wide and teacher-made examinations. The collection of new data will be focused and small-scale. The aim will be to fill in gaps about existing data rather than to assemble a large amount of new data.

c. Integrating the findings from the field studies. Final reports will draw together the results of the CPS, the SSS, and the study on access for girls, to identify their separate insights as well as their contradictions, confirmations, and puzzlement. To the extent possible policy recommendations should be based on the total set of findings rather than on separate pieces of field work.

## 2. Improvement of Data Systems

BRIDGES work to date indicates that it will be impossible, within the resources of this project, to develop a nationwide EMIS for Pakistan. Three of the major difficulties are (1) the lack of familiarity with how educational data are collected and stored in the provinces; (2) the scarcity of trained staff and equipment to handle educational statistics at any level of government; and, perhaps most importantly, (3) the difficulties faced by policy-makers, such as provincial Secretaries and District Education Officers, in using management information.

The objective of BRIDGES EMIS work in FY90 is to provide USAID and the Government of Pakistan with a plan for developing an EMIS that will be used by policymakers. To meet this objective BRIDGES activities will move simultaneously on two tracks. The first is the technical track of collecting and storing reliable data and making those data available to decision-makers. The emphasis of work in the province chosen will be on understanding the existing system of data collection, particularly in the districts. The second track is direct interaction with Pakistani officials who will be the final clients for the EMIS. BRIDGES will learn from interaction with federal and provincial users what is and is not useful in helping policymakers to apply data from the EMIS to their own decisions. The project wishes to avoid the common mistake of developing information systems that may be elegant in themselves, but are remote from those for whom they are intended. To provide this second component BRIDGES will have one staff member spend six

months in the province chosen and another person three months in the Planning Ministry.

**B. MAJOR EMIS ACTIVITIES IN FY90**

**1. Technical Assistance to the Educational Planning Unit in the Planning Ministry**

This unit, headed by Musarat Ali Khan, is now carrying out classical forecasting and budgeting tasks by hand. The central activity for BRIDGES will be to help this group enter its data in a computer and then apply such techniques as spreadsheets and graphics to accelerate its work. The aim is not to develop a new data base but to make far better use of the information already available. This work will be under the direction of Luis Crouch. He will be assisted by a staff member from HIID who will spend three months in the Planning Ministry. If mutually agreeable to BRIDGES and the Ministry, Mun Tsang may also provide assistance on data relating to the costs and financing of education.

**2. Taking Steps to Develop an EMIS in One Province**

The result of this work will not be an EMIS that is ready for use but a design for how to arrive at such a system. Here the point raised earlier about the technical and the human side of EMIS is critical. The process followed will combine data collection and analysis and direct collaboration with the users of an EMIS. Only in that way will it be possible to learn if what is being proposed as a data system will make sense to those who are expected to apply it to policy decisions. The specific activities for FY90 are:

a. Interviews with officials in the provincial Department of Education about the data they now collect and on how those data are used in policy-making; areas of high priority for data on education; steps that might be taken to improve the utilization of existing data; and suggestions for how work on EMIS in the province should proceed.

b. If data from the School Mapping survey are available and there is interest among key provincial officials, developing an education system database for Baluchistan similar to that in Sindh.

c. If there is interest in the Planning and Monitoring Cell in Baluchistan, the System for Tracking the Progress on Schemes (SYSTRACK) developed in Sindh will be modified for Baluchistan. This work will be done only if there are clear signs that the task is feasible and the results would be used in the province.

d. Careful investigation of how data are collected, by whom and where in the districts. This analysis will probe such questions as the quality of the information and its consistency from one school to another. The specific topic areas will include enrollment, retention, numbers of teachers, and similar indicators as well as data on costs and financing. This analysis will begin in one district and move to another only if and when a thorough understanding has been reached. The aim is to develop an "on the ground" appreciation of what educational data mean, their

reliability and validity, their consistency across schools and districts, and the problems associated with data collection.

e. If the information is adequate for this step, suggesting changes in the way data are collected and recorded in districts and in the province. For example, it may be possible to develop brief forms to provide data on enrollment, retention, costs, and financing across districts. This work ties into the additional data collection to be undertaken by the group concerned with field studies.

BRIDGES staff responsible for organizing this work are Ernesto Cuadra and Thomas Cassidy. They will set the initial directions for the activities of the staff member who will spend six months in the province. This person will have two main responsibilities: a) analyzing the data available in the provincial secretariat, the district(s) chosen for careful study, and in schools within the district(s); and b) working with provincial officials on the utilization of existing and new data. BRIDGES experience to date suggests that both lines of work, especially the second, will move slowly. However, they are essential if there is to be an EMIS that is used in the province.

### C. TRAINING

During FY90 BRIDGES will focus its training efforts on three groups of counterparts: staff from AEPAM; from other agencies in the federal government, especially the Planning Ministry; and the provinces. The following activities will be carried out:

1. A four-week training seminar on the analysis of data from the SSS. The objective is to develop skills in data analysis among 7 to 10 of the staff members mentioned. The format will be that of a workshop in which each participant, working with a BRIDGES advisor, takes responsibility for carrying out a manageable piece of analysis on available data. The seminar will be given by Donald Warwick and Fernando Reimers.

2. Training on the uses of computers in EMIS for educational planning staff in the Planning Ministry. This training will take place through ongoing work rather than a formal seminar. The persons responsible are Luis Crouch and the individual chosen to spend three months at the Ministry.

3. Training on aspects of EMIS, including information system development, as well as on costs and financing, for counterparts in the province chosen for intensive study. The precise nature of this training will depend on the relationships worked out in the province. Possible elements are instruction to provincial counterparts and one or more AEPAM collaborators on the design and uses of an education system database; learning by provincial counterparts about the nature of data collection in the province and one or more districts; and informal instruction to policy-makers and planners on the uses of EMIS data. BRIDGES staff providing training include Ernesto Cuadra, Thomas Cassidy, Mun Tsang; and the BRIDGES staff member residing in the province.

#### D. RESEARCH PRODUCTS AND DISSEMINATION STRATEGIES

The research findings and other learning from work in FY90 will be communicated to three main groups: staff in AEPAM and other officials in the federal government; policymakers and planners in the provinces, including provincial Secretaries of Education; and USAID as well as other donors interested in the development of an EMIS in Pakistan. The results of this project will also be incorporated into the general reports and training exercises developed by Project BRIDGES as a whole and some will reach a larger audience through publications, conferences, teaching, and other means.

##### 1. Information on Educational Policies

The dissemination of information from the SSS, CPS, and study of access will take place through written reports; through presentations at meetings on BRIDGES/Pakistan; and in other ways, such as simulations or games on such topics as the implementation of educational reforms. The project intends to go beyond the usual academic reports to methods of communication that will have greater impact on policymakers. The central BRIDGES project is now working on such strategies, and BRIDGES/Pakistan will move along similar lines.

Given the methods of deciding the topics of reports, including the strategy of collecting new data in response to questions emerging from the early analysis, an exact list of papers cannot be specified at the beginning of FY90. Some categories, such as correlates of schooling effectiveness, will certainly be covered,

but the precise manner remains to be determined. The following are likely papers:

a. Summary reports on conditions leading to effective schools. They will bring together the main findings from the SSS and the CPS on what makes for good and poor schools in Pakistan. Among the criteria of effectiveness are learning outcomes, as measured by achievement tests in mathematics and science, enrollment of boys and girls, and retention in school. The summary will draw together findings from several papers outlined below. Donald Warwick, Fernando Reimers and Andrea Rugh will take major responsibility for these reports, with collaboration from Andrea Rugh and Noel McGinn. Deadline: June, 1990.

b. Papers on specific conditions leading to one or more aspects of effectiveness. There will be between 10 and 20 such papers, including some short studies prepared by Pakistani counterparts as part of the training workshop in October, 1990. Conditions to be analyzed include:

- characteristics of school buildings: the presence of a building, size of building and/or rooms, ventilation, presence of water, toilets, and electricity.
- classroom conditions: size in relation to number of students; instructional materials.
- teacher background: pre-service, later training; travel time to school.

- teacher practices in school: pedagogical methods, including assignment and grading of homework; discipline, including physical punishment of students.
- language of instruction: language actually used in the classroom by class level.
- school management and structure: presence or absence of headmaster, head teacher; impact of school management on attendance and teaching practices.
- frequency and effects of supervision: does the school have a learning coordinator and, if so, what difference does this person make for teaching? How often do other supervisors visit?
- characteristics of students (information based on a short questionnaire given to students): gender; level of affluence indicated by possessions in home; travel time to and from school.
- the impact of costs and financing. This analysis will draw on the information collected in the SSS.

These papers will be completed at various times throughout FY90, with the last done by April, 1990.

c. A summary report on the Classroom Practices Study. While new data will be gathered jointly with the SSS, the project will prepare a separate report from the intensive study of teaching in 32 schools. The main person responsible will be Andrea Rugh, who will collaborate with Ernesto Cuadra. Deadline: May, 1990.

d. A summary report on the access of girls. The main draft will be completed by Mary Anderson and her AEPAM colleague in FY90, but further work will be done in FY90 to put this report in the context of the others being finished then. Deadline for final revisions: May, 1990.

2. Improvement of Data Systems

Because much of the work to be done on EMIS, including the analysis of data on costs and financing, will involve an ongoing process of field exploration, the exact results are difficult to predict at the beginning of the work period. Nonetheless reports will be completed on these topics:

a. "A design for an EMIS in Pakistan." The findings of BRIDGES EMIS work in the Sindh (completed in FY89), the Planning Ministry, and the province selected for new work will be drawn together in a single report. The project's current assumption is that the development of a workable and utilized EMIS will be a large undertaking taking two or more years. The question to be answered is: if the Government of Pakistan wishes to develop a national or cross-provincial EMIS, what steps should be taken and avoided? The authors of this report will be Luis Crouch, Thomas Cassidy, Ernesto Cuadra, and Mun Tsang with contributions from BRIDGES field staff and counterparts working in the federal government and the selected province. The focus will be on what should be done next. Deadline: May, 1990.

b. "Lessons from the analysis of educational data in the Planning Ministry." This report, to be prepared by Luis Crouch

and the resident specialist in the Planning Ministry, will describe what was done there, how, the lessons learned, and possible steps for future improvements. Deadline: May, 1990.

c. "Lessons from work on an EMIS in one province." This analysis will answer questions such as: what data should go into a provincial EMIS? Of what quality are the data currently collected? Who collects this information within the province and within a district? Who, if anyone, uses data from the EMIS in making policy decisions? Are there differences in the quality of different categories of information, such as those on enrollments and retention, costs, and attendance? The tone of the report will be as much observational and clinical as quantitative. Its purpose will be to show what is now happening in the provinces and how that might be improved. Co-authors will be Ernesto Cuadra, Thomas Cassidy and the resident in the province. Deadline: May, 1990.

d. "Improving information on costs and financing of primary education in Pakistan." The focus of this report will be on the state of data on costs and finance. A brief summary will be provided of the uses made of the cost data collected as apart of the sample survey of 470 schools. This report will be written by Mun Tsang with assistance from other BRIDGES collaborators. Deadline: May, 1990.

### 3. Other Methods of Communicating Project Results

The following steps will be taken to ensure that the findings of BRIDGES/Pakistan reach their intended audiences.

a. A final conference for Pakistani officials will be held near the end of the project. Findings will be presented to federal and provincial officials and their implications for public policy will be discussed with these officials.

b. Before this meeting project staff will prepare short ("bullet") summaries of the main findings for policymakers who do not have time to read long papers. These summaries will be used in the discussion of policy recommendations.

c. Near the final conference a meeting will be held with USAID/Pakistan and other donors interested in supporting management information systems. The main findings, which will be summarized in the overall EMIS paper mentioned earlier, will be reviewed at this meeting. The purpose will be to help the several donors interested in EMIS work, including USAID, the World Bank, and the Asian Development Bank, think systematically about what they should do next.

d. If the central BRIDGES project is successful in developing simulations or games for communicating findings of the kind discussed here, some application of these initiatives will be tried in Pakistan. They would be particularly appropriate for provincial Secretaries and other decision-makers who may find it hard to absorb the large amounts of research information coming from this project. These exercises could be included as part of the final conference, carried out in the provinces, or both.

Other forms of dissemination will take place informally. For example, staff working in the Planning Ministry might make use of OPES or SYSTAT in their collaboration with Pakistani counterparts.

Carol Weiss, an expert on the utilization of research information by policymakers, will spend two weeks of consulting in Cambridge to help think through other ways in which the results of BRIDGES/Pakistan can be used to affect policy. She will draw upon the information gathered during her trip to Pakistan in FY89.

## **SRI LANKA**

### **PROPOSED FY90 ACTIVITIES**

#### **A. RESEARCH/DISSEMINATION**

The main challenge for FY90 is to finish up the research reports which have been delayed due to domestic disturbances in Sri Lanka. Teressa Tatto has agreed to a no-cost contribution to finishing up the report on Teacher Education. W. Cummings will devote at least one month of effort over the fall of 1989 to completing the final report of Phase 1 and the Decentralization Report of Phase 2.

At a minimum, these reports should be disseminated through normal BRIDGES channels. However, there is a strong request from NIE of Colombo for a closing workshop there to release the findings to the domestic policy audience. It is strongly recommended that funds be made available for Cummings, Nielsen and Tatto to be present at such a workshop. The trips of Cummings and Nielsen might be tacked on to other BRIDGES dissemination trips now

tentatively scheduled for January of 1990; Totto's trip would have to be for this purpose alone.

#### **B. FORTHCOMING RESEARCH PRODUCTS**

Two research products are planned to complete the work of Phase 1:

1. A monograph on "Management Reforms in Sri Lanka."
2. A policy paper on "Clusters and Other Organizational Reforms that can Improve Schools."

For Phase 2, the following products are envisioned:

1. "Conditions influencing the implementation of policies to decentralize education in Sri Lanka."
2. "The cost-effectiveness of three modes of teacher education in Sri Lanka."

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

#### **C. EVALUATION AND DISSEMINATION**

A major national workshop will be organized by NIE to announce the findings of the BRIDGES research in December 1989 or January 1990. It is hoped that U.S. personnel can participate in this workshop.

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

Our reports are routinely circulated to the major agencies and we will be making reports at several academic societies. The findings on divisions/clusters will be cited in the World Bank Education Sector Report. All of the Phase I findings were exten-

sively cited in the Sector Assessment carried out in 1989 by the Asian Development Bank. The Teacher Education Study is influencing World Bank Project Development in that area.

**D. T.A. TRAVEL SCHEDULE**

We propose one-week visits by Tatto, Cummings and Nielsen to attend a concluding workshop in January, 1990.

**THAILAND**

**SCOPE OF WORK FOR FY90**

**A. RESEARCH AGENDA FOR FY90**

1. Complete a series of analyses of the national survey to refine our understanding of the distribution of basic resources for education, school processes which support effective teaching, and educational outcomes in Thai primary schools.

As mentioned, already completed analyses have shown that basic resources such as teachers, textbooks, buildings, instructional materials, and pre-primary educational opportunities are positively related to overall student achievement; that the expected benefit of these resources is generally greatest in settings where such resources are currently scarce; and that the effects of resources on achievement are mediated by teachers' sense of efficacy and pupils' assessment of instructional quality. Efficacy and instructional quality, in turn, are greatest in schools where teachers receive active supervision.

Although these findings have significant implications for policy, more specific information would be even more useful.

First, our measure of educational outcome so far has been global: it is a measure of overall achievement based on the five main focal areas of the 1978 Thai curriculum. But planners and educators need to consider strategies for particular achievement outcomes (e.g., Thai language and mathematics); and they need to consider the efficiency of the system (e.g., as indicated by repetition rates). So we will examine specific outcomes to examine whether the resources and processes needed to improve quality vary depending on which outcome is considered.

Second, our results indicate that resources for education have their greatest effects in settings where they are currently scarce. To optimize the usefulness of this insight for policy, we will examine in more detail the current distribution of resources in Thailand. We will ask, for example: Which children in Thailand have access to textbooks? How are teachers distributed across regions, provinces, and schools?

Third, we have found evidence that internal supervision and inservice training are related to the quality of instruction in Thai primary schools. To help policymakers use this finding, we will ask: Which teachers are now receiving supervision and inservice training? An answer to this question will help direct efforts to those schools where supervision and inservice training are currently lacking.

Finally, a weakness in our present study of the linkage between teaching conditions and practices, on the one hand, and achievement, on the other, is that our survey data do not generally

allow us to link particular sixth-grade teachers with their students. That is, we have data on all sixth-grade teachers in a school, but we have data on only one sixth-grade class per school. In many Thai schools, however, there exists only one sixth-grade teacher per school. Such small schools are primarily found in rural areas. These schools constitute an important target for policy because they present special difficulties in terms of effective school organization and teaching. We will intensively analyze data from this subsample of schools. This analysis will enable us to link particular teachers with their students and therefore to study effects of teacher background and practice more effectively.

Each of these analyses will move us closer to an integration of the cost analysis and the school effectiveness analysis based on our study of school clusters and the recent multisite study of schools drawn from the survey. Knowledge about the availability and distribution of resources and the effects of these resources can be combined with knowledge from our field studies and knowledge about their cost to consider the cost-effectiveness of alternative policy options for improving primary school quality. Moreover, this basic research moves us closer to achievement of our second project objective: to construct and field-test indicators of resources, processes, costs, and outcomes for use in future monitoring and planning efforts.

2. Complete the analysis of a multisite case study designed to illuminate causal linkages between school characteristics and school effectiveness suggested by the survey.

This study comprises eight primary schools (four matched pairs in each of four regions of Thailand). The report will examine four key variables in the survey which differentiated high achieving schools from low achieving schools: principal leadership, teacher knowledge and commitment, school-community-temple relations, and staff specialization by subject matter (especially in grades five and six). Findings across schools will draw on the following data sources: interviews of teachers, principals, parents, community leaders, students, school cluster staff, district and provincial staff; classroom observations; observations of school activities; and a review and analysis of school records and documents.

3. Complete the analysis of a multisite case study of an effective school cluster.

While the major portion of this report is now in draft stage, the final section on policy implications is still being written.

4. Use survey data, including cost data, and the two multisite case studies as a basis for formulating policy options that would improve student outcomes and/or reduce the cost of producing these outcomes.

Each analysis described above will move us closer to an integration of the three components of our research: survey, cost analysis and the school effectiveness analysis based on our study of school clusters and the recent multisite study of schools drawn

from the survey. Knowledge about the availability and distribution of resources and the effects of these resources can be combined with knowledge about their cost and knowledge from our field studies to consider the cost-effectiveness of alternative policy options for improving primary school quality. Moreover, this basic research moves us closer to achievement of our second project objective: to construct and field-test indicators of resources, processes, costs, and outcomes for use in future monitoring and planning efforts.

5. Estimate the costs of the alternative policy options.

In the cost analysis, the ingredients or inputs used in each policy option will first be identified. The economic cost of each ingredient will be estimated and added up to arrive at the total cost of a policy option. The economic feasibility of each policy option will be assessed. Next, information on costs and effectiveness will be combined to assess the cost-effectiveness of alternative policy options. Finally, the distribution of costs and educational effects among different social groups will be studied to determine the effects of alternative policy options on different social groups.

6. Facilitate the incorporation of indicators of costs and quality into the routine collection and utilization of information in primary school planning through the mechanism of Thailand's educational management information system.

Having completed the analysis of private resources to primary education during FY89, the next step will be to study the

institutional costs of primary education during FY90. The study will examine how financial resources are utilized in primary schools in Thailand, in terms of unit costs and financial distribution among different educational inputs. The correlation between resource utilization and educational outcomes will be explored. The study will inform the development of cost indicators to be used in Thailand's educational management information system.

#### **B. STAFFING REQUIREMENTS**

The Michigan State University team consists of three senior faculty. Dr. Christopher Wheeler, a professor in the College of Education, serves as the country coordinator of the project. He is an expert on multisite case study design. He played a leading role in the design and analysis of the in-depth study of an effective school cluster and the case studies based on the findings of the national survey. By using his sabbatical (where MSU contributes 50% of the cost), the 50% funding from this project and funding for the summer quarter will enable him to devote 100% of his time for the analysis, writing and administrative responsibilities associated with the final year of the project.

Dr. Stephen Raudenbush, an Associate Professor in the College of Education, has pioneered the development of hierarchical linear modeling as well as other advanced methods of statistical analysis which are being used in this project. He played a major role in conceptualizing the national survey and in analyzing the results. He will devote 25% of his time during the academic year to the project.

Dr. Mun Tsang, also an Associate Professor in the College of Education, is recognized as one of the leading authorities in the United States of cost analysis studies in Third World countries. He designed the cost analysis part of the national survey and plays a leadership role in the analysis. Dr. Tsang will devote 25% of his time to the project during the winter, spring and summer quarters, plus one month in the summer.

The Thailand component of the project consists of seven researchers from the Educational Research Division of the Office of the National Education Commission, five expert consultants from different Thai universities, and one official from the Office of the National Education Commission, the agency responsible for administering 85% of the primary schools in Thailand. Dr. Chinnapat Bhumirat in the Educational Research Division directs the work of this team. He received his Ph.D. in Curriculum and Instruction from the University of Kansas and has particular strengths in research methodology, especially in quantitative survey research. He has also served as Project Director for a study to design a provincial management information system, experience of a special importance for efforts to improve the existing educational management information system for Thailand. He has published a number of major research reports in both Thai and English. His staff all have similar credentials and expertise. He will continue to devote 100% of his time to this project, as will most of his staff. These salaries are donated by the NEC.

Only the dissemination activities and consultant fees are covered by this award.

Consultants to the project are from different Thai universities and are also leading authorities in the field of educational research in Thailand. For example, Dr. Pragob Kunarak, an Associate Professor of Educational Administration at Silpakorn University, is an internationally recognized expert on school clusters based on his research in Thailand. He serves as a senior consultant to the project.

### C. SCHEDULE OF ACTIVITIES FOR FY90

1. From October through early December, 1990, MSU and the NEC teams will complete their analysis of the survey data, including the data on cost analysis. During this same period, the analysis of the multisite case study based on preliminary analysis of the survey and cost data will be completed. A draft of the multisite case study of an effective school cluster will also be completed.

2. In December, 1989, a project meeting will be held in Bangkok (with Wheeler, Raudenbush and Tsang attending from MSU and the entire Thailand team attending from the NEC). The purpose of this meeting is to review papers based on the various analyses and to develop a work plan for formulating policy options.

3. From January through April, 1990, the teams will develop alternative sets of policy options. From March through mid-June, cost estimates will be developed for these options. In the process

of developing cost estimates, it is anticipated that further modifications in the sets of options will occur.

4. Beginning in late May, 1990, work will also begin on developing and field-testing a set of indicators of cost and quality drawn from the survey to continue throughout the summer and conclude in September, 1990.

5. In June, 1990, a second project meeting will be held in Bangkok (with the same participants) to review the policy options, to plan the policy seminars and to discuss progress on developing indicators of cost and quality drawn from the survey for use in Thailand's educational management system.

6. During July and August, 1990, the NEC will host a series of policy seminars involving national, provincial, district and local officials.

7. During July and August the draft of the final report will be completed. During September this report will be revised in light of the policy seminars. The final report will summarize the research findings and present various policy options (including costs). Included in this report will be the recommendations for improving Thailand's educational management system.

#### D. PRODUCTS

The following products will result from the scope of work and schedule of activities described below.

##### 1. Survey

- a. "Results of a National Survey of Primary Schools in Thailand, Part II: The Relationships between School

Management Practices and Teaching in Thai Primary Schools." Drs. Raudenbush, Chinnapat and NEC staff. December, 1989.

b. "The Distribution of Resources for Education in Thai Primary Schools: Implications for Educational Quality and Equity." Drs. Chinnapat, Raudenbush and NEC staff. May, 1990.

c. "The Cost-Effectiveness of Alternative Policies to Improve Primary School Quality in Thailand." Dr. Tsang and NEC staff. May, 1990.

2. Qualitative Studies

a. "A Multisite Case Study Analysis of Causal Variables Determining Primary School Effectiveness in Thailand." Drs. Wheeler, Chinnapat and NEC staff. December, 1989 (draft). May, 1990 (final).

b. "School Clusters as a Management Strategy for Improving Primary School Quality in Thailand." Drs. Wheeler, Chinnapat and NEC staff. December, 1989.

3. Management Information System

"Quality of Education Indices: Routing Monitoring to Improve Primary School Effectiveness." Drs. Chinnapat, Tsang, Raudenbush and NEC staff. September, 1990.

4. Final Report

Final Report: Modeling Policy Options for Improving Primary Education in Thailand. Drs. Wheeler, Raudenbush, Chinnapat, Tsang and NEC staff. September, 1990.

## E. DISSEMINATION AND TRAINING

We plan to conduct a series of policy seminars for policy-makers and planners to model policy alternatives based on this research.

The purpose of this activity is to disseminate our findings in a way which will increase the likelihood of them being used. In Thailand the use of "policy seminars" is an established part of the political culture. Key decision-makers from different levels of government are brought together at a meeting site outside Bangkok for a two- to three-day conference in which research findings are discussed and policy implications debated. The results of these conferences are then circulated to the participants and usually become the basis for policy initiatives.

In using this avenue as the major one for influencing policy in Thailand, we shall also use a particular approach to disseminate our findings, called "policy modeling." As we conceive of this activity, it is designed to illuminate tensions and dilemmas in current policy, not to prescribe a single "right" answer. As such it provides policymakers a fresh viewpoint to see the intended and unintended consequences of existing policy and to reflect on whether those consequences are what they want.

An important aspect of the policy modeling approach is the notion of "backward mapping" to consider the implications of different policy recommendations. (See Elmore, 1979 and 1984, and Schwille, *et al.*, 1986, for a discussion of this point.) It is not enough, we believe, to specify alternatives and assess their

expected effects. We need also to reverse the reasoning, starting at the outcome end and reasoning back to the sets of recommendations. This will require the active involvement of decision-makers from different levels of the bureaucracy to capture the perspectives of the different stakeholders. Again the mechanism of the "policy seminar" is ideally suited for such a focus.

In addition to policy seminars, we plan to disseminate findings through informal meetings with key policymakers. These informal meetings will be initiated and carried out by senior NEC staff.

We further plan to disseminate findings through national and international conferences and publications.

Finally, we shall participate in BRIDGES' sponsored regional dissemination conferences as requested.

No workshop or training activities are planned for FY90.

## **SOFTWARE DEVELOPMENT AND TRAINING**

### **PROPOSED ACTIVITIES FOR FY90**

Proposed activities for the final year of the project will consist of completing the various software tools. Emphasis will be given to the completion of documentation for the software in preparation for the dissemination activities.

#### **A. SOFTWARE DEVELOPMENT**

By the end of the fiscal year, RTI will have completed six software products which have general applicability. In addition, the Indonesia model, while specific to that country, should be

generally applicable as well to other countries. This means that RTI will have developed seven software products under the BRIDGES project. Under the original RTI subcontract, by contrast, only three such products are called for (page 7 of RTI subcontract agreement).

1. Update of GENDER

As described above, the GENDER data base and modeling system was completed during FY89. Judging from requests received at RTI, it is one of the most popular and requested BRIDGES products. However, the WID data base which is a key component remains incomplete and could be made more useful. Many of the indicators in the data base are mostly missing values and are not, therefore, useful. In addition, many more useful and sought-after socioeconomic variables are missing. Finally, the data base was only established for 70 USAID assisted countries and therefore is missing a significant part of the developing world.

RTI proposes to assemble a new data base using published sources. The new data base will draw primarily on UNESCO and World Bank data bases and will also use the data assembled for the EIM statistical analysis.

2. Completion of OPES

The OPES system is also nearly complete. In order to complete OPES, a user's manual will be written and duplicated during the year. Also, some of the help screens which contain information about the relationship of policies to educational outcomes need to be completed by HIID and included in the software by RTI.

3. Refinement and Documentation of the Transition Rate Estimation Software

The Transition Rate Estimation software was also largely completed during 1989. During the 1990 FY, documentation for the software will be prepared and further testing will take place.

4. Refinement and Documentation of "MINPROJ"

The MINPROJ program is a useful and simple tool designed for use in situations where data are scarce and where the microcomputer skills of the user are also minimal. MINPROJ is also valuable as a training tool for learning projections because it is so easy to use.

During the 1990 FY, RTI will complete MINPROJ by:

- adding more tables and graphs;
- making it capable of storing data in named data files;
- conducting extensive testing for bugs;
- writing a short introduction and user's manual.

5. Completion of the Education Impacts Model (EIM)

The EIM model is a top priority activity for RTI during the 1990 fiscal year and every effort will be made to complete it early during the fiscal year. Work remaining on the model includes:

- computer programming;
- final selection and estimation of the model equations;
- testing and initialization of the model;

- preparation of a report on findings based on simulations with the model;
- preparation of a user's manual for the model;
- preparation of an automated demonstration of the model.

## B. DISSEMINATION AND TRAINING

The final year of the project is a year during which dissemination of the results of the model are a top priority. As reported above and in last year's report RTI has always given emphasis on dissemination and has tried to take advantage of every opportunity to demonstrate BRIDGES software and to get the programs in use by institutions and individuals outside of the project.

It is somewhat difficult to exactly predict what events will actually take place but below we list those for which we are planning.

### 1. Participation in Three BRIDGES Regional Workshops

These regional workshops will be organized by Harvard with RTI participation in terms of their execution. The intended audience is AID and other field-based donor staff as well as MOE staff from participating countries. The intention is to show BRIDGES software and research results to an audience which has had little if no exposure to the project.

### 2. Organization of Country Workshops

During the project, RTI has received repeated calls for training in the use of the BRIDGES software and educational planning techniques from participating BRIDGES countries.

Accordingly, RTI proposes to organize three separate country workshops in Burundi, Sri Lanka, and Thailand. These workshops will be of one weeks duration for a maximum of 10 officials. All costs will be borne by RTI/BRIDGES.

3. March 1990 World Education Conference

RTI is prepared to operate a booth or make appropriate demonstrations of BRIDGES policy and planning software at the upcoming Thailand conference scheduled for March, 1990. This might be done in conjunction with travel for the country workshop discussed above.

4. International Institute for Educational Planning

RTI is also prepared to demonstrate and to conduct training in the use of planning and policy software at IIEP in Paris. Such an activity will depend on discussions with UNESCO.

5. World Bank - EDI Seminar

This activity will be a repeat of the training workshop which took place in FY89. The audience will be World Bank, AID, and other S&T/ED cooperating agency staff.

C. **COUNTRY ACTIVITIES**

1. Pakistan

Activities in Pakistan will continue to focus on the Education Division of the Planning Commission. Previous training covered the most universal applications of computers to educational planning. The purpose of this training was, to some extent, simply to begin on a positive note, and to offer to the Education Division evidence that we indeed have something to offer. In a next visit, Luis

Crouch will undertake a formal evaluation of both the routine and strategic planning mandates of the Division. He will then recommend a long term plan for the application of informatics to the planning needs, and will get the process started. This will dovetail with the placement, by BRIDGES/Harvard, of a medium-term advisor in the Division. One of the functions of this advisor will be to assist the Division in implementing the plan recommended by Crouch.

BRIDGES/RTI will continue to offer its services to USAID/Islamabad for functions that are congruent with the BRIDGES project's scope of work. That is, BRIDGES/RTI will continue to assist the Mission with activities involving genuine planning and policy analysis applications that bear on the educational development of Pakistan.

## 2. Egypt

As discussed in the report on FY89 activities, RTI will conduct one more BRIDGES-related training seminar at the Educational Planning Unit of the MOE in Egypt. The timing and content of this will be coordinated with a related but separate follow-on project being carried out by RTI and Harvard.

## 3. Indonesia

The BRIDGES/RTI work in Indonesia will concentrate on forecasting the demand and supply for education, if possible disaggregated down to the provincial level. As a result of the first trip to Indonesia, Luis Crouch agreed with Boediono, of the Informatics Center at the Ministry of Education, that two models

will be built. One will focus on the demand for labor force by level of education. This will be driven by projected rates of sectoral economic growth. Another model, driven by demographic growth and trends in transition rates, will focus on the supply of educated labor force. Putting both together will help the Indonesian government in prioritizing its planned educational development investments. In particular, it will help answer the question whether it is more important to improve the quality of primary education (now that access has been largely universalized) or whether to concentrate on extending the universalization achieved at the primary level to the secondary and university levels. Indonesia is one of the few countries where BRIDGES has worked where these long-term, strategic educational planning issues are being considered with any seriousness and at high levels within the political structure. We believe it is important to support one of the few instances of true education planning we have encountered.

## **THE COST-EFFECTIVENESS OF DISTANCE TEACHER TRAINING**

### **A. RESEARCH AGENDA FOR FY90**

By the end of September the Phase II research report will have been drafted. In October, while Nielsen is in Jakarta, a national level workshop will be held which will involve policymakers and program managers (College Deans, etc.) in a review of the research results and in the formulation of policy implications. After the workshop the research collaborators will plan final reports and

publications which will incorporate policy recommendations resulting from the workshop and which will be sensitive to the needs and information acquisition styles of potential users. During the ensuing two months (November-December) final reports/papers will be written both in the Indonesian language and in English. The English language report/paper will be written with wider dissemination through the BRIDGES network in mind.

In January another workshop will be held in Jakarta geared towards policy modelling in the area of teacher education. In addition, conclusions from BRIDGES studies from other countries will be presented so that Indonesia will benefit from the entire range of BRIDGES research and development activities.

During January and February, D. Nielsen will take the final results of the Indonesia study and put it together with the results from the Sri Lankan study and create a comparative analysis teacher training alternative for the two countries. The analysis will consider the cost-effectiveness of the various alternatives, giving special attention to the relative strengths and weaknesses of distance education.

Any follow-up activities deemed to be appropriate by the Indonesians will also be discussed during the early months of the new fiscal year.

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

1. Conduct national-level review of Phase II report Oct. 89
2. Revise Phase II report Oct.-Nov. 89
3. Prepare Phase II papers for publication Nov.-Dec. 89
4. Conduct BRIDGES Project dissemination workshop in Indonesia Jan. 90
5. Write comparative study of the cost-effectiveness of alternative approaches to teacher education (Indonesia and Sri Lanka) Jan.-Feb. 90

#### B. TRAINING

Training during this period continues to be intense and will focus mostly on the presentation of research results, report writing and packaging, and policy formulation/modelling. Training in a wider sense will be provided during the BRIDGES dissemination workshop in which a wide range of Indonesian educators will receive briefings on the methods and results of BRIDGES research undertakings.

#### C. RESEARCH PRODUCTS

- A full report of Phase II research: The Cost-effectiveness of alternative approaches to teacher training in Indonesia;
- Various special papers derived from that research in English and Indonesian, the titles and formats to be decided following the October workshop;

- A comparative research paper: The cost-effectiveness of alternative approaches to teacher training in Indonesia and Sri Lanka (in English, written by D. Nielsen).

**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 mention above, this will be done through the project's final two workshops (to which top policymakers and teacher educators will be invited) and through the project's final reports and papers. 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 FY90 technical assistance travel for D. Nielsen will be as follows:

|    | <u>DATE</u> | <u>PLACE</u> | <u>PURPOSE</u>  | <u>DURATION</u> |
|----|-------------|--------------|---|-----------------|
| 1. | Oct. 89     | Jakarta      | Participate in policy review and formulation workshop; collaborate in | 2 weeks         |

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designing final report  
formats and dissemination  
strategy.

2. Jan. 90 Jakarta Participate in BRIDGES 2 weeks  
dissemination workshop;  
help in the formulation of  
appropriate follow-up plans.

## **SUSTAINABILITY OF LOW-COST LEARNING SYSTEMS**

### **A. RESEARCH AGENDA FOR FY90**

1. During FY90 the country reports and the overall research report will be finalized for submission and dissemination. Evaluation and feedback meetings will be held with directly involved education officials in the four countries: the Secretary-General of the National Education Commission and the head of the Research and Development Division of ONPEC; the Secretary of the office of Educational & Cultural R/D in Jakarta; the Philippines' Undersecretary for Primary Education and the head of the Research and Development Division of INNOTECH; and Liberia's Assistant Minister for Primary Education.

#### **2. Schedule for Winding Down Research Activities**

Oct.-Nov. 89 Finalize draft of country report for Liberia for final review and discussion with Liberian research collaborators and the Ministry of Education.

Trip to Indonesia, Philippines, and Liberia to:  
(a) present final drafts of country reports to research collaborators and education ministries, as well as to the USAID mission of the three countries; and (b) to conduct dissemination meeting/seminar with MOE, and USAID officials in each country.

Dec. 89

Prepare draft of overall research report incorporating findings from the four countries.  
Trip to Thailand to: (a) present final draft of the country report to NEC and to the Ministry of Education's Research and Development Division; and (b) to conduct dissemination meeting/seminar with MOE, NEC, and USAID in Bangkok.

Jan. 90

Finalize research report covering all four countries for dissemination to other developing countries.

Feb. 90

Prepare dissemination packages.

Mar.-Sep. 90

Products dissemination through BRIDGES contacts in developing countries throughout the world.

#### **B. RESEARCH PRODUCTS**

The final products of this BRIDGES project are individual country reports for the countries included in the study and a final research report entitled "Sustainability of Low-Cost Learning Systems."

### **C. PROJECT EVALUATION**

Evaluation of this subproject will be in the form of expert reviews within the BRIDGES Project and feedback meetings with research, planning, and education officials of the four countries studied. The main task will be judging the extent to which the research report will be useful to education planners and policymakers of each country and its potential for influencing educational planning and policy decisions in other education settings in the Third World.

### **D. DISSEMINATION**

A final dissemination package will be prepared and actual dissemination will be carried out through Project BRIDGES designees.

### **EPIC -- AN EDUCATIONAL POLICY SIMULATION**

EPIC was developed to model and simulate the dynamics of educational policy-making and planning in the Third World. The simulation provides a realistic environment in which to experience and experiment with fundamental concepts and issues in planning for educational change. EPIC focuses on the integration of the technical aspects of change, and requirements for changes in organizational structures and value frameworks. The simulation provides an opportunity to explore the interrelationships among factors concerning school access and retention rates at the national, regional, and community levels using qualitative and quantitative data. In this simulation model people play roles,

have goals, perform sets of activities, and make decisions within the structures of choices and consequences offered in the model.

The objectives of EPIC are to:

- force discussion about resource allocation under budget constraints;
- illustrate the need to identify sets of factors that affect demand for education and increase access among particular groups within their own context (girls and boys in urban and rural areas);
- emphasize the importance of multiple strategies;
- show the delays involved in setting up programs;
- demonstrate the qualitative and quantitative effects of different policies;
- give practice in communication, negotiation, and cooperative group strategy design to promote participatory planning.

EPIC is designed to be used in professional meetings, conferences, and training sessions by educational planners and policymakers (at national and regional levels), researchers, students, and those interested in the role of educational in development.

Over the past year our activities centered around the development of the player roles, the computer model used to calculate the affects of policy choices on the education system, and supplementary materials given to the players as the game proceeds. A total of 15 tests of the simulation of the simulation

were run, including sessions at the CIES Conference held at Harvard Graduate School of Education April 1-3, 1989.

#### EPIC ACTIVITIES FY90

Activities for 1989-90 will include composing and editing the Coordinator's Guide, the Participant's Manual, and further refinement of the computer model which uses LOTUS 123 software. We will bring the game to the final level of completion in the spring of 1990.

The first list of activities are to be completed by December 1989.

1. Simplify playing procedures so that at least five rounds of play can be completed without difficulty within a 90-minute period, including time to introduce first-time players to the game.

2. This will require improvement of current procedures of recording decisions, and entering of information into the computer.

3. Develop a set of "pulse" events that can be introduced in the fourth round, and which could be used if the game were to be played for more than five rounds.

4. Develop a manual for the game, complete enough so that the game can be introduced and monitored by someone previously unfamiliar with it.

5. Supply an adequate package of support materials like money tokens, etc., to enable the game to be played easily.

6. Produce a finished version of the board in sufficient numbers for use during the planned regional workshops.

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7. Develop a set of criteria for evaluation of the effectiveness of the game. These should include both process as well as product criteria, that is, interest, learning, etc.

8. Develop an instrument for measuring learning outcomes and observation of process. The learning outcomes measure may involve a pre- and post-game administration.

9. Develop a strategy for marketing the game.

10. Identify and seek out sources of support for further development and distribution of the simulation through corporations and publishers.

This simulation will be a component of the three regional BRIDGES workshops to be held in the Middle East, Africa, and Latin America, as well as the UNESCO conference in Bangkok in October, 1990.

## **PUBLICATIONS**

### **A. WORK PLAN FOR FY90**

The Publications Unit continues to fulfill an important contractual obligation by producing and disseminating the written research reports generated by Project BRIDGES. During FY89 the BRIDGES archive grew from 65 to 113 research papers. Nine of these manuscripts have been formally published and disseminated by the Publications Unit. These formal publications are published within two series and are listed below.

Besides the formal publications produced in FY89, the Publications Unit is engaged in several other ongoing activities:

1) handling all written products generated by the Project--this involves logging in and archiving new materials, 2) choosing and following through several stages of preparing manuscripts for formal publication, 3) dissemination of formal publications, 4) managing an accounting system and a distribution system for honoring external requests for Project materials (this activity is growing in terms of time needed to fulfill orders).

## B. FORMAL PUBLICATIONS

### 1. BRIDGES Research Report Series

- Anderson, Mary. "Improving Access to Schooling in the Third World: An Overview." RRS #1, March 1988.
- Thiagarajan, Sivalsailam and Aida Pasiona. "Literature Review on the Soft Technologies of Learning." RRS #2, July 1988.
- Tsang, Mun C. "Cost Analysis for Educational Policymaking: A Review of Cost Studies in Education in Developing Countries." RRS #3, October 1989.
- Montero-Sieburth, Martha. "Classroom Management: Instructional Strategies & The Allocation of Learning Resources." RRS #4, April 1989.
- Wheeler, Christopher, Steve Raudenbush, and Aida Pasiona. "Policy Initiatives to Improve Primary School Quality in Thailand: An Essay on Implementation, Constraints, and Opportunities for Educational Improvement." RRS #5, June 1989.

2. BRIDGES Education Development Discussion Paper Series
- National Education Commission (Thailand). "Determinants of Effective Schools - Thailand Country Review." DDP #1, February 1988.
  - Anzalone, Steven. "Using Instructional Hardware for Primary Education in Developing Countries: A Review of the Literature." DDP #2, March 1988.
  - Eisemon, Thomas O. "The Consequences of Schooling: A Review of Research on the Outcomes of Primary Schooling in Developing Countries." DDP #3, September 1988.
  - Ligons, Claudette. "Inservice Education in Thailand: Key Innovations Since 1980." DDP #4, July 1989.

Besides the above manuscripts that were published in FY88 our unit has spent time on several other manuscripts, some of which will be published in the upcoming fiscal year, and some of which, despite our efforts, will not meet the final approval for publication. The manuscripts currently (FY89) requiring our attention and being considered for publication are:

- Baigorria, Cornelia. "Language of Instruction, and Achievement." Status: Two external reviews (one asks for extensive rewrites), no AID approval.
- Cassidy, Thomas. "Microcomputer-based Models & Modeling Systems Software for Educational Planning." Status: Two external reviews (author has responded and is in last stages of rewrite), no AID approval.

- Cuadra, Ernesto. "Comparison of School Records with Parents' Information on Enrollment, Repetition, and Dropout: A Field Study in Honduras." Along with, Crouch, Luis. "A New Approach to the Estimation of Enrollment Transition Rates: Estimating Repeater and Dropout Rates with Minimal Data Availability," and "Monitoring Internal Efficiency of a School System in the Absence of Reliable Repeater and Dropout Data: A Method Based on Simple Proxy Indicators." Status: Paper has all approvals and is in final stages of publication.
- Munoz Izquierdo, Carlos and Sonia Lavin de Arrive. "Strategies for Improving Access to and Perseverance in Primary Education in Latin America." Status: Two external reviews, AID encouragement, paper is in second draft of translation into English.
- Schwille, John, et al. "Recognizing, Fostering, and Modeling the Effectiveness of Schools as Organizations in Third World Countries." Status: Two outside reviewers, AID encouragement, manuscript has been through several drafts - requires more work.
- Raudenbush, Steven, Somsri Kidchanapanish, and Sang Jin Kang. "Pre-Primary Educational Policy as a Vehicle for Improving Primary School Outcomes in Thailand." Status: Two external reviews, no AID approval.

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Eisemon, Thomas O. "Does Schooling Make a Better Farmer?" Status: No external reviews, AID encouragement.

### C. PLANS FOR FY90

During FY90 we expect to reach closure, either through publication or nonpublication of the above manuscripts. In addition we expect to receive and handle several new papers. We can at this date predict what manuscripts will be written and which of those we expect to consider for publication. Following is a list of authors with approximate titles. This list along with the above list of papers currently in process constitute 15 manuscripts. We expect to formally publish eight of these manuscripts. This requirement--to publish eight more research reports within a 12-month period--is contingent on the following criteria:

- \* All new manuscripts are received no later than January 15, 1990--and at least two of the new manuscripts have the necessary approvals and enter the final state of publication by November 1, 1989.
- \* The pipeline process for the original research papers must be pruned to include either an external review process or AID approval, but not both.
- \* An increment of staff time (trading a 1/4 R.A. position for a 1/2 time casual payroll staff person).

The papers we expect to receive by January 1990 are:

Warwick, Don--a paper on Implementation.

Rugh, Andrea--a Classroom Management paper.

Cassidy, Tom--a paper on Modelling.

Cummings, Bill and Teresa Tatto--a paper on Teacher Education.

Cummings, Bill--a paper on Decentralization.

Moreland, Scott--a paper on RAM.

Schwille, John--a paper on External Effectiveness.

McGinn, Reimers, and Warwick--two papers on Pakistan.

Neilsen, Dean--a paper on Distance Education.

#### D. DISSEMINATION ACTIVITIES

Each Research Report issue is sent to our 1,500 address network. The 1,500-person, worldwide mailing list has been pruned to 1,300 in order to save some issues of our publications for external requests. In FY90, due to the 15% budget cut, dissemination of publications to Project members will also be cut by 15%. For instance, USAID will now receive 170 instead of 200 copies, and subcontractors will receive 22 instead of 25 copies.

As each issue is produced it is sent to what we call the "priority mailing list." This list consists of USAID, all Project subcontractors and members, and all workshop attendees. After three issues have been completed a bulk mailing is done for the larger address list. In this way, Project members are kept up to date on our publications, but we are also able to make a substantial savings by doing a bulk mailing for the larger audience.

We expect that requests for Project material will increase greatly in FY90. We have set up an accounting system and a

dissemination mechanism to handle the current level of requests. If the past two months is any indication of the increase in activity that will mount during the last year of the Project, then we will need to increase the amount of time allocated to this activity.

There has been no discussion of what will happen to products and subsequent requests for materials past the Project expiration date. Some of our energies will be spent finding and setting up an appropriate mechanism to handle such ongoing requests.

#### **BRIDGES SECOND ANNUAL INTERNATIONAL CONFERENCE**

The second Annual Conference was held January 23-27, 1989, in Bangkok, Thailand and was jointly coordinated by the BRIDGES Cambridge staff and by the Thai National Education Commission. Over 50 educational policymakers, planners and researchers from Burundi, Egypt, Pakistan, Indonesia, Sri Lanka, Thailand and the United States were able to attend. Observers from international agencies with regional interests, such as USAID/Bangkok and Indonesia, UNDP, UNESCO and SEARRAG, were also invited for the first time. The Thai contingent, numbering over 30 participants, made a significant contribution in that they included some of the country's leading educational researchers and policymakers.

Opening ceremonies commenced with an introduction to BRIDGES by Dr. Noel McGinn, the project principal investigator. Welcoming remarks were made by Dr. Panom Pongpaibool, Director General of the National Education Commission and a principal BRIDGES Thai

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colleague. The Conference opening address was presented by H. E. Mr. Bhichai Rattakul, Deputy Prime Minister of Thailand. USAID was represented by Mr. Steven Mintz (Bangkok) and Mr. Anthony Gayoso, Director of the Human Resource Bureau for Science and Technology (Washington), who delivered keynote addresses.

This year's Conference chose the theme "Policy Options for Educational Improvement: First Conclusions from Field-Generated Research" as the prime focus for discussion. Eleven papers\* were written and presented which highlighted in-country research findings in the following key policy areas: the cost of distance education for primary teacher education in Indonesia; factors determining the quality of primary education in Thailand; school management and organization issues in Sri Lanka; the development of educational management information systems in Egypt and Pakistan; factors affecting project implementation in Pakistan; and the role played by primary education in the Burundian labor market. Papers were presented at open forums followed by especially convened study groups in which the policy implications of each research outcome were analyzed by participants. All of the events were characterized by a high level of involvement and lively discussion.

In addition to their excellent effort of coordinating the working portion of the Conference, the Thai hosts scheduled opportunities for the BRIDGES international representatives to learn about Thai history, culture and cuisine. Two banquets, offering representative Thai food, were held during the Conference.

An acclaimed highlight of the Conference was a tour of the Thai royal palace and of the adjoining extensive magnificent grounds of the Temple of the Emerald Buddha. This tour was followed by an evening cruise on the Chao Phya river during which the Conference representatives were entertained by an exhibition of Thai dancing and music.

During the concluding portion of the Conference discussion focused on what was needed to successfully implement the research findings produced by the BRIDGES Project. Conclusions were varied, but all representatives were in agreement concerning the significance of the role played by strong and informed leadership in the implementation of educational policy decisions and in the need to encourage more interaction between policymakers and researchers and between researchers and implementors in each country. Vital was strong commitment by policymakers, administrators, principals and teachers to the programs of appropriate policies being designed for implementation.

The Second Annual Conference was important in that it afforded BRIDGES team members and their host country counterparts a last chance to share research findings and ideas for dissemination before the production and writing of their final research results. By September of 1989, at least two BRIDGES field research projects, in Burundi and Egypt, will have come to an end, and at least two others, in Sri Lanka and Thailand, will have begun a closing-out process.

A final BRIDGES Annual Conference is scheduled to take place before the BRIDGES project ends in September, 1990, probably in Washington, D.C.

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\* Titles of papers presented at Second Annual Conference

1. 1984-86 Sri Lanka Experience with Decentralization
2. Improving Primary School Quality in Thailand: A Case Study of a School Cluster
3. Strategies for Improving the Effectiveness of Burundian Primary Schools
4. The Implementation of Reforms in the Primary School of Pakistan
5. A Study of School-Community Relation in Sri Lanka
6. Determinants of Primary School Quality in Thailand: Preliminary Findings from a National Study
7. Problematical Aspects of Primary Education in the Context of Rural Development in Burundi
8. Teacher Training by the Indonesian Open University: The Relationship of Private Costs and Expected Benefits to Enrollment Decisions
9. A Study of the Impact of the Mosque Schools Policy on Girls' Access to Education in Pakistan

10. Toward the Development of Improved Management Information Systems for the Education Sector: Lessons Emerging from BRIDGES Work in Egypt and Pakistan
11. Optimal Policies for Educational Systems: An Educational Policy Tool

## PUBLICATIONS APPENDIX 1

### PROJECT BRIDGES' PUBLICATIONS

#### BRIDGES RESEARCH REPORT SERIES

The Research Report Series consists of state-of-the-art research reviews, and research reports of field work covered in participating countries. A total of 15 issues will 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 education systems, development agencies, and universities throughout the world with detailed information about the effects of policy and program options on educational outcomes. Although every effort is being made to edit the publications, 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 field covered by the paper. 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 will be considered for publication in this category.

#### EDUCATION DEVELOPMENT DISCUSSION PAPER SERIES

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 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 less effort to produce. The DDP manuscripts are internally reviewed and copy-edited, proofread, laser printed, and the final copy is sent to the printer for reproduction.

#### FORUM

The Forum contains eight pages of articles on in-country developments and project work in progress. The Forum has presented a newsletter publication model which Sri Lanka, Pakistan, and Egypt have used as a model to create their own vehicle for communication.

#### MANUALS

A selected number of training manuals will receive similar treatment as the Research Report Series. They will be turned into formal presentations and widely disseminated. The manuals are currently in the process of being packaged for dissemination. Some manuals will appear as Casual Papers, available in copy form upon request.

### CASUAL PAPERS

These are research papers generated by the members of the Project that are archived rather than turned into formal publications. About 80% of all research papers fit into this category. Our publications order form lists the titles and cost of these papers which are copied upon request.

### BRIDGES' INFORMATION DOCUMENTS

This category refers to documents such as the Annual Summary. These documents are primarily public relations pieces and, as such, are presented formally and are widely distributed.

### MISCELLANEOUS

In addition to the above products, the Publications Unit is responsible for the production of workshop brochures, formal meeting agendas, covers designs, T-shirts, graphic brochures, and occasional packaging of Project materials.

## PUBLICATIONS APPENDIX 2

### DISSEMINATION

Research Report Series: Of the 2000 copies that are printed: 170 is sent to USAID/Washington, 22 to each subcontractor, 10 to each Country Coordinator, 10 to the author, 1 to each reviewer, 1 to each Project member, 1300 are sent to addresses on our network mailing list, and the remainder (120 copies) are for conferences and honoring requests.

Education Development Discussion Papers: The same number of copies are published as for the RRS, and the distribution is the same as well.

Manuals: Some of these will be handled in the same manner as the RRS, but most will be sent out in copied form when requested.

Casual Papers: A list of these papers will be widely distributed. Xeroxed copies of each paper will be sold upon request, bound with a special cover, and sold at cost.

Bridges' Information Documents: Some documents presented receive the widest distribution possible - that is the same as for the RRS. Others of this sort are treated as Casual Papers.

Project Bridges mailing list is broken down into two parts. The first part is called the Priority Mailing List, and it contains the names and addresses of all Project members, all workshop attendees, all reviewers, and a few other addresses of persons who advertise our publications to a wider audience. Persons on our Priority Mailing list receive a publications as soon as it is published.

The second part of our mailing list contains 1300+ names and addresses of researchers, planners, policymakers, educators, development agencies, and universities located throughout the World. Below is a list of countries to which we send our publications and the number of addresses within each country. After the project has accumulated three new publications, they are disseminated to this larger network.

PUBLICATIONS' APPENDIX #2

BRIDGES DISSEMINATION PLAN - BY COUNTRY

| <u>Country</u>       | <u># of Addresses</u> | <u>Country</u>   | <u># of Addresses</u> |
|----------------------|-----------------------|------------------|-----------------------|
| Algeria              | 4                     | Haiti            | 1                     |
| Arab Gulf            | 2                     | Honduras         | 3                     |
| Arab R. of Egypt     | 1                     | Hong Kong        | 2                     |
| Argentina            | 19                    | Hungary          | 6                     |
| Australia            | 43                    | Iceland          | 2                     |
| Austria              | 4                     | India            | 23                    |
| Bahamas              | 1                     | Indonesia        | 10                    |
| Bangladesh           | 14                    | Iran             | 1                     |
| Barbados             | 5                     | Israel           | 11                    |
| Belgium              | 7                     | Italy            | 3                     |
| Belize               | 1                     | Ivory Coast      | 2                     |
| Benin                | 1                     | Jamaica          | 5                     |
| Bolivia              | 9                     | Japan            | 13                    |
| Botswana             | 3                     | Jordan           | 4                     |
| Brazil               | 29                    | Kenya            | 15                    |
| Bulgaria             | 2                     | Korea            | 2                     |
| Burkina Faso         | 5                     | Lebanon          | 6                     |
| Burma                | 1                     | Lesotho          | 3                     |
| Burundi              | 2                     | Liberia          | 4                     |
| Cameroon             | 8                     | Madagascar       | 1                     |
| Canada               | 31                    | Malawi           | 3                     |
| Cape Verde           | 1                     | Malaysia         | 7                     |
| Central African Rep. | 1                     | Mali             | 1                     |
| Chad                 | 1                     | Mauritania       | 0                     |
| Chile                | 21                    | Mexico           | 24                    |
| China                | 2                     | Morocco          | 2                     |
| Colombia             | 17                    | Mozambique       | 1                     |
| Congo                | 1                     | Nepal            | 3                     |
| Costa Rica           | 7                     | Netherlands      | 21                    |
| Cuba                 | 2                     | New Zealand      | 3                     |
| Czechoslovakia       | 4                     | Nicaragua        | 3                     |
| Denmark              | 11                    | Niger            | 0                     |
| Djibouti             | 0                     | Nigeria          | 23                    |
| Dom. Rep.            | 5                     | Norway           | 14                    |
| Ecuador              | 7                     | Oman             | 0                     |
| Egypt                | 5                     | Pakistan         | 3                     |
| El Salvador          | 3                     | Panama           | 7                     |
| England              | 25                    | Papua New Guinea | 2                     |
| Ethiopia             | 6                     | Paraguay         | 8                     |
| Finland              | 7                     | PPC              | 12                    |
| France               | 23                    | Peru             | 14                    |
| Gambia               | 2                     | Phillippines     | 10                    |
| Gem. Dem. Rep.       | 2                     | Portugal         | 1                     |
| Ghana                | 9                     | Puerto Rico      | 4                     |
| Great Britain        | 2                     | Qatar            | 2                     |
| Greece               | 5                     | Romania          | 3                     |
| Grenada              | 1                     | Rwanda           | 1                     |
| Guatemala            | 4                     | St. Lucia        | 2                     |
| Guinea-Bissau        | 1                     | Saudi Arabia     | 5                     |
| Guinea               | 8                     | Scotland         | 7                     |

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PUBLICATIONS' APPENDIX #2

| <u>Country</u>  | <u># of Addresses</u> | <u>Country</u> | <u># of Addresses</u> |
|-----------------|-----------------------|----------------|-----------------------|
| Senegal         | 12                    |                |                       |
| Sierra Leone    | 9                     |                |                       |
| Singapore       | 6                     |                |                       |
| Somalia         | 3                     |                |                       |
| South Africa    | 2                     |                |                       |
| South Korea     | 7                     |                |                       |
| Spain           | 9                     |                |                       |
| Sri Lanka       | 5                     |                |                       |
| Sudan           | 6                     |                |                       |
| Swaziland       | 1                     |                |                       |
| Sweden          | 31                    |                |                       |
| Switzerland     | 14                    |                |                       |
| Tanzania        | 9                     |                |                       |
| Thailand        | 3                     |                |                       |
| Togo            | 1                     |                |                       |
| Trinidad        | 7                     |                |                       |
| Tunisia         | 3                     |                |                       |
| Turkey          | 7                     |                |                       |
| Uganda          | 9                     |                |                       |
| United Kingdom  | 1                     |                |                       |
| Uruguay         | 12                    |                |                       |
| USA*            | 295                   |                |                       |
| USSR*           | 5                     |                |                       |
| Venezuela*      | 11                    |                |                       |
| Virgin Islands* | 1                     |                |                       |
| West Germany*   | 39                    |                |                       |
| Yugoslavia*     | 2                     |                |                       |
| Zaire*          | 5                     |                |                       |
| Zambia*         | 4                     |                |                       |
| Zimbabwe*       | 7                     |                |                       |

\* Addresses in these countries are not updated as of 10/10/89.

PUBLICATIONS APPENDIX #2

BRIDGES MEMBERS LIST

| <u>Country</u>      | <u># of Addresses</u> |
|---------------------|-----------------------|
| Barbados            | 1                     |
| Bostwana            | 1                     |
| Burundi             | 14                    |
| Canada              | 2                     |
| Cameroon            | 8                     |
| Chile               | 5                     |
| Egypt               | 26                    |
| France              | 1                     |
| Guatemala           | 6                     |
| Indonesia           | 15                    |
| Kenya               | 1                     |
| Pakistan            | 60                    |
| Rwanda              | 1                     |
| Sri Lanka           | 9                     |
| Thailand            | 31                    |
| Tunisia             | 1                     |
| Yemen Arab Republic | 4                     |
| U.S.A.              | 105                   |
| UK                  | 1                     |

## PUBLICATIONS APPENDIX 3

### THE PIPELINE PROCESS

Incoming documents are registered upon receipt and placed in one of five categories. Authors are told within 60 days whether or not the paper will be published by the Project. All papers are physically placed in the archive.

\*First internal critique: Papers are read by Noel, Frank, Billie Jo (the committee) and other Project members; a copy is sent to USAID.

\*Papers are returned to the author with a critique (in the last year of the Project we expect that there may not be time for 2nd or 3rd drafts -- we expect papers to be sent to us in a prescribed form).

\*Resubmission of revised manuscript.

\*Second internal critique: paper is re-read by the committee

\*Decision is taken by committee to publish paper as:

A- publishable as part of the RRS

B- brief editing and ready as a Casual Paper

C- needs further work (it's unlikely that there will be time for this step during the last year)

A. If manuscript is considered for publication as an RRS, a blind review or USAID approval will be gained. (Allow 8 - 12 weeks).

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

C. Manuscripts needing further work will most likely become Casual Papers due to the ending of the Project.

## PUBLICATIONS APPENDIX 4

### REQUESTS FOR PUBLICATIONS

The Publications Unit has begun to receive requests for research documents generated by Project BRIDGES. These requests are coming from a variety of sources including universities, research centers, ministries of education, and private individuals. Below is a list of the written requests that we have received to date. We have, in addition, received many informal requests, so, this list is in no way exhaustive.

| <u>Author/Key Word</u>      | <u>Number of Requests</u> |
|-----------------------------|---------------------------|
| Anderson/RRS #1             | 8                         |
| Anderson/Female Access      | 7                         |
| Anzalone/DDP #2             | 34                        |
| Baigorria/Language          | 4                         |
| Bhumirat/Accountability     | 1                         |
| Cassidy/Modelling           | 2                         |
| Chang/Implementation        | 1                         |
| Clauset/Implementation      | 2                         |
| Crouch & Moreland/PETS      | 3                         |
| Davis/Ed. Plan              | 3                         |
| Davis/Rev. Software         | 1                         |
| Davis/Plan. Models          | 1                         |
| Eisemon/Consequences        | 9                         |
| Eisemon/Farmer              | 3                         |
| Eisemon/Language            | 1                         |
| Eshiwani/Access             | 3                         |
| Farooq/T. Training          | 2                         |
| Greenidge/Cameroon          | 1                         |
| Gunawardena/Effect. Schools | 1                         |
| Lignons/T. Training         | 1                         |
| Malakpa/Access Laws         | 3                         |

|                             |    |
|-----------------------------|----|
| Moegliadi/Effective Schools | 2  |
| Montero-Sieburth/RRS#4      | 1  |
| Munoz/Access                | 2  |
| Navarro/Mngmt. Reforms      | 1  |
| Pakistan Papers (Set of 9)  | 5  |
| Pasigna/RRS #2              | 24 |
| Pigozzi/Facilities          | 1  |
| Reyes-Mazon/T.Training      | 2  |
| Tsang/RRS #3                | 2  |
| Wheeler/Implementation      | 5  |
| WID Paper                   | 5  |
| Young/Enrolment             | 1  |

APPENDIX 5

LEVEL OF EFFORT  
BRIDGES PROJECT  
FY 1990

|                | LEARNING |      |          |          |          | TOTAL |           |
|----------------|----------|------|----------|----------|----------|-------|-----------|
|                | ADMIN    | TECH | PAKISTAN | SOFTWARE | THAILAND |       | INDONESIA |
| <b>HARVARD</b> |          |      |          |          |          |       |           |
| MCGINN         | 5        |      |          |          |          |       | 5         |
| DALL           | 0        |      |          |          |          |       | 0         |
| RUGH           |          |      | 6        |          |          |       | 6         |
| CASSIDY        |          |      | 6        |          |          |       | 6         |
| CUADRA         |          |      | 6        |          |          |       | 6         |
| REINERS        |          |      | 11       |          |          |       | 11        |
| CUMMINGS       | 2        |      |          |          |          |       | 2         |
| WARWICK        |          |      | 9        |          |          |       | 9         |
| WEISS          |          |      | 0.5      |          |          |       | 0.5       |
| <b>RTI</b>     |          |      |          |          |          |       |           |
| MORELAND       | 0.25     |      |          | 1.25     |          | 1.5   | 3         |
| CROUCH         | 1        |      | 3        | 1.75     | 0.5      | 3     | 2.25      |
| CUREDDU        | 0        |      | 1.75     | 3.5      | 0.75     | 3     | 0         |
| CRESSMAN       | 0        |      |          | 2        |          |       | 1         |
| MCCLINTOCK     | 1.5      |      |          |          |          |       | 0         |
| RICE           | 0        |      |          | 0.5      | 0        |       | 1.5       |
| OLSON          | 0        |      |          | 0.5      |          |       | 0         |
| TO BE HIRE     | 0        |      |          | 4.5      |          | 1.25  | 5.75      |
| <b>IIR</b>     |          |      |          |          |          |       |           |
| NIELSEN        |          | 4    |          |          |          |       | 4         |
| PASIGNA        |          | 2    |          |          |          |       | 2         |
| <b>MSU</b>     |          |      |          |          |          |       |           |
| WHEELER        |          |      |          |          | 7.5      |       | 7.5       |
| RAUDENBUSH     |          |      |          |          | 2.5      |       | 2.5       |
| MUN TSANG      |          |      |          |          | 3        |       | 3         |

APPENDIX 6

A Comparison of BRIDGES Achievements to Date Against  
Products Specified in The Cooperative Agreement.

1. Agreement: 40 in country demonstrations of the Models.  
To Date: Over 30 demonstrations carried out.
2. A: 5 Annual Conferences.  
TD:3 held and 1 planned for FY90.
3. A: 8 AID/W or AID Mission Seminars.  
TD:4 held 2 more planned.
4. A: 30 in-country seminars for training and promotional purposes.  
TD: Over 35 carried out in 8 countries.
5. A: 6 planning models.  
TD: 8 nearing completion.
6. A: Participant exchanges between participating countries.  
TD:1 meeting in Cairo bringing together the Indonesian, Thai and Sri Lankan teams.
7. A: Comprehensive research plans approved by AID/W.  
TD: 8 Research plans approved.
8. A: 5 Annual workplans.  
TD: 4 annual workplans approved.
9. A: 10 twice yearly progress reports. ( Modified to 5 only)  
TD: 4 progress reports carried out of the 5 agreed to .
- 10.A: A Final BRIDGES report.  
TD: Pending in FY90.
- 11.A: Trip Reports after each trip.  
TD:Over 100 received and sent to USAID.
- 12.A: An Annual Project update for each country activity.  
TD:4 written and approved.
- 13.A: Final research reports for each country activity.  
TD: Pending completion of research.
- 14.A: Project Design documents for the models being developed.  
TD: 5 written and approved.
- 15.A: Final evaluation reports for each country activity.  
TD:Pending.
- 16.A: Technical operation manuals for each simulation model.

- TD: 2 written 3 pending.
- 17.A: Software Packets for the Models.  
TD: 2 packets completed for STEP and GENDER.
- 18.A: A BRIDGES database documentation center.  
TD: A prototype of this will be completed by early 1990.
- 19.A: Training Guides and Manuals developed by BRIDGES.  
TD: 8 developed and submitted several more pending.
- 20.A: 20 AID/BRIDGES Research Report Series.  
TD: 5 published to date and 9 pending.  
4 Development Discussion Papers published.
- 21.A: A quarterly newsletter.(1000 copies)  
TD: A bimonthly newsletter called Forum. 8 editions and 8  
more pending.
- 22.A: USAID to set up Project Monitoring Committee to carry out  
ongoing evaluation and monitoring of project.  
TD: ?

**WORKPLAN FY '90**

'89

'90

| ACTIVITIES  | OCT.                                    | NOV. | DEC. | JAN. | FEB. | MAR. | APR. | MAY | JUNE | JULY | AUG. | SEPT. |
|---|---|------|------|------|------|------|------|-----|------|------|------|-------|
| <b>RESEARCH:</b>  |   |      |      |      |      |      |      |     |      |      |      |       |
| <b>SSS/SPS/ACCESS:</b>  |   |      |      |      |      |      |      |     |      |      |      |       |
| -continue data analysis                                       |   |      |      |      |      |      |      |     |      |      |      |       |
| -gather new data  |   |      |      |      |      |      |      |     |      |      |      |       |
| -integrate research findings                                  |   |      |      |      |      |      |      |     |      |      |      |       |
| - train counterparts  |   |      |      |      |      |      |      |     |      |      |      |       |
| -prepare policy recommendations                               |   |      |      |      |      |      |      |     |      |      |      |       |
| <b>EMIS:</b>  |   |      |      |      |      |      |      |     |      |      |      |       |
| -technical assist. to MOE/PD                                  |   |      |      |      |      |      |      |     |      |      |      |       |
| -Provincial EMIS:   |   |      |      |      |      |      |      |     |      |      |      |       |
| -interview officials  |   |      |      |      |      |      |      |     |      |      |      |       |
| -develop ed. system database                                  |   |      |      |      |      |      |      |     |      |      |      |       |
| -modify SYSTRACK  |   |      |      |      |      |      |      |     |      |      |      |       |
| -investigate data collection                                  |   |      |      |      |      |      |      |     |      |      |      |       |
| -improve data collection techniques                           |   |      |      |      |      |      |      |     |      |      |      |       |
| <b>TRAINING:</b>  |   |      |      |      |      |      |      |     |      |      |      |       |
| MOE/PD: 4 weeks w/ counterparts on research & analysis skills |   |      |      |      |      |      |      |     |      |      |      |       |
| <b>EMIS:</b>  |   |      |      |      |      |      |      |     |      |      |      |       |
| - PD/MOE personnel  |   |      |      |      |      |      |      |     |      |      |      |       |
| - provincial design of EMIS                                   |   |      |      |      |      |      |      |     |      |      |      |       |
| <b>NOTE:</b>  |   |      |      |      |      |      |      |     |      |      |      |       |
|   | PD is used to signify Planning Division |      |      |      |      |      |      |     |      |      |      |       |

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**GANT CHART OF BRIDGES ACTIVITIES**

**WORKPLAN FY '90**

| ACTIVITIES                       | '89  | '90  |      |      |      |      |      |     |      |      |      |       |
|----------------------------------|------|------|------|------|------|------|------|-----|------|------|------|-------|
|                                  | OCT. | NOV. | DEC. | JAN. | FEB. | MAR. | APR. | MAY | JUNE | JULY | AUG. | SEPT. |
| <u>RESEARCH TRIANGLE INST.</u>   |      |      |      |      |      |      |      |     |      |      |      |       |
| <u>SOFTWARE DEVELOPMENT:</u>     |      |      |      |      |      |      |      |     |      |      |      |       |
| -GENDER Update                   |      |      |      |      |      |      |      |     |      |      |      |       |
| -Complete OPES                   |      |      |      |      |      |      |      |     |      |      |      |       |
| -Finish TRES                     |      |      |      |      |      |      |      |     |      |      |      |       |
| -Finish MINPROJ                  |      |      |      |      |      |      |      |     |      |      |      |       |
| -Finish EIM                      |      |      |      |      |      |      |      |     |      |      |      |       |
| <u>DISSEM. &amp; TRAINING:</u>   |      |      |      |      |      |      |      |     |      |      |      |       |
| -3 BRIDGES WkShops               |      |      |      |      |      |      |      |     |      |      |      |       |
| -3 In-Country Workshops          |      |      |      |      |      |      |      |     |      |      |      |       |
| - World Educ. for All Conference |      |      |      |      |      |      |      |     |      |      |      |       |
| -IIEP Seminar                    |      |      |      |      |      |      |      |     |      |      |      |       |
| -World Bank/EDI Seminar          |      |      |      |      |      |      |      |     |      |      |      |       |
| <u>IN-COUNTRY:</u>               |      |      |      |      |      |      |      |     |      |      |      |       |
| -Pakistan MOE/PD Evaluation      |      |      |      |      |      |      |      |     |      |      |      |       |
| -Indonesia Provincial Analysis   |      |      |      |      |      |      |      |     |      |      |      |       |
| <u>MICHIGAN STATE UNIV.</u>      |      |      |      |      |      |      |      |     |      |      |      |       |
| -Final Conference, Bujumbura     |      |      |      |      |      |      |      |     |      |      |      |       |
| -Final Report from Conference    |      |      |      |      |      |      |      |     |      |      |      |       |
| -Travel to Bujumbura             |      |      |      |      |      |      |      |     |      |      |      |       |

**NOTE:** PD is used to signify Planning Division

NOVEMBER 1990  
 DECEMBER 1990  
 OCT./NOV. 1990

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GANTT CHART OF BRIDGES ACTIVITIES

WORKPLAN FY '90

'89

'90

| ACTIVITIES  | OCT. | NOV. | DEC. | JAN. | FEB. | MAR. | APR. | MAY | JUNE | JULY | AUG. | SEPT. |
|---|------|------|------|------|------|------|------|-----|------|------|------|-------|
| <u>DISSEMINATION:</u>   |      |      |      |      |      |      |      |     |      |      |      |       |
| <u>Educational:</u>   |      |      |      |      |      |      |      |     |      |      |      |       |
| -Report on School Effectiveness                                   |      |      |      |      |      |      |      |     |      |      |      |       |
| -10 to 20 papers on conditions leading to effectiveness in schls. |      |      |      |      |      |      |      |     |      |      |      |       |
| -Summary of classroom practices                                   |      |      |      |      |      |      |      |     |      |      |      |       |
| -Summary of girls' access   |      |      |      |      |      |      |      |     |      |      |      |       |
| <u>EMIS:</u>  |      |      |      |      |      |      |      |     |      |      |      |       |
| -A design for EMIS in Pakistan (MOE/PD, & provincial              |      |      |      |      |      |      |      |     |      |      |      |       |
| -Lessons from analysis of ed'l DB in PD                           |      |      |      |      |      |      |      |     |      |      |      |       |
| -Lessons from provincial EMIS                                     |      |      |      |      |      |      |      |     |      |      |      |       |
| -Cost & financing of primary ed.                                  |      |      |      |      |      |      |      |     |      |      |      |       |
| <u>OTHER DISSEMINATION:</u>                                       |      |      |      |      |      |      |      |     |      |      |      |       |
| - Bullet Reports  |      |      |      |      |      |      |      |     |      |      |      |       |
| - Donor Agencies Meeting  |      |      |      |      |      |      |      |     |      |      |      |       |
| - Gaming  |      |      |      |      |      |      |      |     |      |      |      |       |
| - Final Conference  |      |      |      |      |      |      |      |     |      |      |      |       |
| - Cambridge Analysis (two weeks)                                  |      |      |      |      |      |      |      |     |      |      |      |       |
| -OPES/SYSTAT  |      |      |      |      |      |      |      |     |      |      |      |       |
| <u>NOTE:</u> PD is used to signify Planning Division              |      |      |      |      |      |      |      |     |      |      |      |       |

OCTOBER 1990  
OCTOBER 1990

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