

EXECUTIVE SUMMARIES OF EVALUATIONS  
CONDUCTED FOR THE ASIA BUREAU  
IN FISCAL YEAR 1983

Office of Development Planning  
Asia Bureau  
Agency for International Development  
Washington D.C.

## PREFACE

In keeping with A.I.D.'s emphasis on using evaluation findings to improve project planning and implementation, the Asia Bureau has prepared this collection of executive summaries of evaluations conducted for the Bureau during fiscal year 1983 (October 1, 1982 to September 30, 1983).

This collection provides both a record of Bureau evaluation accomplishments as well as concise, easily accessible information on the outcomes or current status of specific projects. It is anticipated that the volume will be a valuable reference both for A.I.D. project designers in the field and project reviewers in Washington, as well as contractors and developing country personnel with whom A.I.D. is working. This is the third year that the Asia Bureau has provided this resource.

During recent years, both the A.I.D. Administrator and the Congress have emphasized the importance of using evaluation findings, especially in project design, review and approval.

Guidance concerning the use of evaluation findings is contained, for example, in an A.I.D. directive dated November 3, 1982. This requires that issues papers prepared for project review must provide a brief analysis of the project based on evaluation findings. The directive also states that all project approval memoranda prepared for the Administrator are to contain similar analyses.

Evaluations of 47 projects are summarized here, along with 6 "special studies" and 1 project completion report. The actual number of evaluations conducted for A.I.D. in Asia in FY 83 was, in all likelihood, somewhat higher than the number of evaluations summarized in this volume. This is because some USAID missions have not regularly sent copies of all evaluation reports to AID/Washington. This problem is now being corrected.

Do any factors emerge from these evaluations as clear determinants of success or failure?

According to preliminary analysis of the evaluation findings, no single factor stands out as a determinant of project success.

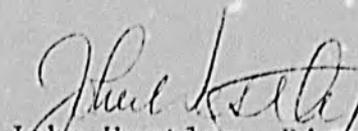
One characteristic does stand out, however, as the single most common shortcoming of the projects evaluated. This shortcoming, in many cases a very serious obstacle, is that the project design (the PP in particular) is overly optimistic--

unrealistic, that is--about what the project can accomplish. Specific areas where the evaluators judged the projects as unrealistic concerned: (1) time--what can be accomplished in the short time frame of A.I.D. projects, especially when the project requires fielding technical assistance contractors; (2) organizational coordination--the willingness of many different implementing organizations, as well as people within the same organization, to work collaboratively toward achieving the project goals; (3) assignment of individual implementation responsibilities--the tendency to assign implementation responsibilities to busy individuals without first determining whether they will have time and motivation to perform the new tasks; (4) beneficiary participation--the willingness of intended beneficiaries to participate in the project in the manner and to the degree envisaged by project planners; (5) sustainability and self-sufficiency--the tendency to assume, especially with PVO projects, that projects can become self-sufficient, or project benefits be sustained, after the relatively short time-frame designated for the project.

The summaries presented here set forth some practical approaches for trying to grapple with this complex planning issue.

This volume of executive summaries was written and compiled by Barbara Pillsbury, Ph.D., who served as Chief for Research and Evaluation in the Asia Bureau from 1979 to 1981. In order to maximize the opportunity to derive "lessons learned" from this valuable reservoir of project experience, Dr. Pillsbury was asked to include in each summary, if possible, a section titled "Project Design and Policy Implications." This required her to make many interpretive judgements concerning the often incomplete information presented in the reports. Each summary, therefore, represents a mix of her analysis and that of the original evaluators.

Copies of the evaluations and studies summarized here can be obtained from the Asia Bureau's Office of Development Planning or from CDIE/DIU, A.I.D.'s Center for Development Information and Utilization.

  
John Westley, Director  
Office of Development Planning  
The Asia Bureau  
Agency for International Development  
Washington, D.C.

CONTENTS  
(Arranged By Sector)

**AGRICULTURE**

**Agricultural Education**

Indonesia: Western Universities Agricultural Education,  
First Annual Review . . . . . 1

Nepal: Institute of Agriculture and Animal Science Project,  
Analysis of Progress and Outcomes (End-of-Project Evaluation) . 3

**Agricultural Research**

Bangladesh: Bangladesh Agricultural Research Council--  
Contract Research Program, External Review. . . . . 6

Bangladesh: Agricultural Research Project II,  
External Evaluation . . . . . 9

**Other (Also see PL 480 section below.)**

Bangladesh: Fertilizer Distribution Improvement Project,  
Joint Bangladesh and U.S. Government Mid-Project Evaluation. . 12

Indonesia: Agro Economic Survey Foundation/Rural Dynamics  
Study Co-Financing Grant to Agricultural Development  
Council, Interim Evaluation . . . . . 15

Indonesia: Land Mapping, Titling and Registration,  
First Annual Evaluation . . . . . 18

Indonesia: Small-Scale Fisheries Development Project,  
Mid-Project Review . . . . . 21

Pakistan: Agricultural Commodities and Equipment Program,  
Interim Evaluation . . . . . 24

Pakistan: Landsat Analysis of Agricultural Changes in  
Pakistan, (Special Study). . . . . 27

Thailand: Agricultural Extension Outreach Project,  
Project Completion Report . . . . . 29

Thailand: The Northeast Rainfed Agricultural Development  
Project: A Baseline Survey of Women's Roles and Household  
Resource Allocation for a Farming Systems Approach  
(Special Study). . . . . 32

IRRIGATION (See also PL 480 section below.)

<u>India</u> : Gujarat Medium Irrigation Project, Annual Implementation Review . . . . .	35
<u>India</u> : Rajasthan Medium Irrigation Project, Mid-Term Review. . . . .	38
<u>Sri Lanka</u> : Mahaweli Basin Development - Phase II, Progress Review . . . . .	41

RURAL DEVELOPMENT

Watershed Development and Natural Resource Management

<u>Indonesia</u> : 1983 Watershed Assessment (Evaluation of Seven Projects) . . . . .	44
<u>Nepal</u> : Rapti Zone Rural Area Development Project, Mid-Term Evaluation . . . . .	47
<u>Nepal</u> : Resource Conservation and Utilization Project, Interim Evaluation . . . . .	50
<u>Thailand</u> : Mae Chaem Watershed Development Project, Interim Evaluation . . . . .	53
<u>Regional</u> : Watershed Evaluations: Preliminary Lessons Learned in Watershed Development (Summary of Evaluation Findings from Indonesia, Nepal, and Thailand) . . . . .	56

Rural Electrification

<u>Bangladesh</u> : Rural Electrification Project, NRECA/CAI Advisory Team's Fifth Annual Evaluation . . . . .	58
<u>India</u> : Socioeconomic Impact of Rural Electrification in India (Special Study). . . . .	61
<u>India</u> : Some Aspects of Rural Electrification in India (Special Study). . . . .	64

Area Development

<u>Indonesia</u> : Luwu Area and Transmigration Development Project, Final Evaluation, Phase I . . . . .	67
---	----

Rural Development: Other

<u>India</u> : Technologies for the Rural Poor, Internal Progress Review . . . . .	70
---	----

<u>Thailand</u> : DDMP, First Annual Assessment . . . . .	73
---	----

## HEALTH

<u>India</u> : Malaria Control, Final Evaluation . . . . .	76
<u>Indonesia</u> : Health Training, Research and Development Project, Mid-Project Evaluation . . . . .	79
<u>Nepal</u> : The Jumla Health Project, End-of-Project Evaluation . .	81
<u>Nepal</u> : Khagendra New Life Center (IHAP/NDBA Project), Technical Evaluation . . . . .	84
<u>Pakistan</u> : Malaria Control II, External Interim Review-Part I (Surveillance and Chemotherapy of Malaria). . . . .	87
<u>Pakistan</u> : Malaria Control II, External Evaluation-Part II (Entomological Aspects). . . . .	90
<u>Sri Lanka</u> : Intensive Malaria Control Programme, Anti-Malaria Campaign, First Independent Assessment . . . . .	93

## POPULATION AND FAMILY PLANNING

<u>Bangladesh</u> : Family Planning Social Marketing Project, Interim Evaluation . . . . .	96
<u>Nepal</u> : Population Policy Development Project, Mid-Term Review . . . . .	99

## NUTRITION (Also see PL 480 section below.)

<u>Indonesia</u> : The Indonesian National Nutritional Surveillance System, Third Interim In-Progress Evaluation . . . . .	102
---	-----

## EDUCATION AND HUMAN RESOURCES

<u>Indonesia</u> : Local Government Training-II, Interim Evaluation. . . . .	105
<u>Nepal</u> : Radio Education Teacher Training Program, Final Evaluation . . . . .	108
<u>Sri Lanka</u> : Development Services and Training Project, Evaluation of Two Sub-projects (Support for the Sri Lanka Institute of Development Administration and Mahaweli Environmental Assessment) . . . . .	111

## PRIVATE AND VOLUNTARY ORGANIZATIONS

Nepal: The Jumla Health Project (see Health section above)

Nepal: Khagendra New Life Center (IHAP/NDBA Project),  
(see Health section above.)

Philippines: U.S. Assistance to Private and Voluntary  
Organizations in the Philippines, Fiscal Years 1980-1982,  
PVO Co-Financing, Program Evaluation . . . . . 114

Sri Lanka: PVO Co-Financing Project,  
End-of-Project Evaluation . . . . . 117

Thailand: Co-Financing Project No. 493-0296 of  
USAID/Thailand with the Private Voluntary Organizations,  
Interim Evaluation. . . . . 120

Regional: Grant to Asia Foundation for "Expanded Program  
for Furthering Human Rights in Asian Countries,"  
Asia Foundation In-House Evaluation . . . . . 123

### PL 480

India: PL 480, Title II, Food for Work: Tanks and Dams,  
Project of Catholic Relief Services: Delhi Zone,  
Impact Evaluation Study . . . . . 126

India: PL 480, Title II, Food for Work: Deepened Irrigation  
Wells, Project of Catholic Relief Services: Madras Zone,  
Impact Evaluation Study . . . . . 129

India: The Oilseed Growers' Cooperative Project,  
Mid-Project Joint Evaluation . . . . . 132

Sri Lanka: Nutrition Programs in Sri Lanka Using U.S. Food  
Aid: Interim Evaluation of P.L. 480 Title-II Programs . . . . 135

### OTHER

Philippines: Real Property Tax Administration Project  
(RPTA II), End-of-Project Evaluation . . . . . 138

Philippines: Audit Reports of USAID/Philippines Projects,  
FY 1980-1983 (An Analysis of 11 Reports). . . . . 141

South Pacific: The Tonga Cooperative Federation,  
Interim Evaluation of Progress and Prospects. . . . . 143

South Pacific: Republic of Kiribati, Women's Ring of  
Friendship, Seventh Quarterly Report  
(Internal Mid-Project Review) . . . . . 146

Sri Lanka: Housing Programs of the Government of Sri Lanka,  
Evaluation of Present Programs . . . . . 149

Thailand: Results of Projects Conducted by the Public  
Administration Service to Improve Management Processes  
in the Royal Thai Government, Interim Evaluation . . . . . 152

Thailand: USAID Assistance for Remote Sensing in Thailand,  
An Evaluation . . . . . 155

**CONTENTS**  
**(Arranged By Country)**

**BANGLADESH**

<u>Bangladesh</u> : Bangladesh Agricultural Research Council-- Contract Research Program, External Review . . . . .	6
<u>Bangladesh</u> : Agricultural Research Project II, External Evaluation . . . . .	9
<u>Bangladesh</u> : Fertilizer Distribution Improvement Project, Joint Bangladesh and U.S. Government Mid-Project Evaluation. .	12
<u>Bangladesh</u> : Rural Electrification Project, NRECA/CAI Advisory Team's Fifth Annual Evaluation . . . . .	58
<u>Bangladesh</u> : Family Planning Social Marketing Project, Interim Evaluation . . . . .	96

**INDIA**

<u>India</u> : Gujarat Medium Irrigation Project, Annual Implementation Review . . . . .	35
<u>India</u> : Rajasthan Medium Irrigation Project, Mid-Term Review. .	38
<u>India</u> : Socioeconomic Impact of Rural Electrification in India (Special Study). . . . .	61
<u>India</u> : Some Aspects of Rural Electrification in India (Special Study). . . . .	64
<u>India</u> : Technologies for the Rural Poor, Internal Progress Review . . . . .	70
<u>India</u> : Malaria Control, Final Evaluation . . . . .	76
<u>India</u> : PL 480, Title II, Food for Work: Tanks and Dams, Project of Catholic Relief Services: Delhi Zone, Impact Evaluation Study . . . . .	126
<u>India</u> : PL 480, Title II, Food for Work: Deepened Irrigation Wells, Project of Catholic Relief Services: Madras Zone, Impact Evaluation Study . . . . .	129
<u>India</u> : The Oilseed Growers' Cooperative Project, Mid-Project Joint Evaluation . . . . .	132

## INDONESIA

<u>Indonesia</u> : Western Universities Agricultural Education, First Annual Review . . . . .	1
<u>Indonesia</u> : Agro Economic Survey Foundation/Rural Dynamics Study Co-Financing Grant to Agricultural Development Council, Interim Evaluation . . . . .	15
<u>Indonesia</u> : Land Mapping, Titling and Registration, First Annual Evaluation . . . . .	18
<u>Indonesia</u> : Small-Scale Fisheries Development Project, Mid-Project Review . . . . .	21
<u>Indonesia</u> : 1983 Watershed Assessment (Evaluation of Seven Projects) . . . . .	44
<u>Indonesia</u> : Luwu Area and Transmigration Development Project, Final Evaluation, Phase I . . . . .	67
<u>Indonesia</u> : Health Training, Research and Development Project, Mid-Project Evaluation . . . . .	79
<u>Indonesia</u> : The Indonesian National Nutritional Surveillance System, Third Interim In-Progress Evaluation . . . . .	102
<u>Indonesia</u> : Local Government Training-II, Interim Evaluation. . . . .	105

## NEPAL

<u>Nepal</u> : Institute of Agriculture and Animal Science Project, Analysis of Progress and Outcomes (End-of-Project Evaluation) . . . . .	3
<u>Nepal</u> : Rapti Zone Rural Area Development Project, Mid-Term Evaluation . . . . .	47
<u>Nepal</u> : Resource Conservation and Utilization Project, Interim Evaluation . . . . .	50
<u>Nepal</u> : The Jumla Health Project, End-of-Project Evaluation . . . . .	81
<u>Nepal</u> : Khagendra New Life Center (IHAP/NDBA Project), Technical Evaluation . . . . .	84
<u>Nepal</u> : Population Policy Development Project, Mid-Term Review . . . . .	99
<u>Nepal</u> : Radio Education Teacher Training Program, Final Evaluation . . . . .	108

## PAKISTAN

<u>Pakistan</u> : Agricultural Commodities and Equipment Program, Interim Evaluation . . . . .	24
<u>Pakistan</u> : Landsat Analysis of Agricultural Changes in Pakistan, (Special Study). . . . .	27
<u>Pakistan</u> : Malaria Control II, External Interim Review-Part I (Surveillance and Chemotherapy of Malaria). . . . .	87
<u>Pakistan</u> : Malaria Control II, External Evaluation-Part II (Entomological Aspects). . . . .	90

## PHILIPPINES

<u>Philippines</u> : U.S. Assistance to Private and Voluntary Organizations in the Philippines, Fiscal Years 1980-1982, PVO Co-Financing, Program Evaluation . . . . .	114
<u>Philippines</u> : Real Property Tax Administration Project (RPTA II), End-of-Project Evaluation . . . . .	138
<u>Philippines</u> : Audit Reports of USAID/Philippines Projects, FY 1980-1983 (An Analysis of 11 Reports). . . . .	141

## SRI LANKA

<u>Sri Lanka</u> : Mahaweli Basin Development - Phase II, Progress Review . . . . .	41
<u>Sri Lanka</u> : Intensive Malaria Control Programme, Anti-Malaria Campaign, First Independent Assessment . . . . .	93
<u>Sri Lanka</u> : Development Services and Training Project, Evaluation of Two Sub-projects (Support for the Sri Lanka Institute of Development Administration and Mahaweli Environmental Assessment) . . . . .	111
<u>Sri Lanka</u> : PVO Co-Financing Project, End-of-Project Evaluation . . . . .	117
<u>Sri Lanka</u> : Nutrition Programs in Sri Lanka Using U.S. Food Aid: Interim Evaluation of P.L. 480 Title-II Programs . . . .	135
<u>Sri Lanka</u> : Housing Programs of the Government of Sri Lanka, Evaluation of Present Programs . . . . .	149

## THAILAND

<u>Thailand</u> : Agricultural Extension Outreach Project, Project Completion Report . . . . .	29
<u>Thailand</u> : The Northeast Rainfed Agricultural Development Project: A Baseline Survey of Women's Roles and Household Resource Allocation for a Farming Systems Approach (Special Study). . . . .	32
<u>Thailand</u> : Mae Chaem Watershed Development Project, Interim Evaluation . . . . .	53
<u>Thailand</u> : DDMP, First Annual Assessment . . . . .	73
<u>Thailand</u> : Co-Financing Project No. 493-0296 of USAID/Thailand with the Private Voluntary Organizations, Interim Evaluation. . . . .	120
<u>Thailand</u> : Results of Projects Conducted by the Public Administration Service to Improve Management Processes in the Royal Thai Government, Interim Evaluation . . . . .	152
<u>Thailand</u> : USAID Assistance for Remote Sensing in Thailand, An Evaluation . . . . .	155

## SOUTH PACIFIC

<u>South Pacific</u> : The Tonga Cooperative Federation, Interim Evaluation of Progress and Prospects. . . . .	143
<u>South Pacific</u> : Republic of Kiribati, Women's Ring of Friendship, Seventh Quarterly Report (Internal Mid-Project Review) . . . . .	146

## REGIONAL

<u>Regional</u> : Watershed Evaluations: Preliminary Lessons Learned in Watershed Development (Summary of Evaluation Findings from Indonesia, Nepal, and Thailand) . . . . .	56
<u>Regional</u> : Grant to Asia Foundation for "Expanded Program for Furthering Human Rights in Asian Countries," Asia Foundation In-House Evaluation . . . . .	123

INDONESIA: WESTERN UNIVERSITIES AGRICULTURAL EDUCATION,  
FIRST ANNUAL REVIEW

U.S. Assistance. The purpose of the project (No. 497-0297) is stated as: (1) to strengthen the capabilities of member institutions of the Association of Western Universities so that they can play increasingly effective roles in agricultural and rural development by assisting the Directorate General of Higher Education in improving staff and teaching methods in order to produce better trained graduates, (2) to institutionalize a system of university rural public service, and (3) to organize and integrate faculty research. The project agreement was signed in 1981 with final outputs scheduled for 1986. The total project amount is \$18.563 million, to which the U.S. contribution is \$9.85 million, or slightly more than 50 percent. Technical assistance is being provided by the University of Kentucky.

Purpose of the Review. This was the first of three annual reviews and one external review specified in the Project Paper. Its purpose was stated as: "to ascertain the progress of the project in terms of quality, quantity and timeliness of inputs and outputs" and "to assure project direction congruent with goal and purpose."

Findings

1. In general, the project appears to be doing well. It is on schedule. The Indonesian government regards the project highly and continues to give high priority to achieving the project purpose.

2. The training component is meeting its target at the master's level although it is unlikely to meet the Ph.D. target. Prospects are good for meeting the English-language and U.S. short-term training targets; short-term training in Indonesia will be more difficult to carry out as planned. The project is still considerably short of meeting its target of 20 to 25 percent participation of women in the training activities.

3. Eight other project components were not assessed at this time for two reasons. First, a more complete baseline is needed than was available at the time the project was designed and, second, not enough time has elapsed to measure improvements, especially since training was stressed in the first year of the project.

Project Design and Policy Implications. Two "lessons learned" were identified.

1. The amount of language training needed was underestimated, and thus not adequately budgeted for, even though it was recognized during project design that Indonesians going to the U.S. for training would need intensive English-language instruction.

2. Personnel appointments have proven more complex than anticipated due to problems of rank and status competitiveness. The original plan specified appointment of a full-time project director and associate director, but this has been difficult.

Recommendations. Ten approved action decisions are listed concerning project implementation. These include possible extension of the project completion date (PACD) and compilation of better baseline data, especially on female participation.

Participants in Review: R.W. Schmeding, AID Project Officer; Dr. Yuhara Sukra, Acting Project Director; and others. Review dated October 26-27, 1982.

NEPAL: INSTITUTE OF AGRICULTURE AND ANIMAL SCIENCE PROJECT,  
ANALYSIS OF PROGRESS AND OUTCOMES (END-OF-PROJECT EVALUATION)

Problem and Overview. Nepal's economy is predominantly agricultural, but at a low level of productivity with 93 percent of the labor force working in subsistence-oriented agriculture. This, combined with increasing population pressure, is a major problem. Effective systems of communication, transportation, and education to help farm families raise their productivity have been hard to develop. A major constraint is the lack of agricultural specialists. A 1970 study of agricultural education (funded by A.I.D.) contributed to the creation, in 1972, of an Institute of Agriculture and Animal Science (IAAS) to deal with this problem. IAAS was established under the administration of Tribhuvan University but was located near Rampur village, then 9 hours from Kathmandu.

U.S. Assistance. In 1974, A.I.D. authorized \$3.2 million for an Institute of Agriculture and Animal Science Project (367-0102). Its purpose has been to expand and improve the Institute, IAAS, so that it can provide quality training and academic programs for: (1) middle- and high-level officials in the Ministry of Agriculture; (2) vocational agricultural teachers and supervisors; and (3) farmers at the community level. The project's longer-range goal is to increase small-farm agricultural production throughout Nepal. A related PL-480 project (also 367-0102), authorized in 1975, provided \$4.157 million in local currency for constructing physical facilities. Implementation began in 1975 when A.I.D. contracted with the Midwest Universities Consortium for International Activities (MUCIA) to provide technical assistance, training, and equipment to IAAS. In 1981, A.I.D. amended the project to provide an additional \$2.3 million to complete the project by September 1984. Total AID support has thus been \$9.657 million.

Purpose and Methodology of the Evaluation. The purpose of this evaluation has been to assess: (1) the ability of IAAS to meet Nepal's need for trained agricultural manpower at three levels-- Bachelor of Science, Junior Technician (two years of training beyond high school), and Junior Technical Assistant (one year of training beyond high school); and (2) the adequacy of assistance provided by A.I.D. The evaluation involved about 4 person-months and was based on an analysis of descriptive data from primary and secondary sources.

Major Findings. IAAS has made significant progress over the past ten years toward being Nepal's major agricultural institution. Many of the initial problems have now been resolved, although IAAS continues to need strengthening in numerous areas.

Past and continuing problems include:

1. Too frequent turnover in management, both in IAAS and MUCIA.
2. Poor inter-agency linkages and working relationships with

governmental "user agencies" (e.g., Department of Agriculture).

3. Long delays in meeting targets in construction, acquisition of lab equipment, and developing the research farm.

4. Over-emphasis on the "academic" and movement away from the practical aspects of agricultural inquiry; failure to develop instructional materials pertinent to Nepal's needs.

5. Low level of faculty research in needed areas, and lack of a professional attitude linking teaching, research, and service.

6. Failure to attract women students (only 4 out of the 445 students are women), a major shortcoming since most farming decisions and operations in Nepal are carried out by women.

7. Poor instructional techniques, a fragmented curriculum, too many class contact hours a week, and too many students per class.

8. Underutilization of human and physical resources (e.g., the library) and neglect in maintaining expensive equipment and facilities.

9. Policies and practices that foster divisiveness; student unrest and strikes.

10. Perceptions among certain key people in user agencies that IAAS graduates do not measure up to desired standards.

11. Poor performance by some MUCIA team members; too much change in direction and philosophy by MUCIA long-term advisors.

12. Lack of a strong sense of optimism among some key actors and supporters.

Positive dimensions: IAAS has a firm institutional foundation that can provide the quantity and quality of leadership needed.

1. Substantial physical facilities are in place. This alone is a significant accomplishment.

2. The faculty has grown from a few to 70 members who are highly trained at M.S. and Ph.D. levels in nearly all required areas pertinent to current needs. Faculty members have now begun to function as collaborative teams.

3. A new management team is in place. It has the confidence of all concerned parties and has made great progress in dealing with major problems as well as with daily operations.

4. The library is outstanding and continually growing.

5. An outreach and service program has been started as an important learning tool for faculty and students.

6. The MUCIA team is now overcoming some of the past problems and is meeting priorities set in a new 1980 work plan.

7. Most importantly, personnel of IAAS and user agencies are aware of the shortcomings and committed to solving them. It appears that IAAS has weathered the critical stages of development and is gaining momentum in becoming a quality institution.

Project Design and Policy Implications. This is a true institution-building project; its purpose has not been simply to strengthen an existing institution, but to create one, virtually from the ground up. The challenge was particularly great in that the existing manpower and infrastructure in Nepal are among the poorest in Asia. The decision to locate the Institute in a rural community quite distant from the capital city was perhaps wise, given the Institute's goals of assisting rural farmers, but this posed additional difficulties. It is not surprising, then, that the project has encountered numerous problems in getting the Institute "off the ground."

#### Major Recommendations

1. A.I.D. should continue assistance to IAAS for an additional five years, with strong emphasis on people development and only limited capital construction.

2. A.I.D. should assist with: (a) training staff in instructional techniques, preparing teaching materials, and low-budget applied field research; (b) additional housing for faculty and women students; (c) organizing and equipping functional laboratories; and (d) introducing appropriate animal foundation stock and animal production systems.

3. IAAS, perhaps with limited A.I.D. assistance, should: (a) provide adequate lab and office space for faculty; and (b) improve the curriculum, teacher training, research and development, and relevant instructional materials.

4. A.I.D. and the Nepal government should do everything possible to ensure continuity of IAAS leadership and advisors. Ideally, three long-term advisors should remain with the project the entire five years.

5. Provisions must be made to attract women students. This should include: (a) reserving a fixed portion of seats (perhaps 10 percent) for women; (b) designating some scholarships for women only; and (c) establishing an appropriate dormitory.

6. Participant training should favor short-term, non-degree training and in-country training.

Evaluation Team: Ramesh B. Munukami, Consultant to USAID/Nepal; George F. Aker, Florida State University; Donald G. Green, Consultant; John L. Wehling, University of Nebraska. Report dated September, 1983.

**BANGLADESH: BANGLADESH AGRICULTURAL RESEARCH COUNCIL,**  
**CONTRACT RESEARCH PROGRAM, EXTERNAL REVIEW**

**Problem and Overview.** When Bangladesh became independent in 1972, previously established agricultural research programs were in disarray. Established in 1973, the Bangladesh Agricultural Research Council (BARC) has been given authority to oversee the agricultural research programs of the country. One of the components of this is management of a "Contract Research Program," initiated in 1980, which provides grants for research that is of high priority to the agricultural goals of Bangladesh's Second Five-Year Plan. The program has two specific purposes: (1) to focus efforts on immediate agricultural production problems, and (2) to foster interdisciplinary and interinstitutional research. The objective has not been to do basic research; rather, the primary aim has been to direct attention to field-oriented questions for which answers will have wide applicability to Bangladesh's major agro-climatic zones.

**U.S. Assistance.** The stimulus to the program is the grant funding committed by A.I.D., the World Bank, and the Government of Bangladesh. Over \$1.4 million has been granted since mid-1980.

**Purpose and Methodology of the Review.** The purposes of the review have been: (1) to evaluate the program, the individual research projects within it, and the selection and monitoring procedures used for the individual projects; (2) to make suggestions for improved effectiveness; and (3) to recommend which projects, if any, should be extended beyond the planned termination dates. The team had full access to all project files, interviewed most of the principal investigators, and visited research laboratories and field trials. It used evaluation criteria developed by a prior consultant and developed a rating matrix and evaluation system for the projects.

**Findings. Progress is being made, but modifications are necessary to improve the quality of the program.**

1. **Outputs.** The program has funded 62 projects in the following major categories: water (15), crops and forestry (14), economics and social science (10), engineering (10), soils (8), and animal-related (5). Of these, 14 have been completed, 41 are scheduled for completion in 1983, and 3 are continuing. Fifteen Bangladesh institutions are currently involved in the program.

2. **Positive aspects of the program.**

a. The program has moved BARC into the position of an action agency that stimulates and encourages research, creating an enthusiasm among researchers to work toward national goals.

b. BARC is now recognized as the national agency providing guidance and leadership in agricultural research in Bangladesh.

c. The program has provided a training experience in research planning and management.

d. A reasonable, workable monitoring system has been developed.

3. Substantive and procedural details that need further defining and strengthening.

a. The project selection process is not yet adequately identifying problems with greatest potential for major economic impact. Project selection and monitoring procedures are well-described but not implemented in total, thus creating a weak link.

b. No overall inventory of the present agricultural research program of Bangladesh (by institution) is available to guide selection of new projects.

c. Institutional and interdisciplinary linkages have been created in numerous projects but are not well developed or utilized in practice for cooperation and planning.

d. There is no system for periodic peer evaluation and review of the overall program of the sort that could keep scientists from all institutions--as well as research administrators, other government agencies, and donors--informed as to what is being proposed and accomplished.

Recommendations

1. The criteria used for scoring project proposals should be further defined and possibly modified (a model for quantification is proposed).

2. A distinction should be made between "continuing evaluation" of projects and "evaluation for management decisions." Both should be done internally.

3. An interdisciplinary evaluation team should be established to carry out project "evaluation for management decisions" at least six months before scheduled project termination.

4. BARC should maintain an up-to-date flowchart for all contract research projects.

5. There should be closer management of interdisciplinary projects to ensure that interaction occurs.

6. An Agricultural Research Information Center should be established, with adequate holdings, to upgrade literature review.

7. A soil-testing and leaf-analysis laboratory should be estab-

blished.

8. BARC should strengthen its permanent agricultural engineering staff.

9. A procedure (outlined in report) should be adopted to ferret out research results that are immediately or potentially useful.

10. BARC should initiate an Annual Bangladesh Agricultural Research Conference.

Individual reports on 51 projects (with recommendations for extension, revision, and termination) have been submitted separately.

Review Team: Dr. A. Alim, former Director of Agriculture, governments of Pakistan and Bangladesh; Dr. Donald Barton, Cornell University, IADS [International Agricultural Development Service]/BARC contract; Dr. Leon Hesser, IADS; Mr. M.A. Jabbar, Bangladeshi consultant; Mr. Loyd Johnson, P.E., IADS consultant; and Dr. Hamidur Rahman Khan, Bangladeshi consultant. Review dated March/April 1983.

**BANGLADESH: AGRICULTURAL RESEARCH PROJECT II,  
EXTERNAL INTERIM EVALUATION**

**Problem and Overview.** See "Problem and Overview" in the summary, this volume, of the Bangladesh Fertilizer Distribution Improvement Project evaluation. Agricultural Research II is a follow-on to A.I.D.'s Agricultural Research Project I. Phase I was undertaken to establish a functioning Bangladesh Agricultural Research Institute (BARI)--specifically, to build physical facilities, a core staff, a research program of important, multidisciplinary research projects, and budgetary support for this research.

**Project Purpose and Strategy.** Phase II is designed to strengthen the above aspects of BARI and to assemble them into an agricultural research system relevant to Bangladesh needs. The stated purpose of this project is "to improve the effectiveness of the agricultural research needed for developing appropriate technology for Bangladesh farmers." To accomplish this, the project is to: (1) establish an effectively operating "farming systems research" program\* for carrying out all core research; (2) help the Bangladesh Agricultural Research Council (BARC)--which has the lead role in agricultural research and planning for Bangladesh--to coordinate and direct, effectively, the national agricultural research effort; and (3) expand the core research programs, especially at BARI and the Bangladesh Rice Research Institute. The project focuses on three areas: institutional coordination, core discipline development, and research support services. BARC is the Bangladesh implementing agency. Technical assistance is provided through the International Agricultural Development Service (IADS). The project began in July, 1981.

**Purpose of the Evaluation.** Purposes included evaluation of: (1) the use of project resources (technical assistance, training, contract research, sabbaticals, commodities, and construction) in terms of their cost-effectiveness and relevance to Bangladesh needs; (2) BARC's and IADS' performance in implementing, monitoring, and evaluating activities associated with these resources; (3) the extent to which the project has developed practical research skills; (4) the degree to which the project has helped build linkages among scientists, extension workers, and farmers; (5) USAID and Bangladesh government contributions; and (6) the impact of USAID-funded research on farmer adoption of improved crops, practices, inputs, and other elements of farming systems.

---

\*"Farming systems research" is an interdisciplinary approach that emphasizes understanding on-farm conditions and constraints and tries to develop a more productive growing system within the actual environment faced by the farmer. This means, thus, taking a comprehensive view of the entire farming system, rather than just improving the technical inputs.

Major Findings include:

1. Research systems planning and management. BARC has a broad mandate but not enough staff to accomplish its goals. The situation seems to be improving, however.

2. Technical support services. BARC's International Program Service Unit provides administrative support to donor-funded research projects. In some areas the unit has performed well. In others it has been unable to provide the support required.

3. Farming systems. Present emphasis is chiefly confined to cropping patterns with little attention to livestock and non-cropping activities, fisheries, forestry, and horticulture. The redirection of biological and social science research to work in farmers' fields, and the unified approach of the National Coordinated Cropping Systems Research Program, are major achievements.

4. Economics and social science. This is very underdeveloped. BARC and the project were to focus on socioeconomic analysis in the farming systems research, and on resource allocation generally, including distribution of benefits. Instead they have concentrated only on farm management and production economics.

5. Crops. Effective rice research is well-established in Bangladesh. The project's crop research program is to develop such a research system for other food crops and then to integrate all relevant concerns ranging from fertilizer management to the productive role of women. The major successes have been with wheat, summer pulses, mustard and potatoes.

6. Livestock has been too neglected in rural research. This project has continued to neglect livestock (and fisheries).

7. Soil management. A system must be developed to determine soil fertility requirements and advise farmers accordingly. Plans are in place and experiments are underway, but this is not easy and much additional effort is needed. Success ultimately will depend on farmers' access to both fertilizer and credit.

8. Water management. A massive Bangladesh program of tubewell construction is underway, but irrigation requires more than wells. Technical assistance for related activities has been slow in building but should soon gain momentum. Implementation priorities are being decided but the task will be difficult as it requires coordinating researchers from nearly a dozen institutions, many of whom have not worked together before.

9. Pest management. Research begun under Phase I has produced notable successes, but non-vertebrate pests have been neglected.

10. Manpower planning and training. Training has made a slow start, in part because of the laudable care given to developing a good system for selecting candidates. The flow of trainees and resources will soon be at the desired rate.

11. Communication and information systems, including for communicating results, will require a great deal of improvement.

12. Linkages between research, extension, and farmers. The regional stations are being strengthened and are starting to work with extension personnel and farmers. Linkages are severely inhibited, however, by travel restrictions, the weakness of the regional stations, and shortages of operational funds.

13. Technical specialists. There has been a rapid build-up of an eager, well-qualified technical staff. Progress is now constrained by crowded facilities and inadequate guidelines and resources for some of the specialists.

14. USAID. The project design is sound but probably too optimistic about BARC's ability to develop the capacity and influence needed for using so large an amount of resources.

15. Impact of A.I.D.-funded research on farmers' practices. The rat control campaign and the summer pulse program have both had an impact: rat control has saved large quantities of wheat and pulses had spread to about 16,000 hectares in 1982.

Project Design and Policy Implications. The farming systems approach appears more difficult to institute than anticipated in project design. The comprehensive view required by farming systems research is fairly well reflected in baseline surveys, but the mass of information collected has yet to be analyzed in a fruitful way. Cropping patterns still receive disproportionate attention at the expense of other activities.

Major Recommendations include:

1. Technical support services. BARC and IADS must work jointly to improve support services for the project.

2. Farming systems. The baseline survey results should be properly analyzed with greater focus on non-cropping activities.

3. Economics and social science. BARC should foster coordinated rural research activities in social science.

4. Crops. Much needs to be done, including breaking down the traditional disciplinary barriers to cooperative research.

5. Linkages between research, extension, and farmers. The BARI on-farm trials division and crop systems research sites should be better utilized. Regional research must be improved through more resources and permission eased for travel to farmers' fields.

Evaluation Team: Jock R. Anderson, University of New England, Australia; Kim W. Bridges, University of Hawaii at Manoa; Oleen Hess, former A.I.D. agriculturalist; and Carl E. Pray, University of Minnesota. Report dated May 31, 1983.

**BANGLADESH: FERTILIZER DISTRIBUTION IMPROVEMENT PROJECT,  
JOINT BANGLADESH AND U.S. GOVERNMENT MID-PROJECT EVALUATION**

**Problem and Overview.** The Bangladesh government places first priority on reduced population growth and food-grain self-sufficiency. The population of Bangladesh is now apparently growing by at least 2.5 percent per year but, even for the present population of 90 million, land area is extremely limited. Without means to expand arable land, inputs and technology must be improved to increase crop yields. To date, these inputs have largely involved the use of fertilizer, high-yielding variety seeds, and adaptable modern irrigation. Further improvement in rural economic conditions is key to the stability of Bangladesh.

**Project Purpose.** This project (388-0024) was undertaken to reduce some of the principal constraints to fertilizer supply (factors limiting the availability of fertilizer to farmers). These included: inadequate fertilizer imports, inadequate storage facilities, an insufficient public distribution system, and restraints on private fertilizer retailers and wholesalers. The Bangladesh government's goal to which this project contributes is increased food production, especially by small farmers. The immediate project purpose is to increase the availability, and thereby the use, of fertilizer on an equitable basis.

**U.S. Assistance.** The project began in 1978 as a three-year project. In 1981, it was extended and expanded to a six-year, \$785-million project. The U.S. contributes \$235 million in grant funds and the Bangladesh government \$550 million. The project operates primarily through the Bangladesh Agricultural Development Corporation (BADC), a government corporation.

**Purpose and Methodology of the Evaluation.** The purposes of this evaluation were: (1) to assess the impact of the project as well as progress toward achieving the project purpose and outputs; (2) to determine, preliminarily, whether the project is likely to achieve its goal of increased food production, especially by small farmers; and (3) to make recommendations for the rest of this project and for design of a follow-on project. Methodology included document review and analysis, analysis of baseline data, and interviews with key personnel.

**Major Findings**

1. The government of Bangladesh, with donor assistance, has done a commendable job of establishing fertilizer production, distribution, and use during the last ten years. The project has accomplished the following:

2. A total of 271,000 tons of fertilizer have been imported.

3. Twenty-six warehouses, with a capacity of 162,000 tons, are being constructed--roughly on schedule.

4. A new marketing system for distributing fertilizer has been introduced. About half the governmental (BADC) local sales centers have been closed and private wholesalers/retailers have been introduced for lifting and marketing fertilizer. Fertilizer price decontrol has been introduced on a trial basis in Chittagong (one of Bangladesh's four divisions). Training of dealers has just begun.

### Lessons Learned

1. The privatization of fertilizer distribution, as is being carried out through the new marketing system, was conceived as a means to reduce the burden on the government and to improve the distribution network under a more flexible system. Privatization is just getting under way, but it appears that the private sector does have the potential for retailing fertilizer in Bangladesh.

2. Available data are not well analyzed. Important management and operating information is currently collected and used to solve some operational problems. However, it is not analyzed well enough to be used for: (a) determining project progress and impact; or (b) planning and implementing programs. Baseline data developed to date are useful.

3. Evidence suggests relative equity in fertilizer use. According to a 1979-80 study: (a) the proportion of small farmers using fertilizer is almost equal to that of larger farmers; and (b) small farmers used more fertilizer per acre and obtained higher output per unit of fertilizer used than larger farmers. The effectiveness of the new marketing system will depend on its ability to make fertilizer available to all categories of farmers on an equitable basis.

Project Design and Policy Implications. While the government of Bangladesh did a commendable job in establishing a system to produce fertilizer and get it used by farmers, it appears that the project is correct in its strategy to shift much of this responsibility to the private sector. It is still too early, however, to predict, accurately, the outcome of this strategy. This is partly because the government, since the mid-70s, has been reducing its subsidization of fertilizer, which has caused the price of fertilizer to increase about 40 percent during the last two years. This has major consequences for the project.

### Major Recommendations

1. Modification of the new marketing system as presently being implemented: 7 technical recommendations are provided.

2. Further implementation:

a. Expansion of price deregulation to other divisions should be based on study results from the experiences in Chittagong.

b. Implementation of private sector initiatives (privatiza-

tion) should be phased to provide orderly transition.

c. The new marketing system should be studied periodically to draw lessons for the gradual and orderly transition to privatization of fertilizer distribution.

d. Behind-schedule construction should be rectified.

e. A warehouse maintenance program should be designed and implemented.

f. In-kind credit for small farmers should be introduced.

g. Zinc and sulphur should be made available in deficient areas and information provided on proper use and application.

2. Data collection, analysis, and utilization. Important baseline data should continue to be monitored. Additional direct and quantifiable measures of the impact of privatization should be developed to judge its usefulness. All surveys and data collection should be set up in a coordinated way so that valid comparisons can be made. Greater effort should be made to effectively use data and tools already available for decision making.

3. The follow-on project:

a. Surveys and management information gathering and publication should be continued.

b. Alternative institutional arrangements for relative private/public sector roles should be developed and the most appropriate arrangement be used.

c. Implementation procedures should be designed in accord with demonstrated effectiveness of institutional changes.

d. Staffing patterns within BADC should be changed to facilitate changing the distribution system.

e. Managers should be trained in both USAID and Bangladesh government procurement, project management, and funding procedures.

f. Adequate, sustained technical assistance should be provided to the project from local and expatriate consultants.

Evaluation Team: For AID: Dr. Raymond Hooker (team leader), ASIA/TR/ARD; Mr. Ralph Barnett, ASIA/PD; Dr. Robert Terry, consultant (Arthur D. Little); Dr. Forrest Walters, consultant. For Government of Bangladesh: Mr. Md. Irshadul Haq, Ministry of Agriculture; Mr. Mir Sanaul Haque Khandaker, Planning Commission; Dr. M.A. Malek, BADC; and Mr. M. Jamiul Islam, Bangladesh Chemical Industries Corp. Report dated November, 1982.

INDONESIA: AGRO ECONOMIC SURVEY FOUNDATION/RURAL DYNAMICS STUDY,  
CO-FINANCING GRANT TO AGRICULTURAL DEVELOPMENT COUNCIL,  
INTERIM EVALUATION

Problem and Overview. The problem addressed by the grant is the need for more reliable information about the rural population of Indonesia. The Rural Dynamics Study (RDS) is a research program begun in 1975 with the goal of studying the process of change in rural Indonesia from a broad, policy-oriented perspective. It is a subproject of the Agro Economic Survey, which was initially established (in 1965) as an extra-ministerial, inter-departmental organization for research and policy analysis on the agricultural economy of Indonesia. The Government of Indonesia (GOI) has supported the Rural Dynamics Study chiefly by providing salaries for its personnel (civil servants seconded to it from government ministries) but research support has come from foreign donors (Ford Foundation, IDRC, and the World Bank, as well as the Agricultural Development Council [ADC] of New York and A.I.D.).

U.S. Assistance. In 1980, USAID/Jakarta was asked to help the Agricultural Development Council in funding the Rural Dynamics Study so that it could expand its research to two additional provinces (Central Java and South Sulawesi). Shortly before that, the GOI had decided the Agro Economic Survey should no longer exist as an inter-departmental government unit. USAID asked that the institutional status of the Agro Economic Survey and its Rural Dynamic Study be clarified first. To meet USAID concerns (and to avoid various bureaucratic complications), a non-profit, non-governmental foundation, the Agro Economic Survey Research Foundation, was established and the Rural Dynamics Study was transferred to the foundation.

In September, 1980, USAID/Jakarta made a grant (No. 80-5) of \$500,000 to the Agricultural Development Council to co-finance the Rural Dynamics Study through a project called "Rural Dynamics Study: Constraints to Reaching the Rural Poor." This project's goal was to prepare well documented studies on understanding the problems of the rural poor (in West and Central Java and South Sulawesi) and the constraints to helping them. Information was to be gathered through in-depth village surveys and interviews conducted through collaborative arrangements with provincial universities. Consultations, seminars, and publications were to relay information to policy-makers and other researchers. The A.I.D. grant was made under USAID/Jakarta's first co-financing project (No. 0225) and provided 66 percent of total project funds; ADC provided 9 percent and the GOI 25 percent. The initial 18-month USAID grant was subsequently extended by 5 months to December 31, 1982.

Purpose and Methodology of the Evaluation. The purpose of the evaluation was to assess achievements of the project to date and to advise USAID/Jakarta about the merits of funding a new proposal submitted by the Rural Dynamics Study. (This proposal calls for a resurvey of 37 villages originally surveyed in 1969-72; the

purpose of the resurvey would be to examine aspects of change in the rural economy and rural institutions.) The evaluation--scaled down from intended plans--was conducted by a single evaluator who had had three years involvement with the Rural Dynamics Study as a Ford Foundation program officer. The evaluation was carried out in Jakarta relying heavily on published RDS reports, financial and narrative documentation, and conversations with key individuals.

### Major Findings

1. General: Satisfactory progress is being made in terms of quantity of output, but its ultimate usefulness is questionable.

2. Preliminary outputs are adequate. Research teams have been organized, workshops held, surveys conducted, and initial village reports and analyses written up. Some interesting findings about impacts on rural people of recent, rapid economic changes are emerging from the resurveying of selected Javanese villages. The technical quality of the reports is adequate.

3. The quality of the analysis and usefulness of the work cannot yet be judged. Many of the reports are overly detailed, statistical presentations that lack analysis of the data presented. Translation of the findings into hard analysis and policy recommendations has just begun.

4. Organizationally, the RDS is in an institutional limbo with its future unresolved following recent institutional changes.

Project Design and Policy Implications. Paradoxically, perhaps the greatest shortcoming of the Rural Dynamics Study has been caused by what is considered its greatest strength: its systematic sampling and re-surveying of rural areas. At first these studies provided one of the few in-depth, systematic insights into the process of rural change. The amounts of data collected, however, are becoming an obstacle to analysis. The analysis now needed requires trained individuals with special skills which only some of the more senior RDS researchers possess. The challenge now is to analyze the large amounts of comparative data produced by the A.I.D.-funded surveys.

### Major Recommendations

1. The present project. Research findings need to be translated into hard analysis and policy recommendations during the last part of the present grant.

2. A.I.D. should consider future support only if certain conditions can be satisfied. The following recommendations are made.

(1) Both the research topics and scopes of work would need to

be more carefully described. Greater attention should be given to analysis and synthesis of existing data. Any resurveying should be done only on a selective basis to analyze major changes of the past five years (rather than large-scale surveying of new villages).

(2) Project budgets would need to be carefully examined to determine that they are adequate but do not lead to excessive field work and surveying.

(3) USAID should have a project officer able to become more familiar with RDS researchers and their research in order to critically evaluate proposals, budgets, and products.

(4) Even though it may now be desirable and possible to continue RDS-type research within a line ministry, institutional arrangements and responsibilities would need to be more clearly defined.

(5) GOI support for the RDS concept also needs to be clarified.

(6) Close collaboration with other donors would be essential; Ford Foundation could be approached as a co-sponsor.

Evaluation Conducted by: John A. Dixon. Report titled "Evaluation of Grant 80-5 for \$500,000 to A/D/C for Support of The Agro Economic Survey Foundation/Rural Dynamic Study." USAID/Jakarta transmittal dated November 5, 1982.

## INDONESIA: LAND MAPPING, TITLING AND REGISTRATION FIRST ANNUAL EVALUATION

Problem and Overview. Throughout rural Indonesia, many people lack title to, or official proof, that they own their land. The fact that their land is not officially registered with the government limits possibilities for economic advancement in many ways. For example, it limits their ability to get credit, it constitutes a disincentive to improving the land, and it blocks land reform programs.

U.S. Assistance. To help speed up the registration of land, A.I.D., in 1980, signed a grant agreement with the Directorate General of Agraria (DGA) of the government of Indonesia (GOI) for this three-year project (no. 497-0312). The project purpose is to increase the rate of land mapping, titling, and registration as well as the effectiveness of land administration in rural Indonesia. The sector goal to which the project is to contribute is increasing the access of the rural population to land as a productive resource. Two "objectives" were also set forth. The primary objective is stated as "to assist the DGA in its efforts to accelerate land mapping, titling, and registration in rural Indonesia by developing cost- and time-effective methods of land record keeping, mapping, and administration." The secondary objective is stated as "to demonstrate that land registration and titling has economic social benefits to the rural population." End-of-project status is to consist of: (1) three pilot-project areas mapped and registered using accelerated methods developed by project staff; (2) organizational structure and operating procedures of the DGA modified in accord with recommendations deriving from project reports and pilot-project evaluations; and (3) a proposal submitted for a follow-on project of expanded land mapping, titling, and registration.

Technical assistance is being provided by the Bureau of Land Management (BLM) of the U.S. Department of the Interior under a PASA agreement with A.I.D. Project funding totals \$3.973 million (a \$2-million U.S. grant and \$1.973 million in GOI counterpart funds). Because of start-up delays, the project completion date has been extended to December, 1984.

Purpose of the Evaluation. This was the first of three evaluations called for by the project paper. Its purpose has been to determine: (1) whether the project impact, as originally envisaged, is still probable; and (2) if the project design and inputs are still adequate and relevant. The evaluation was carried out during a one-month period by means of document review and intensive interviews.

### Major Findings

1. Although shortcomings can be remedied, the project has been troubled by start-up delays and implementation difficulties and is not likely to produce its desired impacts. Project goals will

not be achieved with the magnitude or comprehensiveness anticipated in the project paper. Except where the project supports ongoing national programs (e.g., transmigration), there is little or no direct relationship between land mapping, titling, and registration and the project goals.

2. It will probably not be possible to demonstrate benefits as anticipated in the project paper. This means neither:

- (a) an increase in access to land by the rural population; or
- (b) an increase in other benefits accruing to the rural population as a result of land registration.

3. Progress hinges on a set of problematic recommendations for revising the existing GOI systems of land registration. These were produced by the project team and presented to the Directorate of Land Registration in August 1982. The recommendations appear overly optimistic and will be difficult to implement fully during the remainder of the project.

However, if the Directorate does accept and effectively carry out the recommendations, this would serve to achieve the project's "primary objective" (development of cost- and time-effective methods of land record keeping, mapping and administration that will accelerate land mapping, titling, and registration).

4. The pilot-project concept has not worked out thus far and will probably remain impossible. This is because of:

- (a) distance from the project office to the three sites (in Central Java, West Sumatra, and South Sulawesi);
- (b) related logistical constraints, such as security clearance requirements; and
- (c) limited GOI funding for travel, per diem, and other support expenses.

5. There has not been adequate GOI participation in the project--in particular, by the Director of Land Registration or by representatives from other GOI directorates (e.g., Land Use, Land Rights, and Land Reform).

6. Management shortcomings have also impeded progress. Excessive time delays occurred in executing the PASA agreement and fielding the BLM project team. When the team leader was medically evacuated, he was replaced by a mapping specialist not qualified for a leadership role. Written and oral communication has been ad hoc and inadequate.

Project Design and Policy Implications. The major reasons for the shortcomings appear to be:

- (1) overly optimistic design and implementation plans;
- (2) lack of commitment to the project by the GOI Directorate of Land Registration; and
- (3) lack of sufficiently aggressive project management by the Bureau of Land Management in Washington and USAID/Jakarta.

Recommendations. The original project design should not be changed although changes should be made in how the project is implemented. These include:

1. Improve project management;
2. Scale down and establish clear priorities among the changes recommended to the Directorate of Land Registration;
3. Drop the pilot areas from extensive testing and evaluation; and
4. Give primary emphasis to improving the systems of land registration rather than attempting to assess the benefits of registration.

Evaluation Team: Not specified. Project Evaluation Summary signed by USAID/Indonesia Mission Director on May 31, 1983, conveys decision to discontinue project.

INDONESIA: SMALL-SCALE FISHERIES DEVELOPMENT PROJECT,  
MID-PROJECT REVIEW

Project Purpose. The goal of this project (497-0286) is to increase fish consumption in Indonesia, to an annual level of 18 kilograms per capita, while improving the quality and variety of food fish available to Indonesians. The project consists of six sub-projects, each with its own purpose.

U.S. Assistance. The project is in its third year, having been funded for a five-year period, fiscal years 1981-86. Funding totals \$4.313 million, a USAID grant of \$3 million (intended primarily for U.S. technician's salaries, scientific equipment, and vehicles) and \$1.313 in Indonesian government funds (for Indonesian project personnel, hatchery construction, housing support, and vehicle support).

Purpose and Methodology of the Evaluation. The purpose was to: (1) determine whether the originally envisaged project impact is still obtainable and whether the project design is still adequate and relevant; and (2) make recommendations to modify the project as needed during its last two years. Methodology consisted of ten days of data and document review, field visits to the sub-project sites, and interviews with Indonesian officials, USAID staff, and consultants.

Major Findings

1. It is too early to determine whether the project will achieve its goals, especially regarding beneficiary impact and replication. It is generally behind schedule, due almost wholly to ponderous USAID project approval requirements. The project paper was signed only ten months after it was written and A.I.D. inputs have been slow in arriving.

2. The Indonesian government, in contrast, has provided its inputs on schedule, and apparently been able to act much more rapidly than A.I.D.

3. The project team composition is not as outlined in the project paper. This has created confusion over project authority and responsibility.

4. Some of the sub-projects are nearly completed while others have not begun or are just beginning. The status of the individual sub-projects is as follows.

i. Pilot Flake Ice Plant. This sub-project is approximately 10 months behind schedule, chiefly due to delays in procuring and importing the ice plant and to problems in bringing on-board the needed technical support. It is now anticipated that the plant will begin producing ice by August, 1983. It appears that sub-project goals will be achieved.

ii. Tambak Extension Service. This sub-project's objective is to help provincial officials in four provinces increase the services and effectiveness of their tambak extension programs. It was to be a "hands-on" effort modeled after the Banda Aceh model. Instead, it became a policy vehicle with little hands-on activity. This sub-project is nearly completed, but it is not likely to contribute to achieving the overall project goal.

iii. Floating Fish Cage Culture. This sub-project has not yet begun, due to the difficulty of finding a suitably qualified technician to manage it. Fish cage culture (a high-density, fast-water stocking method) is very new. It originated in Cambodia, spread south to Vietnam, and has not been replicated elsewhere despite its huge success in Cambodia. Some misunderstanding of this important sub-project seems to exist due to the scarcity of written material on it. It may therefore be desirable to seek a knowledgeable technician from the Vietnamese or Cambodian refugee population in the U.S. Selection of a properly qualified technician is critical to the success of this sub-project.

iv. Rice/Fish Culture. This sub-project, scheduled for North Sumatra, has not yet begun.

v. Fresh-water Shrimp Production. This sub-project appears well on its way to meeting its objectives, although there is some confusion as to precisely what is expected. (The goal that suggests the testing of a system of juvenile production by brackish water fish farmers is not feasible; only fresh water farmers can be expected to participate.) If this and related problems can be overcome, the sub-project goals may be met, although probably not within the current time frame.

vi. Artisanal Fishery Management. Since preparation of the project paper, changes have occurred that affect this sub-project (notably, a government decree banning most trawling within 12 miles of the Java coast). A workshop has since been held to establish a basis for proceeding with this sub-project. It is questionable whether objectives can be met.

Project Design and Policy Implications. Most of the problems with this project thus far appear the result of start-up difficulties attributable to A.I.D. procedures. In view of this, the fact that some of the sub-projects were able to get started without waiting for problems to be resolved in all the others seems to have been a major strength in the project design.

Major Recommendations. Changes should be made in the project.

1. Investigate the desirability of adding additional sub-projects--specifically: lake management, quality control, fishery marketing extension, and tambak rehabilitation.

2. The Project Management position must be filled by a USAID direct-hire project manager.

3. The sub-projects should be modified as follows.

- i. Pilot Flake Ice Plant. Four changes recommended.
- ii. Tambak Extension Service. Do not extend.
- iii. Floating Fish Cage Culture. Continue, since this sub-project has potential for success beyond the modest predictions contained in the project paper.
- iv. Rice/Fish Culture. Continue, but with changes in both the inputs and outputs (three recommendations).
- v. Fresh-water Shrimp Production. Continue (two recommendations).
- vi. Artisanal Fishery Management. Continue, but reduce the geographic area of responsibility (and assign a statistical analyst to the project for at least a year).

Evaluation Team: Mr. Glenn Walters (team leader); Dr. Aaron Rosenfield and Mr. Keith Brouillard, consultants, National Marines Fisheries Service; Mr. Hadi and Mr. Sunyoto, Indonesian fishery experts; and Mr. Timothy Mahoney, USAID/Jakarta. Report dated June, 1983.

**PAKISTAN: AGRICULTURAL COMMODITIES AND EQUIPMENT PROGRAM,  
INTERIM EVALUATION**

**Problem and Overview.** Pakistan continues to suffer from chronic balance-of-trade deficits, even though her exports have increased in recent years. Furthermore, there is real danger that Pakistan's current account deficit will continue to widen as recent import liberalization measures begin to take effect. Related to this problem is that of poor agricultural productivity. Despite improvements in the past four years, the agricultural sector is still plagued with serious problems of low cropping intensity and low productivity. Compounding the lack of sufficient, timely and appropriate use of inputs, productivity remains below potential because of policy constraints. Aware of this, the government of Pakistan (GOP) in early 1981, announced a National Agricultural Policy. This recognizes that transformation of the agricultural sector hinges not only on additional physical inputs and human skills but also on the overall economic environment permitting higher private and social returns on additional assets.

**U.S. Assistance.** The Agricultural Commodities and Equipment Program (391-0468) is a \$300-million, five-year program developed as one of the major components of a total \$1.625 billion, FY 1982-87 economic assistance package. The program has two objectives: (1) to provide balance-of-payments support and (2) to increase productivity of the agricultural sector. This is to be accomplished through two strategies: (1) financing of needed agricultural commodities and equipment; and (2) examination of and influence on policy issues important to and capable of improving agricultural sector performance.

The first tranche of the program, approved in March, 1982 for \$60 million, was to finance the foreign exchange and local costs for importing: (1) \$34 million of fertilizer; and (2) \$26 million of equipment to support the objectives of the USAID/Pakistan FY 1983 Irrigations Systems Management Project (391-0467). Because of the need to move rapidly in providing balance-of-payments support, no policy issues were to be addressed during the first tranche. It was expected, however, that policy changes would be defined and negotiated with the GOP before obligation of subsequent tranches.

**Purposes of the Evaluation:** (1) To identify lessons learned that can be applied to the design of activities as well as the selection of commodities, mechanisms, and procedures for subsequent tranches; (2) to assess progress made toward planning and executing policy studies; (3) to identify mechanisms for monitoring use of local currency generated by sales of imported commodities; (4) to identify potential indicators and methodologies for monitoring and evaluating program impact on agricultural productivity; and (5) to make recommendations for improving program effectiveness and efficiency. Conclusions were based on document review, interviews at both the federal and provincial level, and a field visit to the Karachi port.

## Major Findings

1. General: Implementation during the first nine months has progressed on schedule and basically as planned. Significant progress has been made toward the primary objective of the first tranche--providing balance-of-payments support.

2. Fertilizer procurement has gone smoothly and according to schedule although minor shipping-related problems have occurred.

3. Equipment procurement. USAID/Pakistan has taken on the role of procurement agent of the GOP in order to expedite the process by minimizing the GOP's role in it. This is a relatively high-risk approach which combines a highly active USAID role in procurement with relatively little experience. Moreover, because the GOP has, in practice, retained approval rights at all critical points, it is unclear how much GOP non-involvement has actually been achieved.

4. Policy studies have been planned and some are now underway but their quality and usefulness remain to be assessed.

5. End use of commodities. Some of the storage facilities may not be giving adequate protection for warehousing the fertilizer.

6. Distribution and end use of equipment: It is unclear whether final procedures have been established for getting equipment from customs to the provinces or what role A.I.D. would play in this.

7. Program impact. Balance-of-payment relief has been felt, but it is not clear how the impact of the program on improving agricultural productivity will be measured.

8. Generation and use of rupee proceeds. 97 percent of all rupees resulting from the first tranche have been generated and should have been deposited in the special account. Negotiations for use of these rupee proceeds are proceeding on schedule.

## Major Recommendations

1. General: Continuation of the program is recommended, but with specific steps for improvement. These include:

2. Fertilizer procurement. USAID/Pakistan should facilitate early discussion between the GOP (FDPI) and AID/Washington (M/SER/COM) aimed at resolving the shipping-related problems.

3. Equipment procurement. Despite potential risks, USAID should not necessarily abandon its agent role. It should, however:

(a) be very cautious in determining what functions it will perform (and avoid taking physical possession of equipment);

(b) bring on board an experienced, full-time procurement specialist;

(c) systematically assess whether the arrangement has been beneficial and should be continued; and

(d) address the potential dangers in an ammendment for a second tranche.

4. Policy studies. Examination of the quality and usefulness of the studies underway should be an essential part of the scope of work for the next evaluation of this program.

5. End use of commodities. USAID should institute a system to selectively monitor the warehousing of A.I.D.-provided fertilizer.

6. Distribution and end use of equipment. Procedures for getting equipment from customs to the provinces must be established at the soonest possible, if not already developed. Each package should be clearly marked with the provincial destination prior to shipping.

7. Program impact. Monitoring and evaluation plans should be further examined to ensure that the changes in agricultural performance that this program and other projects are expected to produce will be adequately monitored.

8. Generation and use of rupee proceeds. The USAID program office should be aware of the details of the GOP's formula for designating the amount of rupees generated from the sales and should assure conformity to any regulations and agreements that may exist.

Evaluation Team: Sharon Pines, AID/Washington (ASIA/DP); and Steve Kinsley, AID/Washington (M/SER/COM). Report dated December 2-20, 1983.

## PAKISTAN: LANDSAT ANALYSIS OF AGRICULTURAL CHANGES IN PAKISTAN, A SPECIAL STUDY

Overview. LANDSAT data have been archived since 1972 for much of the world, but have not been widely used as a tool for development. The rationale for using LANDSAT data in development projects is that current and reliable data on land use is seldom available, which makes it even more difficult to determine changes in land use. The rationale for using LANDSAT data in the Northwest Frontier of Pakistan is that data for this area are scarce, maps of the area are few, and travel is difficult. LANDSAT data dating back to 1972 are available for the area, however.

Purpose of the Study. This study was carried out to assist in the development of a project in the Gadoon area of Pakistan's Northwest Frontier province. This was to be done by analyzing changes in land use that have occurred during the seven years between 1975 and 1982.

Methodology. The methodology consisted of analysis of LANDSAT images from 1975 and April 1982, two large-scale topographic maps, and a small-scale schematic map. The area analyzed covers over 50,000 hectares. LANDSAT data vary in reliability. Data for valleys and east-facing slopes are about 85 percent accurate. For west-facing slopes, data are perhaps only 50 to 75 percent accurate (since the satellite records data in the morning when west-facing slopes are in deep shadow). The accuracy of the elevation and slope data is uncertain.

Content of Report. The report: (1) locates and maps the agricultural areas (including vegetation, water courses, population settlements, transportation systems, and contours depicting the terrain, slope, and elevation); (2) maps agricultural areas that have changed between 1975 and 1982; (3) maps the changes by elevation and slope; and (4) maps corridors that would be most suitable for a road network. The report is organized in three sections: findings, a plan for incorporating the LANDSAT technology into the project, and discussion of methods and procedures used. The report documents the steps necessary to turn a simple map and LANDSAT data into a geographic information system ("GIS") that can then be used for analyses (as was done in this study).

### Major Findings

1. There has been a significant increase in agricultural activity between 1975 and 1982, but most significant is where the increase is occurring. Increase has occurred at all elevations, but is of particular concern on the steep slopes.

2. Agricultural activity increased by nearly a third during the seven-year period. It covered 12 percent of the area in 1975 and 16 percent in 1982.

3. A significant shift occurred in the land under cultivation.

Most of the agricultural activity in 1982 was on land newly brought into cultivation since 1975. Almost 60 percent of the land cultivated in 1975 had gone out of cultivation by 1982.

4. Agricultural activity at higher elevations increased significantly. The area varies in elevation from less than 1500 feet to over 6000 feet and has little flat land available for cultivation; agriculture occurs at all elevations. In 1982, land over 4000 feet made up 43 percent of the land in cultivation, up from 37 percent in 1975.

5. More critical, fragile steeply-sloped land at the highest elevations is being cultivated more intensely. Land over 6000 feet is only 4 percent of the total land area but has 7 percent of the agricultural activity. This is the area with the highest percentage of increase in agriculture between 1975 and 1982. The watershed may be threatened as a result of this shifting of agriculture to the land with the greatest potential for erosion.

6. Poppies are cultivated in the area, but details of poppy cultivation cannot be determined from the LANDSAT data alone.

#### Project Design and Policy Implications

1. The watershed in Pakistan's Northwest Frontier province, and thus the eventual productivity of its land, may be increasingly threatened by the apparent pattern of agriculture shifting to the land with the greatest potential for erosion.

2. Successful application of the LANDSAT technology to the Pakistan project would require equipment, training of operators, and orientation of all personnel. Several small, micro-based computer systems would be suitable. Their costs vary widely--from \$100,000 to \$200,000. To train an operator to apply the concept of LANDSAT data and geographic information systems would require at least 15 months with a trained person working alongside, plus an additional 9 months to use the full potential of the system.

Recommendations. The report does not make specific recommendations but urges the following:

1. The high-altitude, steeply-sloped land should be protected from agricultural activity, to the extent possible, to avoid erosion and disruption of the watershed.

2. The technology described--LANDSAT data and the geographic information system--should be seriously considered as a valuable tool for project development, management, monitoring, and evaluation, especially where conventional data are inadequate.

Study Conducted by: IRIS [Integrated Resource Information Services] International. Report dated April, 1983.

THAILAND: AGRICULTURAL EXTENSION OUTREACH PROJECT,  
PROJECT COMPLETION REPORT

Overview. Thailand's National Extension Improvement Program was initiated in 1977 as a joint effort of the Royal Thai Government (RTG), the World Bank, and A.I.D. The total cost for the first five years was estimated at over \$58 million. The goal was to expand and strengthen the Department of Agricultural Extension (DOAE) services to farmers. Over 4000 extension personnel were to be added. This meant, among other needs, a great need for training for new and continuing DOAE personnel at all levels in extension methodology and relevant agricultural knowledge.

U.S. Assistance. The A.I.D.-financed Agricultural Extension Outreach Project (no. 493-0280) was launched as a component of the national program to provide the training required. The A.I.D. contribution has been a \$3.1-million loan; the RTG is contributing 27.5 million and the World Bank 28 million. A.I.D. assistance actually began in 1976 with in-service training for DOAE staff.

Project Purpose. The program or sector goal to which this project was directed has been "to increase the income of people who live in the rural areas, with emphasis on the poorer, small farmers." The stated purpose of the project was "to establish an improved flow of information to and from the farm population in 33 provinces which will: (a) enable the farmers to make better informed decisions; (b) cause them to use improved farming techniques; and (c) enable the farmers to convey their views and needs back to the bureaucracy." The project was expanded in 1980 from 33 to 71 provinces.

Major Findings

1. General: Project objectives have been partially achieved-- and some of the achievements have been substantial. It is probable that the project purpose can be fully achieved if certain changes are made (as recommended by the Final Evaluation Report and the Report of the RAI Design Team titled "Diffusion of Improved Farming Practices").

2. DOAE staff praise USAID/Bangkok for its support of the training activities. A.I.D. is faulted for not fielding the contractor earlier and for numerous changes in USAID management (e.g., four different project managers).

3. Delays in signing the loan agreement, plus delays in fielding the technical assistance contractors (ultimately, Louis Berger Inc.) required changing project targets and had other negative impacts on the project. For example, the "network design" was outdated before the project started. This escalated USAID and RTG planning problems.

4. Beneficiaries: The direct beneficiaries of the project were an estimated 5.3 million farm families in all provinces of Thailand. This includes many small, low-income families. The vastly increased numbers of extension agents providing services at the village level, where none existed before, have provided increased access to the economy for the poor. Preliminary research results suggest that the average farm household income has increased about 13.5 percent per year. Indirect beneficiaries are the consumers of agricultural products.

5. Institutional capabilities of the DOAE have been noticeably strengthened. This is illustrated by the expansion of the project from 33 to 71 provinces and by a biweekly training program.

6. Training: Pre-service training courses were attended by almost 6000 people, about 2000 more than originally scheduled. Unfortunately, this ambitious expanded schedule did not uphold the initial level of quality.

7. Farmers have adopted new practices for certain crops, although the goal of an 85-percent adoption rate by 1981 was not attained. It is significant that about 40 percent of farmers in the Northeast now turn to extension agents for problem solving.

8. Demonstration plots were established on farmer-owned land. In 1982, about 75,000 farmers were managing demonstration plots.

9. "Contact (model) farmers" were identified and used to expand opportunities for links between farmers and extension agents. These farmers, one per village, are developing good relationships with extension staff.

Project Design and Policy Implications. Project plans (PPs in particular) are often overly optimistic in requiring that too many critical factors take place too quickly. A time frame that is too short adversely affects the project--as happened with this project. Specific "lessons learned" include the following:

1. Too many development projects are naive in their assumptions about how organizations and their personnel interact. They fail to recognize that project success is critically dependent on very good working relations among all the organizations involved as well as among personnel within individual organizations; projects therefore make unrealistic assumptions about the cooperation that will be forthcoming. This is a common reason for both project delay and failure.

Recommendation: A full institutional analysis of all participating organizations should be required of all projects before funding. Organizational research should also be included in all project evaluations. This would identify organizational changes that should be pre-requisites to further funding.

2. It is very difficult to determine whether an extension project is successful or not.

Recommendation: Projects with an educational thrust should collect benchmark data on the pre-project behavior of the participants. Without this, it is not possible to make accurate assessments (whether quantitative or qualitative) about project achievements. This should be an integral part of the evaluation methodology used for the project.

3. Too many projects make unrealistic assumptions about the work project personnel will do and often put people in dual roles that are contradictory. In this project, the same people were made responsible for both training and supervision. These two roles require different skills. The outcome was greater interest in one role at the expense of the other. The role that often gets slighted is the training role--the focal point of an educational project.

Recommendation: Separate people should be assigned to different project functions. The additional cost is probably necessary. Project planners should first carefully analyze the culture, environment, and motivations of staff, and then resolve the issues discovered, before initiating the project.

4. It is very difficult to duplicate training methods developed in other cultures. Training programs often succeed because of the motivational techniques used, but motivational techniques successful in one culture are not universally transferable.

Recommendation: A study should be made of techniques appropriate for training participants in the project country.

5. Too many projects are unrealistic about the length of time required for adoption of research results. The time required (e.g., 20 years) often exceeds the typical A.I.D. life-of-project.

6. Often assumptions contained in the economic analysis are also unrealistic.

#### Recommendations for the Project

1. Some of the economic assumptions underlying the project need review, particularly regarding productivity and market capacity.

2. The DOAE should provide USAID with a report on the outcome of the workshop(s).

3. USAID/Bangkok's Office of Agriculture and Rural Development should assume residual monitoring responsibilities.

Report Prepared by: A. John Conje, Project Officer, USAID/Bangkok. Report dated February 8, 1983.

THAILAND: THE NORTHEAST RAINFED AGRICULTURAL DEVELOPMENT PROJECT:  
A BASELINE SURVEY OF WOMEN'S ROLES AND HOUSEHOLD RESOURCE  
ALLOCATION FOR A FARMING SYSTEMS APPROACH (A SPECIAL STUDY)

Problem and Overview. The Northeast is the poorest region of Thailand. Rainfall is unreliable and in some areas land is said to bear its potential output in only one year in three. Some crop yields are apparently declining due to soil exhaustion, population growth has led to cultivation of more marginal, lower-yielding land, and in much of the Northeast there is little potential for large-scale irrigation. Farm cash inputs and market-orientation of production have led to growing inequality of land and income distribution through incurred debt and, consequently, to the emergence of a class of landless villagers. Poverty and lack of opportunity cause considerable out-migration, both permanent and temporary.

Women have an unusually important position in Northeast Thai society, and in agriculture as well. Marital residence patterns are matrilineal and land ownership is passed down through the female line. Women are the main land-owners and usually control cash income.

U.S. Assistance. A.I.D. has begun support for the Northeast Rainfed Agricultural Development Project (NERAD). The purpose of the project is to improve farm productivity and the utilization of household resources and, thereby, the livelihoods of low-income families in eight tambons (sub-districts) covering a population of 65,000 people. The project strategy is a farming systems approach which relies heavily on improved extension services and designing interventions on the basis of knowledge accumulated through on-farm research trials and other means as the project progresses. Early interventions in selected villages are to be refined for replication elsewhere. Women are expected to benefit greatly through training and increased involvement in farm economic activities; they are to be involved in both planning and implementing both agricultural and non-agricultural sub-projects.

Purpose of the Study. The purpose of this study is to contribute household baseline data and an analytic component to the project. The study sought to identify some of the constraints to improving production and income, to suggest suitable interventions to ease those constraints, and to offer guidelines for selecting villages and household groups to receive initial interventions.

Methodology. Data were derived from two months of field investigation in 12 villages (including 2 control villages) in different parts of the Northeast. Males and females were interviewed (twice) in a sample of 413 households. Enumerators were ten women students from Khon Kaen University who resided, in pairs, in one village for one month and a second village for a second month. This method of intensive investigation enabled them to learn about village activities, organizations, and problems and

to talk informally with villagers, as well as to collect formal survey data.

### Major Findings

1. Household formation and inter-household cooperation. In the poorest of the land-scarce villages, grown children of both sexes are absent most frequently. In most villages, 10 to 20 percent of households pool land, labor, and other production inputs. Women-headed households are more frequently involved in resource-pooling due to women outliving their husbands.

2. Labor deployment. No cultivation task is carried out exclusively by one sex. Very little child (under age 15) labor is used. The out-migration of grown children has increased the intensity of both sexes' farm labor, especially men's. Most women engage in home industry (silk and cotton work and basketry) during the dry season, chiefly for their own use. It is unclear how underutilized women's labor is during the dry season. It may be necessary to encourage women to move from present occupations into others.

3. Attitudes to risk. Most respondents said they were prepared to accept a new cropping method even if it required that some household member had to give up wage employment (which is widely regarded as more risky than crop production). Villagers' uncertainty about prices and markets for the increased output were the main considerations in adopting farming innovations.

4. Credit sources and costs: Institutional credit and unequal access to cheap credit are critical issues. Cheap bank or cooperative credit is relatively absent in some villages, forcing villagers to pay highest rates for credit from private sources, including friends and relatives. It appears to be chiefly the households with above-average farm size that belong to Farmers' Groups and benefit from cheaper credit.

5. Extension services: These are poor and poorly utilized. Women attend even fewer agricultural demonstrations than do men. The most common reason is lack of time; the next most common is lack of interest. Extension officers rarely make home visits; when they do, it is disproportionately to members of the Village Committee or households with large farms. Nearly all respondents stated they would like to see more women in the service.

6. Household financial management. Women are still the main custodians of all cash income. Men are becoming controllers of income, however, in villages where many households sell large surpluses of rice. Men do most of the selling of crops; women tend to be more involved in selling cash crops than rice.

7. Welfare and family planning. Women and children collect most of the water used domestically. Water collection is often a serious problem in the dry season, which places seasonal stress on women. Rice planting and harvesting, and some dry season cash

cropping, cause additional seasonal stress. Consequences appear to include reduced breastfeeding and more miscarriages during these times, increased infant sickness toward the end of the dry season, and increased child mortality during rice planting and harvesting. Villagers tend to understand the need for birth control but desire better family planning services.

8. Migration and inheritance. In villages where land is most scarce and average farm size is smallest, more daughters migrate out than do sons. The pattern of female inheritance of land appears to be changing.

### Implications and Recommendations for the Project

To be avoided by the project:

1. Additional seasonal labor stress. Ensuring that seasonal labor stress, particularly for women, is not worsened must be a pre-condition of farming improvements.

To be included in the project, or at least considered:

1. Improved domestic water supply, especially during the dry season and in villages where the need is particularly acute.

2. Child care facilities during rice planting and harvesting, in all villages. The idea is popular everywhere.

3. Crop improvements that require additional seasonal labor in the dry season or between rice planting and harvesting. This would encourage more effective use of household labor.

4. Crops using small-scale water resources. This could help underwrite the riskier investment in rainfed rice.

5. Improving the availability of cheap institutional credit, since the difference between institutional and free-market interest rates is large enough to affect the profitability of cropping changes. This will require mobilizing more small-farm households in Farmers' Groups and informing farmers of credit facilities. It could permit the risks involved in improving mainline farming to be reduced over an average of several years.

6. Greatly strengthening the extension services, including recruitment of women extension officers. Steps should also be taken to reach women with advice and information, especially if new dry season agriculture (in which women are currently more involved than men) is to be developed.

Study Conducted by: Wilaiwat Grisanaputi, Sukaesinee Subhadhira, and Ingrid Palmer. Report dated September, 1983. Study No. 3 in Population Council's "Series for Planners," Case Studies of the Impact of Large-Scale Development Projects on Women.

**INDIA: GUJARAT MEDIUM IRRIGATION PROJECT,  
ANNUAL IMPLEMENTATION REVIEW**

**U.S. Assistance.** The Gujarat Medium Irrigation Project (A.I.D. loan 386-0464) is a five-year irrigation sector support project, begun in 1978 with completion scheduled for June, 1983. It was designed to provide financial support to 33 (now reduced to 28) of Gujarat state's new, on-going, and to-be-modernized "middle irrigation projects" (referred to as sub-projects). Funding for the project will total about \$215 million. A.I.D. provides \$30 million and the World Bank \$85 million. The project was designed to:

1. Finance 13 new and 20 improved "middle irrigation projects" covering 149,000 hectares of irrigated land;
2. Establish a network of automatic river gauging stations;
3. Establish agricultural development plans and demonstration plots within each middle irrigation project;
4. Prepare socioeconomic baseline studies for each project; and
5. Carry out water-loss measurement in several of the projects.

**Purpose and Methodology of this Review.** The purposes of this review were: (1) to assess project progress; (2) to follow up on actions the government of Gujarat was to have taken on recommendations made in A.I.D.'s 1981 Annual Implementation Review; (3) to identify constraints affecting project implementation; and (4) to estimate the shortfall in expenditures likely to prevail by the scheduled project assistance completion date. Methodology consisted of interviews, document review, and site visits to six medium irrigation projects.

**Major Findings**

1. Project progress: The project is still behind schedule, but implementation has improved significantly. Implementation was very slow initially because: (a) the necessary Indian funding was not forthcoming, (b) not enough field supervisory staff were being placed, and (c) construction contracts were not being finalized promptly. The funding problem has now been resolved. The number of field supervisory staff (612) is now twice that of last year and action is being taken to fill the remaining positions. The majority of contracts have now been finalized and work initiated.

2. Progress on the five project components has been mixed:

- (1) Construction of middle irrigation projects: It appears that construction will be completed on 22 new and on-going and 6 modernization sub-projects.
- (2) River gauging stations: All stations have been established.
- (3) Agricultural development plans and demonstration plots: These have not been established on schedule due to lack of coordination between the Department of Agriculture and the Department of Irrigation. This is essential to optimize agricultural production.
- (4) Socioeconomic baseline studies: All have been completed.
- (5) Activities to measure water loss: This has begun in selected projects.

3. The Gujarat government has only partially followed through on the recommendations of the 1981 Annual Implementation Review. Two recommendations have been carried out, two have been partially carried out, and one has not been carried out.

4. Most constraints to implementation have now been resolved. A severe cyclone, however, has recently caused an additional three-month delay in construction. In addition, the initial lack of coordination between the Department of Agriculture and the Department of Irrigation may still be a constraint.

5. The shortfall in expenditures is likely to be \$8 million (of the U.S. loan commitment of \$30 million) by the scheduled project assistance completion date.

Project Design and Policy Implications. Project implementation has been extremely slow because project design assumed the Indian side would act more promptly. The project paper also specified that the World Bank would be responsible for monitoring implementation progress. When, by mid-project, it became apparent that progress was very slow, and construction quality inadequate, A.I.D. became more active in monitoring and helped persuade the Gujarat government to remove the identified constraints to project progress. This more active monitoring resulted in speeding up progress during the past two years and in making field officers more aware of the need for higher quality construction.

### Major Recommendations

1. The project should probably be extended one year to complete construction and permit the Gujarat government to use the credit provided. Gujarat officials are to prepare a realistic implementation schedule for this extension and submit it to A.I.D. and

the World Bank by February 1983.

2. The Gujarat government's Department of Irrigation should issue instructions for field officers to adhere to specifications for improved canal lining.

3. Both agricultural development plans and demonstration plots need to be developed immediately. The government of Gujarat needs to act immediately to do so.

Review Conducted by: D.R. Arora, engineer, Irrigation and Water Resources; D.R. Shankar Iyer, OSD, Government of Gujarat Irrigation Department; John Westley, Program Office, USAID/India; and World Bank representatives. Project Evaluation Summary dated January 13, 1983.

**INDIA: RAJASTHAN MEDIUM IRRIGATION PROJECT,  
MID-TERM REVIEW**

**U.S. Assistance.** The Rajasthan Medium Irrigation Project (386-0467) is a five-year irrigation sector support project scheduled for 1980-1985. Estimated total funding is \$58 million. The U.S. contribution is \$35.5 million (\$35 million loan and \$0.5 million grant). The project was designed to do the following:

**A. Loan portion:**

1. Finance construction of about 15 "medium irrigation projects." These are to be a mixture of new, on-going, and modernization projects and are to create an additional irrigation potential of about 65,000 hectares.

2. Lead the Government of Rajasthan to double its expenditures on medium irrigation projects.

3. Increase the intensity of irrigation by 20 percent.

**B. Grant portion:**

1. Provide training (in India and in the U.S.) to government of Rajasthan personnel involved with the project.

2. Finance socioeconomic baseline studies of representative projects.

3. Finance water management studies.

4. Finance the study and evaluation of local-level management organizations.

**Purpose of the Review.** The purpose was to: (1) review project performance; (2) make a detailed analysis of implementation problems; and (3) provide recommendations to resolve problems and improve performance.

**Major Findings**

1. It is unlikely that any of the medium irrigation projects will be completed by the scheduled project assistance completion date (PACD). Only 7 projects have been approved (which would provide an additional irrigation potential of 40,000 hectares), and only 2 more are presently being prepared for approval. The government of Rajasthan has proposed an alternative of only 9 projects, creating an additional irrigation potential of about 60,000 hectares, slightly lower than the original objective.

2. Implementation has been and continues to be very slow because of: (a) inadequate provision of funds by the government

of Rajasthan, and (b) lack of field supervisory staff. These are major continuing bottlenecks.

3. Lack of Indian funding. Four successive years of drought in Rajasthan and consequent diversion of financial resources to famine relief have impeded all development activities. Other budgetary factors have further curtailed anticipated allocations to the project. A.I.D. efforts to speed up allocations have not succeeded and there is no improvement in sight. The project was to have disbursed about \$14 million by March 1983. A sum of \$4.2 million has actually been disbursed and about \$5 million is to be disbursed shortly.

Perhaps 3 or 4 of the projects (Bhimsagar, Bassi, Kothari, and possibly Chhapi) could be completed if available budgets could be appropriately reallocated. These 4 would create an additional irrigation potential of 19,000 hectares.

4. Lack of field supervisory staff. Field staff placement depends on the availability of funds. It will probably be impossible to expand the field staff unless the funding improves.

5. Training in the U.S., and in-country workshops, have proceeded well, but there is little attempt to use the trained staff for this project. Twenty officials from the Irrigation and Agriculture Departments have received U.S. short-term training, and two technical workshops have been conducted in India. But the majority of officials who have participated in both the training and the workshops have been transferred outside the project areas where they cannot utilize the expertise attained.

6. Socioeconomic baseline studies and water-loss measurement studies are in progress. Reports from the former will be available in six months.

7. A project monitoring cell has been established in the office of the chief engineer.

8. Follow-up on recommendations of 1981 Annual Implementation Review. The government of Rajasthan did not follow the major recommendations (to place field staff and provide the agreed upon funding). It took appropriate action on other recommendations.

### Major Recommendations

1. The project should be continued but needs much improvement.

2. The Government of Rajasthan (GOR) should take the following actions:

(1) Increase budget allocations to the Bassi, Kothari, Chhapi, and Bilas projects during the current GOR fiscal year. It is urgent that the GOR review budgetary allocations with the objective of reallocating funds to these projects.

(2) Consider modifying the project by integrating on-farm development activities (e.g., field drainage, leveling and shaping) to improve effectiveness of the middle irrigation projects and thus increase the return on the investment. The project implementation schedule will have to be revised accordingly.

(3) Make greater efforts to ensure that the remaining middle irrigation projects are approved by September 1983.

(4) Field officials trained by the project should not be transferred for at least three years.

3. USAID/New Delhi should take the following actions:

(1) Work with the government of Rajasthan to:

- (a) prepare a modified implementation schedule;
- (b) prepare a project scope to integrate on-farm development activities;
- (c) arrange technical assistance; and
- (d) organize additional training workshops.

(2) Grant an additional \$750,000 for:

- (a) additional in-country training;
- (b) developing field manuals; and
- (c) improved construction/data processing equipment.

(3) Reimbursement. It appears that the reimbursement percentage needs to be increased from the present 67 percent to 75 percent (overall) on the eligible expenditures. This would speed disbursements, help improve GOR financial allocations, and suitably reschedule project implementation on a realistic basis.

Review Conducted by: Niel A. Dimick, Agricultural Engineering Advisor; Kailash Roop Rai, Chief Engineer, Government of Rajasthan Irrigation Department; and John Westley, Chief, Program Office, USAID/India. Review report dated April, 1983.

SRI LANKA: MAHAWELI BASIN DEVELOPMENT, PHASE II  
PROGRESS REVIEW

Problem and Overview. One of the main development priorities of the government of Sri Lanka (GSL) is its Accelerated Mahaweli Program, an integrated basin development effort financed with assistance from eight major donors. The goal of this program is to put large areas of land (the basins of two rivers, the Mahaweli Ganga and the Maduru Oya) under irrigated cultivation and to have these areas settled by landless or land-poor farmers from all over the country. The master plan includes construction of four large dams and a vast canal system as well as other irrigation facilities and transportation and social infrastructure to support the settlers on the newly-irrigated land. The GSL has a lengthy experience with irrigated settlement schemes since this has been its main development strategy for the country's dry zone since the 1930s. The GSL has also shown an impressive capacity to learn from this experience.

U.S. Assistance. "Mahaweli Basin Development-Phase II" (project no. 383-0073) is an \$85-million loan. Its first tranche (\$68 million) has been obligated since FY 1981; further obligations, and a proposed increase in the total funding level to \$110 million, are pending. This project is one of several U.S.-assisted activities in support of the Accelerated Mahaweli Program. The additional activities consist primarily of a \$50-million Mahaweli Sector Support loan and a program for environmental protection in the area.

The Mahaweli master plan divides the area into irrigation systems (designated B, C, G, etc.). A.I.D. support focuses on System B. Development of System B consists of three discrete elements: (1) Maduru Oya dam and reservoir (the "headworks") to supply the system with water (constructed with Canadian assistance and nearly complete); (2) main and branch canals, which form the backbone of the irrigation work; and (3) "downstream activities," including distributary and field canals as well as drains, roads, land leveling, settlement, and introduction of social infrastructure (being undertaken by the Mahaweli Authority of Sri Lanka either with its own means or through contractors and settlers). A.I.D. assistance in System B has consisted of financing: (a) design of all main and branch canals (now completed); and (b) engineering supervision and construction of the main and branch canals on the left bank of the Maduru Oya; as well as (c) partial financing of some downstream activities on the left bank under the Mahaweli Sector Support loan.

Purpose and Methodology of the Review. A.I.D. authorization for this project required special approval by AID/Washington prior to obligation of funds for the project's second phase (referred to as I[b]). This approval was to be based on a review of progress in the first phase (referred to as I[a]), particularly the contributions of the GSL and its ability to provide adequate funding to support the second phase. The review specifically sought to

determine: (1) whether, in the face of mounting GSL budget deficits, the left bank of System B is receiving its due share among competing demands for GSL resources; (2) whether the Mahaweli Authority is making satisfactory implementation progress; and also (3) whether the U.S. construction contractor is making satisfactory progress toward completing the main and branch canals. The review was conducted by means of site inspection, review of the Mahaweli Authority's implementation plan for System B and measurement of progress against this plan, examination of actual and projected budget expenditures, comparative review of plans and progress on earlier phases of Mahaweli development and the A.I.D.-supported Water Management Project in the Gal Oya area, and interviews with officials, other donors, contractors, settlers and other inhabitants of the project area.

### Major Findings

1. General: Satisfactory implementation progress is being made, both by the Mahaweli Authority and the U.S. contractor, and the left bank of System B is receiving its due share of GSL budget resources.

2. GSL financing. Mahaweli development continues to enjoy highest priority in the GSL capital budget. It appears probable that the GSL will provide adequate funding to support the second phase of the project.

3. Financial data, however, are not fully reliable, consistent from one governmental unit to another, or available when needed.

4. Construction of U.S.-financed canals is slightly behind schedule but prospects are good that work will be completed to assure water at critical periods (October to December, 1983 and 1984).

5. Downstream activities. The GSL is making significant progress to provide complementary downstream infrastructure as specified in the Project Agreement (and is even exceeding the rate of progress of the U.S. contractor). The GSL is likely to be able to finance downstream development costs associated with both phases.

6. Planning of the settlement phase in System B is impressive. Creative policies have been adopted to minimize friction and dislocation, targets for moving settlers into the area are being met, and careful attention is being paid to providing services to families at an appropriate pace as land becomes available.

7. Agricultural and water policies. Agricultural policies are being addressed with increasing awareness of the need to diversify production. Initial efforts for water policy planning are bearing fruit.

8. Off-farm employment. Adequate provisions are not being made

for non-farm settlers in System B.

Project Design and Policy Implications. Complex challenges remain. Nevertheless, the 50-year experience and lessons learned by the GSL in planning and implementing large-scale resettlement programs are important. A.I.D. should study to improve the design and implementation of similar projects elsewhere.

### Major Recommendations

1. General: A.I.D. should obligate the funds for the second-phase construction contract. However, A.I.D. should also give attention to the following needs and concerns.

2. The GSL should act promptly to improve financial monitoring.

3. Urgent attention should be given to mobilizing adequate medical staff and facilities in Zone 1. This is critical because initial settlement coincides with the beginning of the prime malaria season; the settlers are coming from areas being inundated by dams and will have no alternative livelihood or homes to return to.

4. More must be done in water management, to develop a comprehensive, economical, and realistic maintenance system for the entire canal system and to train staff and farmers accordingly.

5. Significant effort must be made to provide adequate manpower planning for dealing with off-farm employment problems.

6. There should be greater use of social science analysis to improve monitoring and evaluation.

Review Team: Frank D. Correl, Hasan A. Hasan, Donald G. McClelland, and Thayer Scudder. Report dated July 1, 1983.

INDONESIA: WATERSHED ASSESSMENT  
(EVALUATION OF SEVEN PROJECTS)

Problem and Overview. The island of Java, where most of Indonesia's population is concentrated, has far too many people on too little land. As population pressures have increased, farmers have pushed cultivation further up the hillsides, bringing steep slopes and vulnerable land under cultivation and causing alarming increases in erosion. Upland agriculture is rainfed and has received minimal assistance as compared to the lowlands. A problematic consequence is that upland farmers produce lower yields and are poorer than their lowland counterparts.

The long-term solutions to this problem of increasing population and concomitant over-use of land are: (1) family planning; (2) transmigration (of Javanese to less densely populated islands); (3) creation of additional off-farm employment; and (4) increasing the productivity of the land within an ecologically stable system, coupled with afforestation or reforestation of sites unsuitable for agriculture. The government has accorded high priority to family planning and transmigration and is attempting to develop strategies and programs to promote off-farm employment and increase the productivity and ecological stability of the nation's upland resources.

A watershed is a well-defined physical region with natural physical boundaries. Watershed development is a type of integrated rural development. To improve utilization of the natural resources and productivity and stability of the watershed requires an integrated development plan.

Purpose and Methodology of the Assessment. The purpose of the assessment was to evaluate the present state of watershed management in Java and to offer recommendations for improvement in the fourth area above. The methodology used was to study seven completed and ongoing projects or programs. Field visits were made to each to assess the content, structure, operations, constraints, and impacts. The seven were: the National Regreening Program, the Brantas River Basin Project, the FAO-supported Solo I and II Projects, the Yogyakarta Rural Development Project, and the Citanduy I (Panawangan) and II Watershed Project. The joint effort was carried out during a slightly less than six-week period. The main issues examined were: technical considerations, human resources development, and institutional aspects.

U.S. Assistance. Some but not all of the programs examined in this assessment have been supported by A.I.D.

Findings. Ambitious efforts are under way to reduce soil and water degradation and to increase the productivity of upland watersheds, but shortcomings are numerous and changes are needed.

I. Technical and economic aspects: All efforts to develop upland agriculture should (as a basic requirement) adopt a farming system approach. In Java, this means a "technology package"

which should generally contain five components: soil and water conservation, cropping systems, livestock, forestry and tree crops, and economic evaluation. (Inland fisheries should also be included where water is adequate.) In any given area, the appropriate farming system will depend on the local site conditions and on the aspirations of individual farmers. Sufficient knowledge exists about these major components to permit them to be combined into effective farming systems applicable to Java, but much fine-tuning will still be needed.

1. Soil and water conservation. A major constraint is the lack of a system of land-suitability classification on which decisions regarding optimal land-use can be based. The present exclusive focus on bench terracing needs to be complemented with simpler and thus cheaper measures. Communication of research findings to the field is poor but could be improved through regular seminars.

2. Cropping systems. A considerable technological base has been developed by the Solo I and Panawangan projects. This can be transferred to new target areas. This general "technology package" must be adapted to specific site conditions, however. To achieve this, "field laboratories" should be established and on-site research should be accelerated.

3. Livestock can make an important contribution to the overall viability of the farming system and should be explored, not only for supplemental employment opportunities, but as a first source of income, especially where soil is poor. Better marketing facilities for livestock would be required.

4. Forestry and tree crops. At present, most upland farmers who have limited land grow only food crops, regardless of slope conditions. Tree planting programs can also be successful on steep slopes, however. A range of locally suitable options should be developed and offered to the farmers. More applied research is needed to develop systems that incorporate tree crops that are both technically sound and socially acceptable.

5. Economic evaluation. Both employment and net returns can be significantly increased by adopting an improved cropping system on terraced land of less than 50-percent slope. Adding an animal component would further increase net returns. Poor farmers will not be able to adopt the improved technology, however, without being able to get non-collateral credit. Lack of a formal credit program for upland households is thus a major constraint to the diffusion of technology for upland conservation and production.

II. Human resource development (manpower and training requirements). The wide range of social, economic, and technical factors involved in watershed improvement requires that manpower for these programs combine a wide range of knowledge, experience, and skills. Not only must disciplines such as soil and water conservation, upland farming systems, forestry, animal science,

rural sociology, and agricultural economics be represented; they must also be integrated in a coherent plan of action that includes education, research, and extension. Training is needed for farmers, field technicians, and professional staff. Training, in addition to remedying subject matter deficiencies, should be geared toward overcoming three other problems. These are: (1) too little input by farmers into the technical packages; (2) lack of adaptation of technical packages to local needs; and (3) too little flexibility in the technical package at the field level.

### III. Institutional aspects

1. Unless the ultimate beneficiaries are more actively involved in both planning and implementation, watershed development projects are likely to fail. The desa (village) remains a viable administrative unit, but planners must go to the dukuh and kampung (hamlets) for effective grassroots participation. Changes must be made to bridge the gap between beneficiaries and the district government.

2. To achieve beneficiary participation, changes must be made in institutional arrangements. Three management principles should be observed. These are: (a) decentralized management (to the provincial level or lower); (b) unified management (at these levels); and (c) budgetary and credit system flexibility.

Project Design and Policy Implications. All components in the recommended farming-system "technology packages" are interdependent. If one breaks down, local people will have less incentive to adopt complementary elements. The main lesson for managers is that the system recommended to any farmer must be consistent with the ability of that farmer to manage the system. Planners and implementors need special training to understand and communicate this.

### Major Recommendations

1. Spread effect. Projects should be designed to facilitate evaluation of their impacts. Special efforts should be made to monitor early adopters of a technology package in order to incorporate lessons learned into the evolving program.

2. Equity considerations. Upland infrastructural development should be subsidized (as is lowland infrastructural development). This should be considered as an income transfer from urban and rural lowland populations. Furthermore, beneficiaries of upland development will be not only the upland farmers directly affected, but also the downstream farmers who will benefit from reduced flooding and silting and from improved water quality.

3. Detailed technical recommendations are also presented.

The Assessment Team: consisted of eight Indonesians and eight expatriates. Assessment conducted March 28 to May 7, 1983. Report consists of three volumes and a lengthy summary.

NEPAL: RAPTI ZONE RURAL AREA DEVELOPMENT PROJECT,  
MID-TERM EVALUATION

The Problem. Population densities in Nepal are among the highest in the world; in the middle hills where 60 percent of Nepalis live, the density per hectare of arable land far exceeds even that of Pakistan, India, or Bangladesh. Because too many people now cultivate too little land, the traditional rural subsistence economy (with intensive grazing and extensive cutting of trees and ground cover for fuelwood and fodder) is now destroying the land. Throughout rural Nepal the situation is one of evolving crisis, for the population continues to grow while the land base for agriculture and forestry continues to deteriorate and food shortages increase. The government of Nepal (HMG) has launched a nationwide family planning program and regards concurrent rural development efforts to be the highest priority for the country. The Rapti Zone Hill area in Western Nepal is one of many parts of the country that is experiencing catastrophic environmental degradation as a result of recent population growth.

U.S. Assistance. The Rapti Rural Area Development Project is a product of the search by A.I.D. and HMG during the 1970s for viable rural development strategies and is based on over three years of information gathering, design work, and pilot projects in the Rapti Zone. The project agreement was signed in August, 1980 for a five-year project budgeted at \$33 million (of which the U.S. contributes \$26.7 million). The project purpose, as initially stated (in the PID), is "to increase production and income levels of small producer families and to increase their benefits from national and local development projects within specific areas."

Purpose and Methodology of the Evaluation. Questions have been continually raised about the feasibility of large, multi-sectoral rural development projects and about the practicality of decentralization for encouraging broadbased economic growth. The purpose of this evaluation, therefore, was to examine the basic assumptions and design of the project and determine whether they are valid. Methodology consisted of analysis of national policies and practices and local conditions affecting the project, analysis of project documents and relevant studies, field visits to four of the five districts in the Rapti Zone, investigation of the principal activities being carried out, and interviews with villagers, village leaders, local technicians, and officials.

Major Findings and Conclusions

1. An effective rural development program is central to Nepal's long-term development. Rural resources must be mobilized for more productive income-generating activity. Intervention must occur in several sectors, sequentially if not simultaneously. Agriculture, animal husbandry, forestry, erosion control, rural off-farm employment, market development, and provision of basic services (e.g., agricultural inputs and extension and possibly functional

adult education) would be most effective as part of an integrated household production system (household economy) strategy.

2. The project is consistent with HMG's development policies and plans. The 1982 Decentralization Act and other recent government actions indicate HMG intent to strengthen local development, although incentives are not adequate for creating a broad base of private development activity in the rural areas. The villagers need to assert more voice and control in local development activities and rely less on the central government.

3. General conditions are sufficiently favorable for the project to continue two more years. It is not likely to produce any lasting impact, however, unless HMG makes more progress during the next two years in five critical areas (see Recommendations).

4. Local resources must be mobilized and scarce capital used sparingly. Individual activities need to be simple, low-cost, and labor intensive.

5. There is no focal point for rural development strategy formulation. The project will require a highly professional technical resource group to assist the districts and the central government in this work. It could then provide a valuable action-research and demonstration base for defining the future course of rural development in Nepal.

6. Project accomplishments are evident, (although start-up was essentially delayed until a year after authorization). Now, for example, the Small Farmer Development Program is off to a good start. Loans are being made to private entrepreneurs. New varieties of wheat have been introduced. Livestock breeding and veterinary services are under way. Adult education classes are having an impact on attitudes and skills, especially among women. The Appropriate Technology Unit is active in designing and promoting biogas units and similar innovations. Rural works and access road construction are progressing. The project is well-known and is stimulating awareness of development possibilities.

Project Design and Policy Implications. Integrated rural development is hard to implement in any situation, even though the approach may be needed. Here we see that multi-sectoral development is especially difficult when its purpose is to stimulate economic growth in an isolated area with a stagnant to declining economy and few untapped resources. The task is even more problematic when it requires that the project radically alter traditional behavior and, in fact, the basic subsistence pattern of the local population.

### Major Recommendations

1. Project continuation: The project should continue for the next two years. During this time, HMG should significantly improve its policy and program performance in the five critical areas (below). If conditions remain essentially the same as now,

A.I.D. should terminate assistance to Rapti rural development. Only if there is significant improvement should A.I.D. consider a follow-on project (and, in that case, even a 10- to 15-year cooperative effort). The five areas requiring HMG action are:

a. The ecological situation. A major change in strategy, priority, and commitment is required to reverse the negative impact on the environment of the present household production system. Protection of the land with trees and ground cover should be an integral part of all development activity.

b. Institutional trends. The 1982 Decentralization Act should be implemented in full, giving the districts clear authority and capability for their development programs. Government manpower must be reallocated to strengthen district and village planning and administration.

c. The household production system. The rural development strategy needs to be carefully directed to provide multiple income opportunities for rural families in food crops, livestock, fodder, tree crops, off-farm wages, and local industry.

d. Incentives must be improved (in prices, subsidies, markets, transportation, and new local private enterprise) to stimulate the desired rural economic activity. Better incentives should be offered to government officials for work in rural areas.

e. Population. Family planning work, supported by maternal and child health care, must be improved.

2. The Rapti project strategy should be reshaped. It should:

a. Concentrate more resources and professional personnel on developing and carrying out a more household and environmentally-oriented strategy;

b. Establish greater reliance on the district panchayats to plan and carry out local rural works, health and family planning, and education programs;

c. Identify and try out alternative approaches to development.

3. Individual components of the project should be modified according to 14 separate recommendations.

4. Family planning. Additional resources of A.I.D.'s family planning and health projects should be directed to the Rapti Zone.

Evaluation Team: W. Haven North, AID/Washington, and Devendra Raj Panday, Integrated Development Systems, Kathmandu, team co-leaders; Thayer Scudder, Institute for Development Anthropology; Marilyn Silberfein, AID/Washington; and Charles Stockman, Jr., International Science and Technology Institute. Report dated August, 1983.

NEPAL: RESOURCE CONSERVATION AND UTILIZATION PROJECT,  
INTERIM EVALUATION

The Problem: Environmental Degradation in Nepal. Approximately 56 percent of Nepal's population lives in the hill and mountain regions where population density (about 1500 persons per sq. km.) is among the highest for rural areas in the world. With population growth, the size of individual family holdings of arable land has fallen sharply. The population-based pressures to expand crop land, the use of forests for firewood, fodder, and lumber, and the overgrazing of pastureland are causing increasing erosion and other environmental degradation. Unless checked, this degradation will ultimately threaten the productive capacity of that part of Nepal where nearly two-thirds of the population lives.

Project Purpose. The Resource Conservation and Utilization Project (RCUP) has two fundamental purposes--to assist the government of Nepal: (1) in protecting, restoring, and developing the soil, water, and plant resource base upon which the rural hill population is totally dependent; and (2) in building an institutional infrastructure at the national, district, and community levels capable of designing, implementing, and evaluating conservation techniques. The project has two principle components: (1) support for conservation and development activities in two major river catchments--the Kali Ghandaki and the Ghorka region; and (2) support for a multi-faceted education and training program aimed at developing the technical and managerial staff needed for a long-term attack on the problems of environmental degradation.

U.S. Assistance. After a design process extending more than two years, A.I.D. and the government of Nepal signed a grant agreement (367-0132) in August, 1980. Funding for an initial five-year phase was set at \$27.5 million from A.I.D. and \$5.1 million from the government of Nepal. While A.I.D. authorized activities for only five years and for only the two catchment areas, the project paper stated that "ideally the project would be extended after the first five-year phase to include two additional catchment areas for a total fifteen-year period." A.I.D. support is provided through: (1) a technical assistance contract with the U.S. university-based Southeast Consortium for International Development (SECID); and (2) local-currency financing of selected conservation and development activities in the two catchment areas.

Purpose and Methodology of the Evaluation. This evaluation was conducted because of serious concern within A.I.D. over whether the project was really feasible. (Many worried that it might fail because of its complexity--a multi-sector project involving nine different departments and agencies from four separate ministries and operating in two major geographic areas). The purpose of the evaluation, therefore, was to re-examine the basic assumptions underlying the project, to re-assess their validity in light of the project's first two years of implementation, and to make recommendations for the future. The methodology consisted

of review of project documents, analysis of technical and other studies related to conservation and development in Nepal, visits to all three districts making up the two catchment areas, and interviewing both in Kathmandu and the field.

Findings. The project appears feasible, but it is not yet possible to judge whether it, alone or with other activities, will be able to arrest the decline in Nepal's natural environment.

1. It is highly unlikely that the project's objectives will be achieved in five years. On the other hand, the proposed alternative of fifteen years is probably longer than necessary.

2. The integrated approach is suitable--and probably essential. Conservation measures cannot be undertaken in isolation from agricultural practices. Management problems arising from this approach appear soluble.

3. The present organizational arrangements are basically sound. However, (a) the use of "catchment-area advisors" has not worked well, and (b) the SECID advisory team has not yet been adequately integrated into the work of the Nepali central project staff or line agencies responsible for carrying out project activities.

4. Progress in meeting physical targets has been satisfactory, but the targets are no longer appropriate. There were sound reasons in the design phase for adopting physical targets for five-, ten-, and fifteen-year periods, but these targets are not adequately linked to the strategic purposes of the project. Improved recent data also show these targets to be inappropriate.

5. Local participation is not adequate. There has been good progress in coordinating line-agency activities at local levels, but outreach and extension work has been minimal. Much remains to be done to secure village and district-level participation.

6. The training and education components of the project are generally meeting their objectives, although most training has proceeded too separately from other project activities.

7. It is too early to try simplifying this complex project by eliminating marginal activities. At a later point, however, just which of the many project activities are least useful should become apparent, and reducing or eliminating them should improve the project focus.

8. Little has been done to involve women, despite their major roles in agriculture and fuelwood and fodder collection and despite project plans to involve them. Even the SECID team does not include a female member.

9. The present RCUP evaluation and monitoring program consists primarily only of tracking progress in implementation. There is little provision to learn systematically from the experiences being accumulated.

Project Design and Policy Implications. For a complex project such as this is, involving both technological experimentation and institutional development, as well as multi-sector coordination, five years is almost certainly inadequate for achieving project objectives. A more sensible arrangement might be to plan in terms of a ten-year period with a gradual shift of emphasis from the initial geographic area(s) to additional ones (two in this case) during the second five-year period. This would permit the application of lessons learned in the initial five-year period and afford an opportunity to test the replicability of institutional arrangements worked out in the initial geographic areas.

Recommendations. The project should be continued essentially as planned, but with a few adjustments.

1. Review and revise targets in light of experience and improved data now available. Link revised targets to broad project objectives so that there will be a better basis for judging the likely ultimate outcome of the project.

2. Improve evaluation, using the revised targets as a central element. Central RCUP staff should establish a systematic strategy for assessing the effectiveness of interventions using physical, biological, social, and institutional criteria.

3. Reconsider technical assistance arrangements. The composition and size of the SECID advisory team should be re-examined.

4. Integrate training more effectively into other project activities.

5. Greater efforts must be made to develop local participation. The project should work downward through established district-level mechanisms. That is, it should utilize the local representative government structure with its established links downward from the district to the village, rather than involving central staff extensively in working directly with the villages.

6. Develop extension and outreach. Village and district-level workers must be trained to promote activities that build popular understanding and support, and to develop activities designed to reach the farm family, especially women.

7. Increase participation of women at both the local level and in project management. Implement the already-existing plans for involving women.

Evaluation Team: Frederick F. Simmons (team leader), Development Associates, Inc.; Charlotte Miller, USDA; Prachanda Pradhan, Development Research and Communication Group, Kathmandu; and David B. Thorud, Univ. of Washington. Report dated April, 1983.

THAILAND: MAE CHAEM WATERSHED DEVELOPMENT PROJECT,  
INTERIM EVALUATION

Problem and Overview. The Mae Chaem watershed lies in a relatively poor, remote, and underdeveloped area of northern Thailand. It is also a politically sensitive area (subject to Communist insurgency) as well as a major center of opium production. Of its population of about 40,000, some 45 percent are, ethnically, northern Thais, while the majority belong to one of several hill-tribes (predominantly the Karen but also Hmong, Luwa, and Lisu) to whom the idea of being Thai or having allegiance to some higher order than the tribe is still largely incomprehensible; at least half the hill-tribe population lives in remote areas as yet unreached by regular governmental services. Most of the hill-tribes and an increasing portion of the northern Thais use slash-and-burn agriculture to cultivate subsistence and cash crops in the upland regions of the watershed. Largely because of increased population pressure on limited land, many traditional agricultural practices have become quite destructive leading to environmental degradation and inability of most families to meet their subsistence needs through farming. Continued depletion of the watershed's resources further reduces its ability to support the population and is causing flooding in the lowlands. The problem is clearly manifold and complex--as indicated by the fact that it took seven years to finalize plans for the present project.

Project Purpose. The project purpose is stated as sustained growth of agricultural production in a manner that protects and maintains the watershed. Its long-term goal is "increased quality of life of the Mae Chaem watershed population" as indicated by improved housing, nutrition, health, education, and employment. The project strategy (largely one of crop substitution) is to provide commodities, services, and technical assistance that will result in: (a) an increase in the area planted in rice and cash crops without use of slash-and-burn methods; (b) an increase in the number of people growing licit cash crops (i.e., as opposed to opium); and (c) agro-forestry becoming a popular commercial activity.

U.S. Assistance. U.S. support consists of a \$10-million grant (A.I.D. project no. 493-0294), designed to be obligated in three separate five-year overlapping phases during the seven-year life of the project (1980-1987). The U.S. grant constitutes 46 percent of the \$21-million project, the balance coming from the Thai government. The U.S. grant covers part of the costs of equipment and commodities, expatriate technical assistance, government staff support, construction costs, watershed maintenance, credit, and evaluation and research. It covers total costs for a Project Operations Unit, rice banks, construction of a training center, and village-based "interface teams" (project-trained fieldworkers responsible for coordinating actions of the participating Thai line agencies and for facilitating communications between them and the villagers.)

Purpose of the Evaluation. After lengthy start-up delays, the project is now in its third year of implementation. Given the difficulties during phase-I of the project (and confusion within both A.I.D. and the Thai government as to the project's objectives), A.I.D. requested that no phase-II activities be undertaken until an evaluation had been completed. The purpose of this evaluation then is to determine if the project is working well enough to continue with phases II and III and, if so, to identify which project elements need strengthening, which are not useful, and whether to incorporate any new approaches. Three weeks of field work were conducted in Chiang Mai and Mae Chaem in May, 1983 followed by one week of consultations in Bangkok.

### Major Findings

1. General: Implementation has been difficult and disappointing; little implementation has actually taken place and there is not yet evidence of impact.

2. Start-up difficulties. These included: (a) slow compliance by the Thai government in meeting A.I.D.'s conditions precedent; (b) an almost year-long funding freeze by A.I.D. to bring about compliance by the Thai government; (c) an inadequate management structure for coordinating the work of the many line agencies involved; and (d) a slow and cumbersome financial management system.

3. The project purpose (sustained growth of agricultural production) will not be achieved during the time remaining for the project. It now appears, however, that many of the implementation problems that have hindered progress have largely been overcome and that most remaining problems can be resolved by making the changes recommended below.

4. The management structure and field operations strategy that have recently been developed appear promising, although they are still relatively untried. The new strategy has created a positive attitude among field staff. The interface teams are appreciated by both the villagers and line agencies and progress has been made in issuing land-use certificates to hill-tribe people who are farming government property in the watershed area.

5. Local participation. The project's emphasis on local participation is appropriate for increasing the capabilities and improving the conditions of the local population.

Project Design and Policy Implications. The assumptions on which the project design was based were not fully realistic and, consequently, the project design is over-optimistic. The importance of watershed development for protecting and preserving a critical natural resource, and the benefits that may accrue to both the upland as well as downstream populations, argue for continuing the project. Nevertheless, this project, like many remote, multi-

faceted rural development projects, will remain difficult to implement. While the project may have an important positive impact on the people and the watershed, it will take longer to realize benefits than envisaged in the project paper. The project's strategy to secure the participation of villagers is admirable and essential, but will take longer than planned.

### Major Recommendations

1. General: Potential benefits of the project argue for its continuation, but major changes must be made.

2. Change time frame and territory covered. The project should be consolidated into two phases and a reduced geographic area but extended two additional years to compensate for lost time.

3. Adopt a more limited project purpose. The project should focus on achieving changes in the capability, attitudes, and behavior of the local population by the end of the project and on building the momentum that could pave the way for significant production increases in the more distant future. Production increases should not be expected during the life of this project.

4. Give more attention and responsibility to the provincial and sub-provincial levels. Coordination and sustainability of activities undertaken by the line agencies should be improved. This could be done by: (a) channeling both U.S. and Thai funds through the local governor's office for disbursement to line agencies in the field, and (b) better integration of project and line agency operations at the both district and provincial levels.

Evaluation Team: Dr. Alan Roth (team leader), Lynn Hewitt, and Michael Carroll, consultants with Development Alternatives, Inc.; and Dr. Kasem Chunkao, Kasetsart University. Report dated July, 1983.

**REGIONAL: WATERSHED EVALUATIONS:  
PRELIMINARY LESSONS LEARNED IN WATERSHED DEVELOPMENT,  
(SUMMARY OF FINDINGS FROM INDONESIA, NEPAL, AND THAILAND)**

Problem and Overview. A watershed may be defined as the region draining into a river, river system, or body of water. The problem that watershed projects are designed to help solve is low agricultural productivity combined with increasing environmental deterioration. This problem arises when too many people are concentrated on too small a land base. As population pressure increases, cultivation is intensified throughout the watershed, resulting in massive erosion. Accordingly, the general purpose of watershed projects is to increase the productivity of farm households and to reduce environmental deterioration. The types of interventions usually included in watershed projects are:

- dams to reduce downstream flooding and siltation;
- improved terracing on mountain slopes to increase production of food and fodder crops while minimizing erosion;
- use of improved varieties and inputs (e.g., fertilizer and pesticides) to increase productivity;
- planting of improved grasses to stabilize terraces;
- introduction of livestock to use available grass and forage trees; and
- planting of cash crops and fuelwood trees on steep slopes.

During the past year, watershed development projects in Asia have been the subject of three major A.I.D.-sponsored evaluations. The projects evaluated are the A.I.D.-supported Resource Conservation and Utilization Project ("RCUP") in Nepal, the A.I.D.-supported Mae Chaem Watershed Development Project in Thailand, and seven watershed projects in Indonesia implemented by either the Indonesian government or international donors. Among the seven Indonesian projects are two supported by A.I.D.: Citanduy I and Citanduy II.

U.S. Assistance is outlined in the individual summaries of the RCUP Interim Evaluation, the Mae Chaem Interim Evaluation, and the Indonesian 1983 Watershed Assessment contained in this volume.

Purpose and Methodology of This Analysis. This report is a preliminary attempt to summarize the common issues and lessons learned from these three watershed evaluations. Its purpose is to make these findings more readily available to persons concerned with any of the three projects, or with watershed development in general. Information presented here derives solely from data presented in the three evaluation reports. It should be regarded as preliminary (and as hypotheses to be tested) because: (1) two projects (RCUP and Mae Chaem) are just beginning; (2) neither the authors of the reports nor the project managers have reviewed the conclusions presented here; and (3) the "lessons learned" are based on only three reports.

## Major Lessons Learned

1. An interdisciplinary, multi-sectoral approach is essential for reversing environmental deterioration. This is necessary despite the difficulties inherent in this approach.

2. The central need in watershed projects is to develop institutional and management structures that can successfully facilitate technology transfer. Project design has given too much emphasis to technical factors and not enough to social and institutional factors. Three specific management inadequacies were identified by both the Mae Chaem and Citanduy evaluations.

a. Decision-making authority has been overly centralized in both projects. People responsible at lower levels do not have enough authority to make independent decisions about the coordination of agency activities. Decision-making authority should be decentralized to provincial, district, and sub-district levels.

b. Poor design of financial management procedures has led to inefficient project implementation. Both project designs called for procedures that were complex and burdensome.

c. The project manager in the field who is held responsible for effective project implementation must be granted similar budgetary authority. The original designs did not provide for this.

3. Local participation in planning and management is the key to project success. The RCUP and Mae Chaem Project both include explicit strategies to promote local participation, although the strategies are very different. RCUP plans to establish new organizations; the Mae Chaem Project is working through existing village organizations. It is too early to determine which, if either, is more effective.

4. Project designers must ensure that farmers have access to credit, either through the project or elsewhere. Without credit, farmers will not be able to adopt the new technologies introduced by the project.

5. Applied research, as well as systematic monitoring and evaluation, should be an integral part of the project. This was recommended by all three evaluations.

6. Better efforts should be made to include agro-forestry (i.e., fruit trees) and livestock components in technology packages for farmers. These are potentially important income-generating activities for subsistence farmers.

7. The land ownership issues must be fully understood by the project designers. It appears that private ownership of land encourages protection of the watershed.

Summary Prepared by: Maureen Norton, Asia Bureau, Office of Development Planning, Evaluation Division. Report dated Sept., 1983.

**BANGLADESH: RURAL ELECTRIFICATION PROJECT,  
NRECA/CAI ADVISORY TEAM'S FIFTH ANNUAL EVALUATION**

**Overview.** Bangladesh's Rural Electrification Board (REB) was established by Presidential Ordinance in 1977 and began functioning in 1978. Its duties are to initiate, formulate, administer, and supervise projects to distribute electrical energy in rural Bangladesh. It was decided that this should be done by forming member-owned rural electric societies (Palli Bidyut Samities, or "PBSs"). The societies are to be autonomous and locally controlled, but the REB was to serve as their banker, prime contractor, and advisor. Plans have been completed for Rural Electrification Phase-I, Phase-I Extension, and Phase-II. This led A.I.D., Kuwait, Finland, and the World Bank to commit funds for establishing 33 rural electric societies (PBSs) in 117 thanas. Technical assistance is provided through a contract between the REB and NRECA International, Ltd. and Commonwealth Associates Inc. (NRECA/CAI) which began in 1978 and continues to January 1984. A no-cost extension has been requested to July, 1984.

**U.S. Assistance.** A.I.D. funded the development of the first 13 Phase-I rural electric societies, all of which had begun operations as of October, 1982.

**Purpose and Methodology of the Evaluation.** The purpose of this evaluation was to analyze project progress to date (identifying both strengths and areas needing improvement) in order to: (1) help the REB continue orderly development of the program; (2) ensure that the PBSs become well-managed, viable electric utilities; and (3) enable NRECA/CAI to prepare a realistic, comprehensive technical assistance plan as well as a plan for phasing in Bangladeshi professionals to reduce expatriate staff.

**Major Findings--Accomplishments:**

1. The overall Bangladesh Area Coverage Rural Electrification Project is proceeding quite rapidly. Progress to date is impressive, due primarily to strong national commitment at the highest level, capable and dedicated REB leadership, and the involvement and desire of rural Bangladeshis.

2. Impact: The project has been responsible for the major steps forward in rural economic development in Bangladesh. The REB has caused to be established, and sponsored the development of, several indigenous industries. These supply: mercury vapor lights for security and street lighting; motors, electric starters, and transformers; cottage industry and agricultural processing equipment, including potters' wheels; wheat thrashers, rice thrashers, and grain driers; treated wood products; and improved house wiring and service entrance material.

3. 13 rural electric societies--PBSs--had begun operations (become energized and fully operational) by October 1982 under Phase-I of the project. These 13 societies serve 60 percent of

the villages, of 117 thanas, lying within the mileage allocated under the present funding. This is, however, only 30 percent of the total villages within the PBS service area. Work toward the achievement of goals is progressing well. Nine additional societies have been organized and registered under Phase-I Extension and Phase-II. Four of these will probably begin operations by early 1984. The remaining 11 Phase-I Extension and Phase-II societies are presently being organized. Organizational work involves extensive management, administrative and technical training, on-the-job technical assistance, and organizational and departmental planning.

4. Organizational procedures and systems the REB has developed, or is developing, include:

a. An Institutional and Technical Training Institute. The curriculum of 57 courses has been presented to nearly 7,000 REB and PBS officials, board members, employees, engineers, and potential village electricians.

b. A finance management system, including an electric utility uniform system of accounts and a series of accounting and finance instructions with procedure manuals for both the REB and the societies.

c. Engineering and construction standards.

d. A Program Planning Directorate, which is preparing a master plan to determine and monitor program objectives, strategies, and resource allocations.

e. PBS Management Operations, PBS Office Systems, and PBS System Operation Directorates to assist, advise, train, and monitor the development of all the rural electric societies.

f. An REB Material Standards and Specification Manual (in progress).

Major Findings--Problems:

1. There is no adequate overall planning. The master plan has not been finalized. Planning of the distribution system did not take into consideration the total service area requirements. Little systematic construction planning has been done. Inadequate planning results in waste of valuable resources and inefficient management of the project.

2. Project management is not yet very efficient, and often seems confused and lacking direction. The Policy Instruction and Procedures issued by the executive office are not always adhered to or interpreted properly. Often they are circumvented by directives to cope with immediate "emergencies." Staff often provide delayed, inaccurate, or incomplete information to the executive office, which causes decisions to be untimely, inappropriate, or contradictory.

3. Personnel problems contribute to inefficiency. Among other problems: (a) personnel are not proficient enough in the skills their jobs require; (b) there is frequent rotation of personnel and failure to fill vacant positions; and (c) the organizational structure often causes competition rather than cooperation.

4. Some of the rural electric societies get pressured into providing electricity to users not scheduled for or willing to pay for electrification.

Project Design and Policy Implications. The rural electric societies, PBSs, are to be autonomous and locally controlled--each governed by a board of directors (men and women) who are representative of their local area. This is central to the concept of providing efficient, reliable, rural electric service. However, under the terms of the PBS development loans, the REB must sufficiently guide, monitor, and control the new societies. As the societies become experienced and financially viable, the paternal role of the REB is to diminish accordingly. It is too early to determine how successful this transition will be.

Major Recommendations. The REB should:

1. Revise and finalize its rural electrification master plan, being realistic about resource limitations. It should consider a plan to accelerate and assist the takeover and management of rural distribution facilities by the local societies. (It will take about 12 years and cost about 240 million taka to reach this point with the Phase-I societies.)

2. Revise its Policy Instructions, Procedures, Standards, and Specifications. It should issue concise, clear, policy statements, avoid issuing directives that conflict with its official policies, and avoid sudden changes to correct immediate emergencies without adequately considering the long-term consequences.

3. Immediately develop a comprehensive set of technical standards, specifications, and procedures based on review of its present technical manuals, standards, specifications, and procedures.

4. Get an accurate assessment of the status of all construction activity and immediately develop procedures for planning systems and managing construction.

5. Conduct a study of its organizational structure and reorganize to eliminate the present duplication, conflict, and fragmentation. The present training system should be modified and improved.

6. Appraise and develop the substantial personnel resources available at the rural electric societies.

Evaluation Team: NRECA/CAI Advisory Team (individuals not identified). (No date on report.)

## INDIA: SOCIOECONOMIC IMPACT OF RURAL ELECTRIFICATION IN INDIA, A SPECIAL STUDY

**Problem and Overview.** Rural electrification is often regarded as a basic infrastructural service for social and economic development. Its benefits, however, are hotly debated by development analysts. Advocates of rural electrification claim that it increases agricultural and industrial productivity, reduces rural-urban migration, creates more jobs, and raises the overall quality of life in rural areas by permitting the use of electric household appliances, better domestic lighting, and street lighting. Critics claim that rural electrification is too expensive, that it has no direct impact on agricultural development, that it does not benefit all social classes equitably, and that this unequal incidence could contribute to social tension.

In rural India before the late 1960s, very few communities had electricity. Following severe droughts in the mid-1960s, the Indian government concluded that agricultural growth required tapping India's ground water (by means of electric pumps) and therefore proceeded to invest substantially in rural electrification. By 1980, nearly 43 percent of India's villages were electrified. The government has now set the target of 60 percent of villages being electrified by 1990. This magnitude of investment in rural electrification has resulted in considerable debate.

**Purpose of the Study.** The goal of this study is to provide guidance for future rural electrification policy in India. The strategy has been to examine the justifications and criticisms of rural electrification in India, focusing primarily on the benefit (as opposed to the cost) issues. This subject has already been well researched but, given the complexity of the issues involved, results have been contradictory. This study has sought to identify, comprehensively, the impacts of rural electrification in India at all levels (household, village, and region) and across all sectors (agriculture, industry, services, and social/demographic), as well as to identify preconditions for rural electrification success and answer some of the equity questions.

**Methodology.** This has been a quantitative socioeconomic research study. Its conclusions are based on cross-sectional and longitudinal quantitative analyses of primary data collected in 132 villages in four Indian states--Andhra Pradesh, Maharashtra, Punjab, and West Bengal. Data were collected at both the village and household levels, from research and manufacturing enterprises in the sample villages, and from the State Electricity Board. For 108 of the 132 villages, data were supplemented by a 1966 baseline survey of agricultural innovation.

### **Major Findings and Conclusions**

1. Overall conclusion: Electrification has made a major contribution to rural economic diversification and quality of life and is an important and justifiable input into rural development. In the agricultural sector, it is positively associated with the

two most critical inputs--irrigation and innovation. In the industrial sector, it may have been responsible for a small growth spurt. In the services sector, it also has had positive effects.

2. Impact at the household level. Differences between electrified and non-electrified households are not statistically significant, although electrified households do have slightly lower birth rates, lower death rates (child and adult), and larger numbers of children attending school. Electrified households do have higher incomes and a larger number of assets, and their members spend more time in reading and community participation and are generally more optimistic about their quality of life.

3. Impact at the farm level. Electrified farms are slightly larger and significantly less fragmented. Electrification has significant positive impacts on gross area irrigated and use of innovations, and a more limited positive impact on farm income.

4. Impact at the firm level

a. Non-household manufacture: Electrified manufacturing units are larger and have higher full-time employment, higher labor productivity, lower fuel costs, higher returns on gross fixed assets, and greater product diversity.

b. Household manufacture: Electrification is accompanied by larger numbers of items being processed, greater family employment, longer working hours, significantly higher incomes, marginally higher family labor productivity, and lower seasonality.

5. Impact at the village level

a. In the agricultural sector, electrification has significant positive impacts on gross irrigated area, cropping intensity, cropping pattern, use of innovation, and labor productivity. It does not appear to have a significant direct impact on yield or income from agriculture. The impact on agricultural employment appears mixed. Female employment declines while male employment holds steady; this is accompanied, however, by significant employment shifts to secondary and tertiary sector.

b. In the industrial sector, electrification seems to lead to significant positive impacts on industrial growth, number of industries, size of capital, full-time employment, labor productivity, fuel costs, return on gross fixed assets, and product diversity. Seasonal employment decreases. There is a significant shift to the secondary economic sectors and especially to non-household manufacture.

c. In the services sector, electrification appears to lead to a larger number of village shops per capita and a shift in employment to the tertiary sector. Overall, institutional development is not positively associated with rural development.

d. In the social sectors, electrification has less significant impacts, except on seasonal migration and perceptions of quality of life by village leaders and other literate villagers. Electrification is apparently negatively or not significantly associated with birth rates, death rates, child death rates, progressiveness of village leaders, perception of control over future, and success levels of voluntary sterilization programs.

6. Impact at the regional level: Electrification contributes in a limited, but positive way to creating regional balance. In particular, it might help increase yields in rabi (dry-season crop) villages which, prior to electrification, probably had lower yields than kharif (monsoon-crop) villages.

7. Preconditions for rural electrification success are:

a. In the agricultural sector, low kharif area, high person/land ratio, adequate ground water, and absence of canal irrigation. (Level of use of innovations, literacy, credit, poverty, cropping intensity, institutional development, village size, external contacts of village leaders, and supply regularity do not appear to be strong determinants of success.)

b. In the residential sector, small village population, high person/land ratio, regular electricity supply, and frequent external contact by village leaders. (Credit, literacy, institutional development, and village poverty are apparently not strong determinants.)

8. Temporal response: The electrification connection growth rate--or increase in rate of new electrical connections--does not slacken over a 20-year period. Although the patterns in the three sectors (agricultural, industrial, and residential) differ somewhat, the connection growth rate is generally higher in the second decade than in the first.

### Project Design and Policy Implications

1. There appears to be sufficient justification to continue investment in rural electrification in India.

2. Rural electricity appears maldistributed among villages. A policy shift toward population coverage rather than village coverage may be desirable. Geographically isolated villages apparently receive electrification later than the more accessible villages, even though the latter are not necessarily larger.

3. An extensive (rather than intensive) strategy of rural electrification may be preferable, although evidence is mixed. It may be best to spread certain investments (e.g., transformer capacity) thin and augment them at a later stage if village response is sufficient during the first decade.

4. Rural electrification policy should probably be framed for a 20-year period, as this seems to be the period over which effectiveness and returns of rural electrification must be judged.

5. For planning and evaluating rural electrification projects, the best (generally the most easily measurable) indicators will probably be those factors found to be the major preconditions for high rural electrification growth rates in the agricultural and residential sectors (see finding no. 7 above).

Study Conducted by: B.B. Samanta and A.K. Sundaram, Resources for the Future. Report dated January, 1983.

## INDIA: SOME ASPECTS OF RURAL ELECTRIFICATION IN INDIA, A SPECIAL STUDY

**Problem and Overview.** The cost of providing electrical energy to rural areas is a major part of the recent controversy over rural electrification. If electricity were extremely cheap to produce and distribute, then it would be substituted freely for many other types of energy, including wood for cooking. However, extending electricity to rural areas is very costly because of expensive power losses, long high and low tension lines, and transformers. Efficient distribution of electricity in rural areas may make the difference between projects that actively stimulate development without creating too much financial strain for the utilities and projects that result in minimal development along with losses for the utilities.

India's Sixth Five-Year Plan (1980-1985) provides for a substantial increase in rural electrification (an outlay of 15.76 billion rupees), aimed at developing small-scale irrigation and faster growth of agricultural production. This proposed investment led to the present two-part study.

**General Purpose and Methodology of the Study.** The goal of Resources for the Future's rural electrification research is to clarify some of the complex issues concerning both the costs and benefits of rural electrification. Because of conflicting reports on the amount of subsidies involved in rural electrification, Indian case studies were conducted to determine the nature and extent of the subsidies. The case studies included detailed benefit-cost analyses using the UNIDO methodology.

### Part 1: SOCIAL COST-BENEFIT ANALYSIS OF [CENTRALIZED] RURAL ELECTRIFICATION SCHEMES (PROJECTS)

**Methodology.** Cost-benefit studies were conducted of rural electrification projects in 30 villages of the Punjab, Maharashtra, and Andhra Pradesh. The village, rather than the utility, was used as the unit of analysis in order to examine cross-subsidies within rural electrification schemes and to identify the villages that are relatively expensive or inexpensive, relative to benefits derived, to include in rural electrification projects. Within each state, villages differed as to socioeconomic background, agricultural productivity, population density, number of electrical connections, distance from the central grid, and benefits resulting from the electrification projects. Rates of return were examined and a financial net present value (NPV) and an economic net present value were calculated for each village.

### Conclusions and Policy Implications

1. General: In most villages, rural electrification is not economically or financially viable and must be subsidized by the government.

2. The size of subsidies required depends on several factors:
  - a. village characteristics,
  - b. amount of acreage affected by electrification,
  - c. the type of benefit expected,
  - d. the presence or absence of intensification schemes (to increase the number of connections in the village)
  - e. the extent to which other irrigation (e.g., canal irrigation) exists or is possible,
  - f. the expected response from customers for agricultural connections, and
  - g. regional factors such as climate and the level of economic advancement.

3. Measures can be taken to reduce subsidies. These are:

- a. Investing in electrification first in areas where conditions are most conducive to positive financial and economic net present values. Barring factors other than those considered in this study, this suggests giving priority to advanced rather than backward areas. As a general rule, the greater the area affected, the greater the economic net present value will be.

- b. Investing in drought-prone areas, especially when cheap credit and insurance are available, and postponing investment in areas that already benefit from irrigation.

- c. Investing in areas with intensification schemes where at least 50 household connections are provided, rather than areas without intensification schemes.

- d. Giving priority according to the type of benefit--e.g., higher priority to areas growing cotton.

## Part 2: COST-EFFECTIVENESS OF DECENTRALIZED ENERGY SYSTEMS

Purpose. The purpose of this part of the study was to evaluate the comparative costs of decentralized or nonconventional energy systems as possible alternatives to centralized grid systems. Five types of nonconventional systems were examined: biogas, horizontal-axis windmills, vertical-axis windmills, solar thermal, and photovoltaics.

Methodology. Costs of the nonconventional sources of electricity were based on supplying the proposed requirement for a village as currently met by the Rural Electrification Corporation's conventional system. Costs per kilowatt hours were computed for three villages and compared to the cost of providing electricity through a centralized grid system as computed in Part 1. For each village, a sensitivity analysis was conducted to determine how far each village would have to be from the central grid for decentralized biogas systems and centralized systems to be equal in cost under five different scenarios.

## Findings and Policy Implications

1. Overall conclusion: The most viable decentralized systems are biogas followed by horizontal-axis windmills. Least viable were the vertical-axis windmill, solar thermal, and photovoltaic systems.

2. The horizontal-axis windmill is very cost-effective in the sense that the cost of pumping water with it is considerably less than with any other system. However, unlike other energy devices, it does not generate electricity that can be used for multiple purposes.

3. Biogas. Costs of providing electrical energy are quite comparable to use of a centralized grid. Biogas plants are likely to be cheaper in villages where electrical energy demand and the number of connections is low and where distance from the central grid is great. However, to make a final decision, costs must be computed for each particular village. Unfortunately, it is difficult to develop larger biogas systems for multipurpose usage because of social and cultural factors and because not enough dung is available.

4. Vertical-axis windmills cost more than the central grid option and have the additional disadvantage of requiring a wind velocity of at least 12 km./hr. as well as special building materials.

5. Solar energy costs even more than vertical-axis windmills, and up to 30 times more than the base-case cost of the central grid option. Solar technology, however, is still in the development stage. With further development, costs will probably decrease; only then will solar energy become a viable alternative.

## Recommendations

1. Use of biogas plants should be considered when demand for electrical energy is relatively low.

2. Horizontal-axis windmills should be installed as an intermediate solution in villages: (1) that have the required wind velocity of 6 to 35 km./hr.; (2) where electrification from a centralized grid is expensive; and (3) where the benefit to be repaid through the use of ground water outweighs the windmills' installation and operating costs.

Studies Conducted by: R. Venkatesan, K. Ravi Shankar, Sunil Bassi, and R.K. Pachauri of the Administrative Staff College of India, for Resources for the Future. Report dated July 1983.

**INDONESIA: LUWU AREA AND TRANSMIGRATION DEVELOPMENT PROJECT,  
FINAL EVALUATION, PHASE I**

**Overview.** Project Luwu is an area development project in the Luwu district (kabupaten) of South Sulawesi, a relatively remote, underdeveloped, and less populated outer-island province. The project is related to a much broader effort to promote resettlement ("transmigration") of families from the two densely-populated central islands, Java and Bali, to the less-populated outer islands and to stimulate development in those outer islands. Project Luwu comprises five distinct but related components. The first is the construction of a trunk road. The second is construction of large-scale irrigation systems. The third and fourth components were to establish Farmers Cooperative Centers and Rural Extension Centers. The fifth is the resettlement of 700 transmigration families from Java and Bali. The sixth component is to help develop the planning and managerial skills of the District Planning Board so that it might be able to continue development activities in Luwu after termination of this project. Each project component has been implemented through a different ministry of the Indonesian government (GOI). The project began in 1975 and is scheduled to be completed in December, 1983.

**U.S. Assistance.** The cost of this eight-year project is about \$87.68 million. Of this, the government of Indonesia provides an estimated \$68.98 million. A.I.D. provides \$18.7 million, of which \$16.61 million is a loan (497-T-038) and \$2.09 million a grant (497-0244). A.I.D.'s purpose in supporting the project is to increase the agricultural productivity of the rural poor in this part of Indonesia; institution-building has been a related objective. Technical assistance is provided by Checchi and Co. and Louis Berger under host-country contracts.

**Purpose and Methodology of the Evaluation.** The purpose of the evaluation was to: (1) help the GOI and AID determine the effectiveness of the way in which three key components of the project were implemented and, thereby, (2) to serve as a basis for planning future activities both in Luwu and elsewhere. The evaluation was to focus on process and be followed by a "phase-II" evaluation which would focus on impact and the overall effectiveness of the area development approach. Methodology consisted of six weeks of document review, interviews, field trips, and report preparation. Nearly half the time was spent in Luwu.

**Major Findings**

1. Project Luwu has made significant achievements, in spite of the magnitude and complexity of site-specific challenges. Some component sub-projects have been quite successful, others not.

2. The "area development" concept: Project results suggest that "coordinated," or at least concurrent, implementation of several related projects can have a far greater impact on the development of an area than would the "uncoordinated" introduction of comparable activities over a longer period of time.

3. Inter-ministerial coordination: The coordination envisaged in the project design, however, did not occur. The GOI was not able to establish any adequate mechanism for coordination. The project managers faced great difficulties throughout because of this. The project design set in motion activities that ran on separate but parallel tracks--and, almost surprisingly, appear to have brought about the desired synergistic impact. If so, this was not because of inter-ministerial coordination, but in spite of its absence--and because an approximately correct mix of activities was implemented in geographic and temporal proximity under a single project. It thus appears that the concept of area development may work, even in absence of inter-ministerial coordination, so long as appropriate project design has taken place.

Major findings concerning the project components evaluated:

4. The Farmers Cooperative Centers: This component has been very successful. The Centers have helped the village cooperatives become more effective in providing various services (e.g., agricultural inputs and marketing) to their members. They thus have come to play a vital role in rural development in the project areas. These Centers are a replicable and highly appropriate model for the development of Indonesia's cooperative movement.

5. The Irrigation Systems: This component is in serious trouble. Design principles have been too inflexible. Construction has been unsatisfactory and the problem compounded by inadequate attention to operating and maintaining the systems. Parts of them are already non-functional or likely to become so very soon unless substantial investments are made to correct underlying inadequacies and assure on-going operations and maintenance.

6. The Rural Extension Centers: The accomplishments of these Centers may be greater than has been assumed. They emphasize on-site field training geared to location-specific needs--which seems to be an important innovation in Indonesian extension work. If so, they merit closer examination and may provide valuable lessons applicable elsewhere. Unfortunately, little attention is being paid to their fate after completion of Project Luwu.

7. Development of local government capabilities: Plans seem well-conceived, but it is too early for final judgments. This component is a "late-comer" to the project, having been added only in 1981. Its purpose was to create a District (Kabupaten) Planning Board (Bappeda Tk. II) and then strengthen it, through training and introduction of computer-based input-output analysis models and techniques, so that it can carry out integrated area planning and development after completion of Project Luwu. Both the training and computer programming work are still in process. The key variables to watch will be: the staff's abilities to use the computer model and technologies, and the willingness of other local government users to provide appropriately formatted data.

Project Design and Policy Implications: Sustainability of project achievements. Project Luwu is a good case study of a basic dilem-

ma in large-scale development programs in areas where capacities of the local government are limited. Except for the late-comer "local government capabilities" component, Project Luwu was not designed or implemented in ways that meaningfully involved it in efforts to build local government capabilities. It was created outside the existing government structure, carried out a nationally conceived and directed program, and in many ways constituted an alternative to the local government. If management is vested in a special "project office" outside the local government, as with Project Luwu, implementation will probably proceed more smoothly than if it were folded into existing systems. The project will probably be less able, however, to contribute to developing local capacities for sustained growth after project completion. Planners of future area development programs should consider arrangements that explicitly provide--either from the outset or on a phased basis--for significant local government involvement. This may complicate implementation initially, but it offers perhaps the most rational means of assuring the sustainability of project benefits over the long term. The choice needs to be made at the project design stage.

It is uncertain if the Luwu local government will take responsibility for sustaining what Project Luwu initiated.

#### Major Recommendations

1. The Farmers Cooperative Centers. Support should be provided, after Project Luwu, to continue developing these Centers. However: (a) legal status should be granted to the Centers at the kabupaten level; (b) the current policy of restricting each kabupaten to only one Center should be made flexible; and (c) care must be taken so that the rural elite do not capture a disproportionate share of the economic benefits.

2. The Irrigation Systems: (a) the current plans to continue constructing new systems at the rate of 2,500-4,000 hectares of additional land should be cut back; and (b) discussions should be conducted to help policy-makers develop greater understanding of proper system design, operation, and maintenance, as well as procedures for transferring responsibility from those who construct the systems to those who must operate and maintain them.

3. The Rural Extension Centers. Seriously consider providing an institutional base for these user-oriented Centers after completion of Project Luwu.

4. Development of local government capabilities. Provide additional time and support to this experiment. Then evaluate after March, 1984 to assess its applicability and replicability.

Evaluation Team: Dr. Russell Betts (team leader) and Dr. Donald Taylor, Development Associates, Inc.; and Dr. Chew Siew Tuan and Dr. Fred Hubbard, Ronco Consulting Corporation. Report dated September, 1983.

INDIA: TECHNOLOGIES FOR THE RURAL POOR,  
INTERNAL PROGRESS REVIEW

Project Purpose. Technologies for the Rural Poor was designed to finance dollar costs of sub-projects to support the application of science and technology for rural development. The primary focus was to be on non-conventional energy projects with a small amount of grant funds allocated to activities in agriculture and health plus scientific exchange visits.

U.S. Assistance. U.S. funding consists of a \$2.0-million grant, out of a project total of \$2.7 million. The project agreement was signed in August, 1978 with an original Project Assistance Completion Date (PACD) of September, 1981. The PACD was subsequently extended to December, 1984, since the average length of the sub-projects funded is three years.

Purpose of the Review. The purpose of this review has been to assess progress during the period April 1982 to June 1983.

Major Findings

1. Seven sub-projects, to total \$1.94 million, have been initiated. Of these, one has been completed, five are progressing satisfactorily, and one is having difficulty. Of the \$2-million U.S. grant, \$1.3 million has been spent as of June, 1983.

2. Long delays occurred in the submission of sub-projects that met the technical, economic, and social criteria of the project. The major problems were: (a) insufficiently specific guidance and criteria for the approval of sub-projects; (b) inadequate staff attention both by the government of India (GOI) and by USAID/New Delhi; and (c) delays in the GOI approval process. Subsequently, with more attention from and better communication between the GOI's Department of Science and Technology and USAID officials, the guidelines were revised and progress was made.

3. The status and problems of the seven sub-projects are as follows:

(1) The completed sub-project: Identification and Development of Energy-Related Projects.

Collaborating institution: National Academy of Sciences. Amount: \$101,738. Objective: to identify and develop the collaborative research sub-projects (primarily but not limited to energy from biomass) to be funded under Technologies for the Rural Poor.

(2) The sub-project having difficulties: Field Evaluation of Serological Tests of Malaria.

Collaborating institutions: National Institute of Communicable Diseases (NICD), Delhi, and the Centers for Disease Control (CDC), Atlanta. Amount: \$51,000. Objective: to conduct field

research, in the form of sero-epidemiological studies, in support of India's ongoing malaria control program (more specifically, to introduce, improve, and evaluate antigen production and sero-epidemiologic techniques for use in surveillance and assessment of malaria in India).

Problems:

- (a) NICD is insisting on training for its scientists at CDC which CDC is not able or willing to provide; and
- (b) NICD and CDC cannot agree on the timing of a proposed training workshop to be held at NICD.

Sub-projects making satisfactory progress:

(3) Development and Application of Decentralized Energy Systems Utilizing Non-Conventional Energy Sources.

Collaborating institutions: Bharat Heavy Electricals, Ltd., Hyderabad; Central Electronics Ltd., Uttar Pradesh; and Jet Propulsion Laboratories, Pasadena, California. Amount: \$713,000. Objective: to design, develop, install, and test solar energy systems for the efficient utilization of solar energy in Indian villages (using two sub-systems: solar photovoltaic and solar thermal generation).

Problems:

- (a) Because of a serious drop in the local water table, less groundwater is available for irrigation than initially thought. Much of the power to be generated by the solar plant was to be used for irrigation pumps. There may thus be a surplus energy capacity based on the current design. What practical use can be made of this surplus capacity?
- (b) Sustainability of the solar facility after project funding terminates has not been established. Plans have not been made for meeting recurrent costs; to what extent villagers will be willing and able to contribute to operation and maintenance is uncertain.

(4) Optimization of Solar Drying Systems for Agricultural Produce.

Collaborating institutions: Annamalai University and Colorado State University. Amount: \$200,000. Objective: to design and develop solar dryers for small farmers in India and for their possible application in the U.S. Problems: none.

(5) Medium Temperature, High Efficiency Tracking and Non-Tracking Solar Energy Collectors for Rural and Industrial Application.

Collaborating institutions: Indian Institute of Science, Bangalore, and University of Houston. Amount: \$400,000. Objective: to design, test, demonstrate, and commercialize solar parabolic concentrators suitable for production of hot water and process steam for small-scale agro industries. Problems: none.

(6) Development of Micro and Low-Head Hybrid Hydroelectric Systems.

Collaborating institutions: Water Resources Development Training

Center, University of Roorkee, and Colorado State University. Amount: \$150,000. Objective: to develop an economically viable and technically feasible system for energy production, storage, delivery, and appliance in integration with low-head micro-hydro system for meeting overall energy requirements of a village. Problems: none.

(7) Comprehensive Studies on Prevention of Nutritional Blindness.

Collaborating institutions: National Institute of Nutrition, Hyderabad, and National Eye Institute, USA. Amount: \$313,560. Objective: to conduct a series of studies to help determine the adequacy of Vitamin A distribution in correcting Vitamin A deficiency and preventing nutritional blindness and also risk factors that may interfere with the effectiveness of India's Vitamin A distribution program in preventing blindness, a major public health problem in India. Problems: none.

Project Design and Policy Implications. By A.I.D. standards, this is a small project. It is nevertheless somewhat complex, consisting of seven sub-projects involving 14 separate institutions, in addition to the Indian government and A.I.D.. What difficulties have arisen may be due to project management regarding this as a "small [and simple] project," and thus relegating it to rather low priority. Still, the fact that only one of the seven sub-projects is having major difficulties might mean that Technologies for the Rural Poor could be regarded as rather successful overall.

Major Recommendations

1. The sub-project Field Evaluation of Serological Tests of Malaria. Follow up with the National Institute of Communicable Disease and the Centers for Disease Control to determine whether or not to continue with this sub-project.

2. The sub-project Development and Application of Decentralized Energy Systems Utilizing Non-Conventional Energy Sources. Take up two issues with the Indian government: (a) operation and maintenance of the facility after project support ends; and (b) villagers' participation in the project after present support ends.

Review Conducted by: R.K. Berry and Frank J. Young, USAID/New Delhi. Project Evaluation Summary dated August, 1983.

## THAILAND: DDMP, FIRST ANNUAL ASSESSMENT

Problem and Overview. Not stated in report.

Project Purpose. The purpose of the DDMP (full name not provided in report) is stated as "to set in motion a long-term learning process that will constitute a force to support capacity-building for self-sustained development."

U.S. Assistance Consists of a loan and a grant (details not specified).

Purpose and Methodology of the Assessment. This was a joint Thai-USAID review, required by the loan agreement, to assess overall project performance during the project's first year. Methodology consisted of review of field trip reports and semi-structured interviews carried out by the technical assistance team in the ten project districts (but focusing on key project implementors and beneficiaries in five of those districts).

### Major Findings

1. The major problems stem from the fact that local implementation plans were made prematurely and sub-projects selected hastily, before technical assistance personnel could give the process the guidance needed. Tambol plans were developed and tambol projects selected immediately after the loan and grant agreements were signed but before technical assistance began. Implementation using loan funds was also begun before contract technical assistance personnel were deployed and before the new system of technical support from district-based Accelerated Rural Development technicians was introduced.

2. Too much focus on local (tambol) construction projects, rather than capacity-building as project output. 322 sub-projects have been undertaken thus far (for \$1.1 million of FY 82 loan funds). The majority of sub-projects are water tanks (127), shallow wells (75), and road improvement (43). Successful tambol construction is not the primary objective of DDMP, but it will absorb the largest share of project funds and is generally the primary concern of local beneficiary groups. Local officials and beneficiaries in the ten-district "learning laboratory" apply pressure to build such local projects, but do not understand that they are supposed to be striving for institutional development.

3. Most tambol projects are known, unfortunately, as "USAID projects". Because of delays in implementation and confusion in the field regarding disbursement, A.I.D. loan funds were not commingled with the regular REGP (full name not specified) allocation but instead were separately disbursed to the district level and explicitly identified as "USAID funds."

4. Delays in loan fund disbursement have caused difficulties, particularly additional work for officials at all levels and

delays in payments to villagers who had already completed construction tasks.

5. Just who selects the tambol projects is not clear. Evidence is inconclusive as it suggests three contradictory possibilities --decisions made: (a) by tambol council members and local villagers with little input from community development workers or other officials; or (b) by tambol councils exclusively with little input from either villagers or officials; or (c) chiefly by community development officials.

6. Construction quality has often been poor and may cause serious maintenance problems. This has been somewhat typical of other REGP projects which tend to have a high unskilled labor content and have generally not benefitted from qualified technical design or supervision.

7. Project implementation roles and responsibilities have not been adequately worked out. USAID staff have played too dominant a role. This is because: (a) the REGP secretariat has a very small professional staff; (b) the technical assistance teams were only recently mobilized; and (c) the REGP has not yet been able to formalize long-term collaborative agreements with resource institutes. The technicians from the Office of Accelerated Rural Development appear qualified, motivated, and well-recieved, but they are not being used as creatively as is possible. Each institutional "actor" must develop new capabilities to participate in the learning process represented by this project.

Project Design and Policy Implications: Capacity-building vs. local construction works as project output. In implementation, this project appears to have put the cart before the horse. It was designed with "capacity building" as its goal and construction of local civic works as only the means for achieving the larger goal. However, it appears that project managers overlooked the need to explain this clearly to others involved with the project. The key issue is now how to keep the focus on the project's institutional development purpose when local officials and beneficiaries are applying pressure to build local projects. If project personnel succumb to the relatively easier path of focusing on tambol construction projects, DDMP may simply become a small area development project with limited applicability and negligible impact on rural development in Thailand.

### Major Recommendations

1. The REGP, associated government departments, the technical assistance team, and USAID/Bangkok should immediately try to deepen their mutual understanding of the project purpose and refine the strategy for achieving it.

2. A national-level project working group should be mobilized to review and monitor project progress and make recommendations.

3. Resource institutions should be selected and used to provide long-term support for building the capacity for self-sustaining local development.

4. Technical assistance outputs should be clarified and the strategy refined for the technical assistance team to operate as the short-term stimulus of the learning process.

5. USAID loan funds should be co-mingled with regular REGP funds. Decisions on the adequacy of funding levels should be based on the REGP attaining allocations for FY 83 equivalent to or greater than those of FY 82.

6. The technical assistance field personnel should carefully document participation patterns in council meetings to determine who is making selection decisions. This should be used as a basis for recommending change as needed. Site selection techniques and local construction methods should also be improved and plans made for long-term maintenance.

Assessment Conducted by: Personnel from the REGP Secretariat and USAID/Bangkok (names not provided). Report dated November, 1982.

## INDIA: MALARIA CONTROL, FINAL EVALUATION

Problem and Overview. Most of India lies in the world's malaria belt where climatic conditions make it a natural incubator for this disease which has hindered social and economic development for centuries. In 1976-77, a severe epidemic resulted, according to some estimates, in more than 15 to 20 million cases of malaria. Reasons for this included inadequate budgets, lack of management attention, and thus a slow response to the mounting problem.

U.S. Assistance. The government of India (GOI), increasing its efforts to combat the malaria epidemic, asked A.I.D. for support and, in 1978, a Malaria Control Loan Agreement (project 386-0455) was signed. The purpose of the loan was to assist India's National Malaria Eradication Programme (NMEP) in "bringing malaria under control," defined by the GOI as an incidence of two cases per 1000 population, or 1.4 million cases for the country as a whole, by the end of the project (December, 1982). The stated goal of the project was "to reduce morbidity and mortality from endemic diseases through the establishment of a responsive, effective, and efficient nationwide health service." The U.S. loan totaled \$38 million out of a total project cost of \$279.5 million.

Specifically, A.I.D. was to provide financing for external-source commodities (Malathion and DDT and equipment such as foggers and microscopes) to be used in NMEP malaria control activities. The loan was to be the first in a series of loans to cover insecticide shortfalls in India's malaria control commodity requirements from 1978 to 1983. (It was expected that, by 1983, the GOI itself would be able to produce enough insecticide to meet its malaria control needs.) U.S.-supplied insecticides reached India for use in the spraying operations of 1980, 1981, and 1982. U.S.-supplied Malathion was used in two states of India--Maharashtra and Gujarat--while U.S.-supplied DDT was used in eleven states.

Purpose of the Evaluation. The evaluation was a two-week internal review, the third and final Project Evaluation Summary prepared on the project by USAID/India. Its purpose was to evaluate the end-of-project status in accord with objectives specified in the Project Paper. Conclusions were based on analysis of the following sources: NMEP operations reports and documentation from the 1980, 1981, and 1982 annual NMEP evaluations (an A.I.D. representative participated in final debriefings by the NMEP evaluation teams); other GOI documents and discussions with Indian state and district officers; reports of 20 field trips by the USAID/India malaria consultant to monitor and evaluate the use of A.I.D.-supplied materials; reports from monitoring and evaluation field trips by A.I.D.'s regional malaria officer in Colombo and AID/Washington Office of Health personnel; and discussions with senior WHO officers and review of WHO documentation.

## Major Findings

1. Impact: The goal of reducing malaria in India to 1.4 million reported cases per year has not yet been achieved, but malaria death and morbidity rates have been considerably reduced during the period assisted by the project. Available figures showed 1.7 million reported cases of malaria in 1982 as compared to 3.1 million in 1979. This is progress toward which the A.I.D. loan made an important contribution. Rural people were the primary beneficiaries.

2. Progress in the states using A.I.D.-supplied commodities was mixed. In Maharashtra, the incidence of malaria declined substantially (a 61-percent decrease from 204,996 reported cases in 1979 to less than 80,000 in late 1982). In Gujarat, however, there was only marginal improvement (a 22-percent decrease from 1979 to 1982). There were minor to marked improvements in the eleven states where U.S.-supplied DDT was used (decreases in malaria case rates ranging from 3.2 percent in Andhra Pradesh to 38.7 percent in Himachal Pradesh).

3. The project contributed to several beneficial changes in procedures and attitudes related to malaria control. Many suggestions made by the full-time public health physician A.I.D. provided to the project became part of the standard operational procedures of several Indian states. Beneficial outcomes included:

- a. Changes in NMEP thinking that resulted in a system of health safeguards and supervision mechanisms in the mass application of insecticides;
- b. Progress in developing alternative strategies of malaria control (e.g., use of larvicides);
- c. Increased Indian awareness of environmental factors; and
- d. The addition of spray machines for malaria control in many urban areas.

4. The expectation that the GOI would be able to produce enough insecticide by 1983 to meet its malaria control needs proved partially correct. Adequate production of Malathion was achieved earlier than expected, but DDT production remained insufficient.

Project Design and Policy Implications. A major reason for the slowed progress in bringing malaria under control was the 1979 decision by India's National Development Council to reduce central government support for certain health programs, including malaria control, from 100 percent central financing to a 50-50 split between the central and state governments. Many states could not support the spraying needed in their high-incidence areas. This was a major reason for Gujarat's slow progress.

Specific "lessons learned" included the following.

1. A.I.D. personnel need to recognize more clearly that A.I.D.'s financial inputs are only a small percentage of what the GOI has spent on malaria control during recent years (program costs now run \$120 million per year).

2. Projects in India need longer and more flexible lead-times.

3. A.I.D. benefitted considerably by having an established institution with which to collaborate.

4. It is essential to devote greater efforts early on to systems management and commodity control.

5. Additional technical assistance for reviewing epidemiological impacts and technical aspects of the project would have increased its impact.

**Recommendations.** It is recommended that residual project funds (\$277.25) be de-obligated and that there be follow-up on end-use of remaining commodities and a U.S. claim (\$5237) for shortages.

**Project Evaluation Summary Prepared by:** Mr. Larry Cowper, Health Science Administrator, Office of Health, AID/Washington; Dr. P. Diesh, Malaria Consultant, USAID/India; Dr. Roger Beasley, Chief for Health, Population and Nutrition, USAID/India; and Mr. John Westley, Program Officer, USAID/India. Report dated February 2, 1983.

**INDONESIA: HEALTH TRAINING, RESEARCH AND DEVELOPMENT PROJECT,  
MID-PROJECT EVALUATION**

**Problem and Overview.** With independence in 1945, Indonesia inherited a set of health conditions among the worst in Asia. Health services have since been extended primarily through the construction and staffing of rural health centers and by programs to combat the major epidemic diseases. However, as health conditions improved it became clear that further progress depended, to a great extent, on the ability to manage the health services and upon the capability to produce the personnel needed to staff them.

**U.S. Assistance.** For almost 20 years the U.S. government has assisted Indonesia's efforts for better health. In September, 1978, recognizing the above need, A.I.D. and the Indonesian government signed an agreement for the Health Training, Research and Development Project (497-0273). The project provides \$4.5 million in grant funds and is scheduled to end in September, 1984. Its goal is to improve the Ministry of Health's planning abilities at both central and provincial levels and to help extend primary health care, especially through improved services to mothers and children. The project's specific purposes are: (1) to improve health manpower development, management and information gathering for planning purposes; (2) to encourage the conduct of research into problems impeding health care delivery; and (3) to assist the improvement and expansion of health education for the people. While these objectives remain unchanged, the project has undergone modification. It now consists of three sub-projects: Health Planning, Health Research and Development, and Health Education. A.I.D.'s contributions to the first two sub-projects have been in the form of long- and short-term technical consultants at both the central level and in three "pathfinder" provinces.

**Purpose and Methodology of the Evaluation.** The purpose of the evaluation was to review the technical and institution-building progress of two of the three subprojects (Health Planning and Health Research and Development) in order to: (1) provide the Indonesian government, USAID/Jakarta, and their technical consultants with recommendations for improving project implementation; and (2) advise USAID/Jakarta regarding the need and desirability for the project's continuation, modification, and possible extension--possibly accompanied by additional funding and technical assistance. It was a three-week evaluation based on analysis of project and related documentation and interviews with Ministry of Health officials, USAID/Jakarta staff, and project consultants.

**Findings.** The project was necessary and well-conceived, although modifications have been made (to focus more on the manpower aspect of training systems development and on "client-oriented" research). Provincial and local-level activities are receiving appropriate emphasis. The Health Planning subproject has made progress but all parts of it have experienced delays, in some cases of up to one year. These are attributable to the Ministry of Health having given higher priority to other activities (nota-

bly the Long-Range Development Plan and Fourth Five-Year Plan), to staff shortages, changes and reorganization, and restricted information flow, especially between central and provincial units. Well-constructed useful job descriptions are key to the success of this subproject and delay in producing them has been a major impediment. Nevertheless, excellent working relationships have now been established and the way appears clear for progress to be resumed. Other parts of the subproject are proceeding satisfactorily. The Research and Development subproject, however, has attained little success; few activities have begun and most objectives are not being met. This is because the A.I.D. contractor has been unable to find a long-term consultant with the expertise, prestige, and institutional backing necessary to ensure his credibility.

Project Design and Policy Implications. The project design was basically sound. However, a major portion (the Research and Development subproject) has failed to get off the ground because the contract for implementation was awarded to a small-business minority firm that lacked relevant experience and could not recruit the personnel needed. It would have been wiser to limit competition for the contract to groups with demonstrated experience and success in institutional development of health research capabilities in developing countries.

#### Major Recommendations.

1. General: The project should continue with expansion and redirection but changes should be made: (a) in recruiting long- and short-term consultants, and (b) any extension of the project should focus on improving services at the sub-provincial (kabupaten) level.

2. The Health Planning subproject should continue basically as presently constituted but should add consultants at the provincial level and provide management training for up to 40 institute personnel. Expansion to eight new provinces is recommended.

3. The Research and Development subproject should be redesigned. A long-term consultant must be recruited and linkages should be developed with other national and international research institutions using the "paired investigator" concept.

4. A.I.D. should consider supporting alternative health-sector activities, including: (a) extending integrated health activities to the kabupaten level (strengthening planning, management, manpower and research together with categorical programs to reduce infant and early childhood mortality); (b) assisting other administrative and executive units basic to health care at the central, provincial, and kabupaten levels; and (3) activities to eliminate critical nutritional deficiencies.

Evaluation Team: Abraham Horwitz, MD, MPH, consultant; E. Croft Long, MB, PhD, Project HOPE; and Karl Western, MD, DTPH, U.S. National Institutes of Health. Report dated March 15, 1983.

## NEPAL: THE JUMLA HEALTH PROJECT, END-OF-PROJECT EVALUATION

Problem and Overview. Health conditions in Nepal are very poor and improvement is extremely difficult because of the formidable mountain terrain, the very poor infrastructure, poverty and lack of resources, and the low level of literacy. The government of Nepal has adopted a long-term (1975-1990) health plan and a current five-year plan which specify that Nepal's main health objective is to provide minimal health care to the maximum number of people on an equitable regional basis.

Project Purpose. The purpose of the project was to establish a primary health care system in the Jumla district of the Karnali zone in remote Western Nepal. The strategy was to focus on preventive care using volunteer village health workers (called Community Health Leaders) supported by community health committees. Community participation was also to be a key element.

U.S. Assistance. The project was funded by an Operational Program Grant from USAID/Kathmandu to the International Human Assistance Program. It was implemented in coordination with the Nepal Red Cross Society. Project duration was to be three years (1979-1982); a one-year extension proved necessary.

Purpose and Methodology of the Evaluation. The purpose of the evaluation was to analyze the achievements and impact of the project and to make recommendations on the need for further inputs. Methodology consisted of: (1) questionnaire-based formal interviews with a sample of Community Health Leaders, community health committee chairmen, and villagers in 12 of the 30 project panchayats (communities); (2) informal guideline-based interviews with government officials and other project-related personnel in Jumla and Kathmandu; (3) tests to assess the Community Health Leaders' knowledge about basic health care; and (4) observation.

### Major Findings

1. The project has had a beneficial impact and achieved much, but it has not established the system that was its objective.

2. There is clear evidence of impact. This includes completed construction and demonstration projects (training center, health post, kitchen gardens, water supply systems, latrines, bazaar drainage, and compost pits) and changes in attitudes and levels of knowledge of villagers and Community Health Leaders. (It is not possible to measure the impact these changes may have had in actually improving health status.)

3. Training for community participants was of mixed success. It was especially effective for the Community Health Leaders (including traditional birth attendants). Content and methodology (three phases with interim practice) were simple and appropriate; trainers were local health personnel who spoke the same language as the trainees. Training for community health committees failed.

4. Community Health Leaders are considered the major catalysts for change. They have raised local awareness of health problems and preventive measures and most villagers respect their advice. Thirty-two percent are women.

5. Training of female Community Health Leaders was poorly handled. Project guidelines called for equal numbers of male and female Community Health Leaders. Nearly 300 of the women selected for training were given only the first 6 or 12 days of the 24-day training course. They are waiting to finish their training but no more training will be given; neither this fact nor the misunderstandings behind it have been explained to them.

6. Traditional birth attendants (sudenis) are extremely effective as Community Health Leaders. Almost all of these women who have been trained as Community Health Workers have returned to their villagers as effective providers of health care and advice. Their combination of culturally acceptable care with modern know-how is regarded as outstandingly successful.

7. The community health committees are a failure. They never functioned at all and some of the designated chairmen of these committees were not even aware they had been given this responsibility. This is unfortunate because these committees were to be a vital element in the project, helping support the Community Health Leaders after the project was completed as well as providing infrastructure for future health care projects in Jumla.

8. Too little action took place during the first three years. A baseline health survey and "community dialogues" (explaining the project goals) were carried out but, from the villagers' perspective, nothing seemed to be happening. This was a major weakness. The protracted dialogues became somewhat counter-productive and should have been accompanied by more demonstration activities to reinforce the rapport the dialogues were developing. The extension year brought a flurry of construction projects. These were popular and resulted in much local participation, but should have been initiated earlier. Administrative and personnel delays also contributed to the project's very slow start.

9. Local participation has been fairly successful. Villagers participated in construction and similar practical implementation activities, although not in planning or decision making. Improved sanitation and other health facilities for participating villagers were among the most important factors encouraging local participation. So were incentive payments given for latrine construction in a few communities. Misunderstandings occurred over these incentive payments, however (another result of inadequate planning at the outset).

10. No provisions have been made for on-going maintenance. The flurry of construction projects in the last year of the project was a consequence of the lack of careful, long-term planning. Compounding this is the problem of on-going maintenance, which was not provided for (but with which the community health commit

tees might have assisted). If no one takes responsibility for maintenance, all the project's physical achievements may be lost.

11. Project objectives were too broadly stated. Neither the grant proposal nor any other document contained any clear schedule for achieving objectives. This created many problems for the project staff. A much more detailed grant proposal, or subsequent plan of operations, would have helped greatly.

Project Design and Policy Implications. Sustainability: Failure to establish a system. There was virtually no long-term planning. Nowhere was there a clear blueprint for establishing the health system that was the project's goal. Successes occurred in response to local needs as Community Health Leaders became trained and activities began. But there is no plan for interaction with other health care agencies that could result in continuing cooperation. Community Health Committees should have provided the much needed role of formal leadership linking the project with other existing services. As it is, no "system" exists linking services. There is no body responsible for sustaining the successes that have been achieved.

#### Major Recommendations

1. Continued inputs are needed. There is no doubt that this project fulfills a real need. Local people as well as Jumla and Kathmandu officials would like it continued. With more detailed planning, it should be possible to build on and sustain achievements as well as extend the project out to more remote areas.

2. A detailed plan of operations should be developed based on lessons learned to date. Advance planning can also help smooth out the inevitable political disputes that make motivation of voluntary labor so difficult.

3. Grass-root level committees must be created. A Ward Health Committee might be most effective since it could include representatives of all rival political groups. It should be comprised of all formal panchayat ward members, Community Health Leaders, women representatives, and representatives of various castes and ethnic minorities. A workshop should be held to orient members to the project and their roles in it.

4. A district body (above the village level) should be organized with a district coordination committee to help establish an infrastructure for a coordinated health system.

Evaluation Team: Two staff members from New ERA, Kathmandu (assisted by four local interviewers in Jumla). Report dated August, 1983.

NEPAL: KHAGENDRA NEW LIFE CENTER (IHAP/NDBA PROJECT),  
TECHNICAL EVALUATION

Problem and Overview. The Nepal Disabled and Blind Association (NDBA) was formed in 1968. Its broad goal is to rehabilitate--economically and socially--the disabled and blind citizens of Nepal and to create an awareness among the population concerning prevention of physical disability. In 1970, the NDBA inaugurated the Khagendra New Life Center, in Kathmandu, with funds raised in Nepal. It was chiefly a residential, custodial care unit for the disabled, and activities were limited to vocational training plus some general education and medical rehabilitation.

Project Purpose. The purpose of this project is to help the NDBA achieve its long-term objective of providing comprehensive rehabilitation. This was to be done by building up the Khagendra New Life Center by: (1) improving the administration of the Center; (2) improving its vocational training; (3) improving general education activities; (4) establishing general health care services; and (5) establishing a social rehabilitation program.

U.S. Assistance. A.I.D. provides assistance through an operational program grant to International Human Assistance Programs, Inc. (IHAP). IHAP supplies technical assistance and support for improving the physical facilities, equipment, and materials. The project began in August, 1980 and continues until August, 1983, the first three years of the NDBA's five-year plan.

Purpose and Methodology of the Evaluation. The purposes of this evaluation were: (1) to assess the project's accomplishments and effectiveness; and (2) to provide recommendations to NDBA, IHAP, and USAID/Kathmandu concerning on-going and possible future activities. Methodology consisted of six weeks of document review, observation at the project site, open-ended interviews with implementing agency personnel and with clients and former students of the Center, and report preparation and review.

Major Findings. The project has helped the Khagendra New Life Center develop from just a custodial care unit to one where real rehabilitation is well on the way to becoming a reality. The Center is currently used by 74 male and 48 female residents (referred to as "students"). The most successful parts of the project have been the general education program, establishment of general health services, social rehabilitation, and development of physical facilities. Weakest parts have been vocational training (the intended priority of the Center) and administration of the Center. Findings concerning the main components of the project are as follows.

1. Administrative capability upgrading. Very little progress has been made. Primary reasons are lack of priority attention from NDBA and communications problems between IHAP/Nepal and the NDBA. As a result, the major task of developing a comprehensive administrative system has yet to be undertaken.

2. Vocational training has been improved through additional staff, equipment, and training facility space, but a sound training program does not yet exist. Problems include: (a) a lack of policy planning as to which types of training would be most effective and popular; (b) training is inconsistent and of questionable quality; (b) poor student motivation; and (c) lack of careful monitoring and follow-up of students' training.

3. General education. The Center now has a good general education program. The project has done much (and on schedule) to improve it--particularly in adding equipment, expanding the staff, standardizing curricula and testing procedures, and instituting a planning ethos. However, policy needs to be set concerning the relationship of general education to vocational training.

4. General health care services have been successfully established and the Center now has an infirmary providing 24-hour care. Weaknesses are in preventive measures and psychological counseling for disturbed residents.

5. Social rehabilitation. The project has made good progress in establishing a social rehabilitation unit. Its primary function is to set individual student targets and monitor each student's progress toward total rehabilitation. Certain policy changes and better overall Center administration are now needed for this unit to develop further.

6. Medical rehabilitation has been upgraded (with the addition of a prosthetic/orthotic brace production unit, a complete physiotherapy unit, and training for key personnel). The overall quality of the medical rehabilitation unit is high, but serious problems exist, including: (a) underutilization; and (b) a low level of production of prosthetic/orthotic devices;

7. Physical facility development has been successfully completed. The main problems now are: (a) poor utilization; (b) lack of plans for proper maintenance; and (c) sub-standard sanitation and hygiene.

8. IHAP's technical advisory input was, for the most part, very effective during the first two years of the project. Personality issues and recent actions by IHAP/New York have now caused serious strains, however, in the working relationships in Nepal.

Project Design and Policy Implications. The objectives of this project seem laudable and sound. But it appears that those who planned and manage the project grossly underestimated the changes, and thus the work and time, required to convert the established facility into one of much broader function (i.e., from only custodial care of residents to an educational institution able to provide total rehabilitation). Consequent failure to give the required management attention to the Center appears to have resulted in less than cost-effective use of the resources put into it.

## Major Recommendations

1. A "decentralized package of services" will be required for the NDBA to provide cost-effective rehabilitation to the disabled population of Nepal. There is no other alternative for approaching either technical or financial self-reliance, or for reaching the maximum numbers of disabled persons throughout Nepal.

2. Expansion, or establishment of satellite centers, should be attempted, however, only when existing facilities and services are "regularized" and better administered. Some of the most urgent steps to be taken within the present project to bring about this "regularization" include the following.

a. Improve administration. The Center should have an organizational structure separate from the NDBA, and the NDBA should be involved only at the level of policy, resource mobilization, and monitoring and evaluation. The Center must have stricter administrative policies and procedures.

b. Utilization: the improved facilities must be better utilized, especially for vocational rehabilitation. Increase the discharge of rehabilitated "students" and transfer some residents to other facilities to reduce the dormitory over-crowding.

c. Vocational training: The NDBA must reassess the entire vocational training program and establish priorities to improve it. Among other measures, it should: (i) conduct a detailed labor analysis to determine the demand for services and job placement of trained disabled "graduates"; (ii) set strict standards for student attendance and productive output; and (iii) determine demand in the community for goods produced at the Center and develop an external capacity for retailing these goods.

d. General education. The Center should obtain official accreditation from the government and it should improve its library's holdings and utilization. The role of general education in the Center's overall vocational rehabilitation package needs to be established.

e. General health care services should emphasize preventive measures. Sanitation must be improved immediately.

f. Physical facilities. A good maintenance system must be established promptly.

3. The IHAP input needs to be further evaluated to determine precisely what its impact has been. It appears that IHAP could make a continuing qualitative input.

Evaluation Team: Robert Cardinali (evaluation coordinator), Prachandra P. Pradhan (consultant), and Narendra Mishra--Development Research and Communication Group, Lazimpat, Kathmandu. Report dated 1983.

PAKISTAN: MALARIA CONTROL II, EXTERNAL INTERIM  
REVIEW, PART I (SURVEILLANCE AND CHEMOTHERAPY OF MALARIA)

Problem and Overview. Malaria is endemic in Pakistan. Earlier, when it was believed that malaria could be eradicated, the anti-malaria method used was based on spraying all houses in endemic areas with a residual insecticide. This was possible because of the relatively generous funding provided by foreign donors, funding no longer available in such magnitude. It is now recognized that malaria will remain endemic for many years to come--that it will cease to be a problem only when overall living conditions and medical services improve significantly. Thus, while total eradication is still the ultimate goal, the immediate strategy now can only be one of control. Furthermore, operations in Pakistan must now be more selective because of the fact that the Malaria Control Program depends mainly on meager local resources.

The first requirement of a malaria control program is a reliable surveillance system. A second requirement is an effective alternative control method to supplement, and in some cases replace, the house-spraying approach. Accurate epidemiologic data--which were relatively unimportant earlier--are now absolutely essential for guiding the selection of appropriate control measures and for targeting those measures to areas of need.

U.S. Assistance. A.I.D.'s Malaria Control II Project (391-0472) was conceived on the recognition that insecticide costs (as well as the danger of toxicity to spraymen) were increasing to a point that the government of Pakistan could no longer afford. The project's objective therefore has been to redirect the malaria control effort from one based exclusively on eradication (relying on the spraying of insecticides) to one of control. How successfully this redirection is carried out will determine the extent and duration of A.I.D. support for the remainder of the Malaria Control II Project. (The Project Agreement specifies that the release of A.I.D. funds for procuring insecticides is to be conditional on the Malaria Control Program's ability to demonstrate having used insecticides effectively during the preceding spray season. This will occur only when a reliable surveillance system is in place for guiding the judicious use of insecticides.) This project covers the period 1982-1987 and is a follow-on to A.I.D.'s Malaria Control Project (no. 391-0424), which ran from 1975 to 1981. Project funding totals \$80.7 million--a \$41-million A.I.D. grant and \$39.7 million from the government of Pakistan (in addition to support from WHO and the government of Japan).

Purpose and Methodology of the Review. The purpose of this review was to assess: (1) the adequacy of both rural and urban malaria surveillance; (2) the adequacy of laboratory operations related to surveillance; and (3) the current status of malaria chemotherapy (use of drugs to cure patients, reduce transmission, and prevent relapse); and (4) to identify weaknesses and recommend measures for improvement. During two and a half weeks in

Pakistan, the team studied program documents and reports of external reviews conducted from 1975 to 1981, then established criteria for selecting sites to visit and prepared a standard questionnaire for data collection. The team divided into two groups which spent nine days visiting 12 districts in the four provinces, where discussions were held with health workers, administrators, and villagers, and then reconvened for group analysis and writing of the report.

### Major Findings

1. The current collection, recording, and use of epidemiologic data by the Malaria Control Program is inefficient; perhaps as many as 70 to 80 percent of malaria cases go undetected. Without more complete and reliable epidemiologic data, the scant resources available are not likely to be used effectively.

2. Potential. Elements of a good information gathering system exist, the laboratory system functions well, and large numbers of patients with possible malaria visit health facilities that could be used as part of a standard malaria surveillance system.

3. Role of other health programs. A reason for the low detection rate is the fact that the other primary health care programs do little to assist in malaria surveillance.

4. Recommendations of previous reviews. With one exception, major recommendations from four previous reviews of the program (as concern surveillance and chemotherapy) have not been followed.

5. Prevalence of malaria due to P. falciparum is high and appears to be rising. Development of chloroquine resistance by this parasite will make control more difficult and may cause increases in malaria-related mortality.

6. Chemotherapy. Malaria treatment regimens used in the program are not standardized and are unnecessarily complicated; some of the drugs are of dubious value and their use may promote development of resistance to alternatives to chloroquine.

7. Afghan refugees have the highest slide positivity rates reported of any population group in Pakistan.

Project Design and Policy Implications. In the long range, the best way to secure and maintain adequate malaria control is for the National Malaria Control Program to learn to use scarce national resources with maximum efficiency, targeting them carefully and securing the cooperation of other parts of the health system. Because many recommendations of past external reviews have not been implemented, A.J.D. should maximize its investment by helping the Malaria Control Program carry out the recommendations of this review.

## Major Recommendations

1. General: For malaria control to succeed in Pakistan, a broader approach must be adopted to improve surveillance in both rural and urban areas. Malaria must be dealt with not just as the responsibility of the Malaria Control Program but as a high-priority national health problem requiring multisectoral cooperation and maximal use of the entire health service infrastructure.
2. Detection of cases through the passive case detection system should be strengthened and surveillance activities of the active case detection worker should be substantially modified. This should be initiated as soon as possible in selected districts and carefully evaluated.
3. Available epidemiologic information must be collected and analyzed scientifically in order to direct spray operations logically.
4. Realistic goals should be established for the level of control desired. There should be a national objective of no more than 0.5 cases per 1000 persons per year.
5. A committee (inter-agency, USAID, and WHO) should be established to produce, within three months, guidelines to standardize and upgrade the approach to surveillance, treatment, research, and use of epidemiologic data for program planning.
6. The Malaria Control Program should adopt specific standards for drug procurement and treatment regimens and continuously monitor to detect chloroquine-resistant strains of P. falciparum malaria.
7. The proposed operational research unit should be budgeted and established and priority attention given to research related to recommendations presented here.
8. A brief quarterly malaria bulletin should be established to keep intermediate level field staff current on developments. Other efforts should also be taken to improve fieldworker morale and improve community participation.
9. Staff training at all levels needs to be reviewed and the National Malaria Training Center strengthened.

Evaluation Team: Dr. Joel Breman and Dr. Frank Richards, U.S. Centers for Disease Control; Dr. L. Boschi, WHO Malaria Advisor, Islamabad; Dr. L.F. Deifino, WHO/EMRO Regional Malaria Advisor; Dr. William Chin, Malaria Advisor, USAID/Islamabad; Dr. Rifaq Ismail, Public Health Physician, USAID/Islamabad; Dr. G. Hashim and Ch. A.A. Mujahid, Government of Pakistan Directorate of Malaria Control. Report dated May 3, 1983, titled "Report of Malaria External Review Team, Part I, Surveillance of Malaria, Chemotherapy of Malaria."

**PAKISTAN: MALARIA CONTROL II,  
EXTERNAL INTERIM EVALUATION, PART II (ENTOMOLOGICAL ASPECTS)**

**Problem and Overview.** Before Pakistan became independent, malaria control activities were limited to military cantonments and economically important towns. After independence, when DDT became available in 1951, control activities were extended to some rural areas. Irregular use of DDT in areas of high malaria prevalence and immediately after floods continued until 1960 when a 14-year plan of malaria eradication was launched. The eradication efforts continued until the entire country was covered in 1968. During this "eradication era," intradomiciliary spraying with two rounds of DDT was carried out. Then, beginning in the late 1960s, a resurgence of malaria occurred, reaching epidemic proportions by the early 1970s. Limited use of BHC was made during 1970-74 in an effort to control the epidemics. In 1975, the first 5-year extension plan for malaria control was launched and malathion was used for the first time. By 1979, more than 50 percent of all Pakistani homes had been sprayed at least once with malathion.

**U.S. Assistance.** Malaria Control II (A.I.D. project no. 391-0472) was conceived on the recognition that insecticide costs (as well as the danger of toxicity to spraymen) were increasing to a point that the government of Pakistan (GOP) could no longer afford. The project's objective therefore has been to redirect the malaria control effort from one based exclusively on eradication to one of control. How successfully this redirection is carried out will determine the extent and duration of A.I.D. support for the remainder of the Malaria Control II Project. This project covers the period 1982-1987 and is a follow-on to A.I.D.'s Malaria Control Project (no. 391-0424), which ran from 1975 to 1981. Project funding totals \$80.7 million--a \$41-million A.I.D. grant and \$39.7 million from the government of Pakistan, as well as support from WHO and Japan.

**Purpose of the Evaluation.** In any malaria control program, anti-vector measures, particularly the use of house spraying with a residual insecticide, remain an important--if not the primary--control method. However, the insecticides that have replaced DDT not only cost more but also are generally more toxic to humans. It is thus essential that these insecticides be used judiciously and safely. Their use must also be guided by reliable, current information on the response of the target vectors to the insecticides. The judicious use of insecticides may be viewed from at least two perspectives: operational (whether spraying is being done efficiently and safely) and technical (whether the appropriate compounds are being used and whether they are applied in a timely manner). These are the basic issues that determine the most economic use of insecticides to yield optimal results. The purpose of this evaluation, then, was: (1) to assess, in terms of these issues, the anti-vector methods currently used by the Pakistan Malaria Control Program; and (2) to recommend a long-

term operations research strategy to define the role of anti-vector measures, particularly the use of insecticides, in Pakistan's Malaria Control Program. Conclusions are based on three weeks of interviews, document review, and field visits to two districts each of the Punjab and Northwest Frontier Province.

### Major Findings

1. General: Operations in 1983 were inefficient and resulted in considerable waste of insecticide--substandard performance that should not be tolerated. More specifically:

2. Spray operations have been carried out poorly (an estimated efficiency rating of no more than 30 to 35 percent). Reasons include:

a. Inadequate field supervision, which led to faulty spraying techniques, over-reporting by supervisors of coverage achieved, and the scarcity to non-availability of spare parts;

b. Community resistance, which resulted in the wiping of insecticide from the walls or in only token spraying.

3. Surveillance is poor.

4. Previously high safety standards appear to have been relaxed.

5. Efforts to detect vector resistance to insecticides are inadequate. Tests are conducted on only a random basis. There is too little emphasis on presently used insecticides and follow-up of cases of suspected resistance is inadequate.

Project Design and Policy Implications. The 1983 spray operations were clearly very inefficient. Less clear is the question of how much longer the continued squandering of such scarce resources can be allowed. The question is complex because, fortunately for Pakistan, the malariogenic potential, even in problem areas, is not that high. Given the poor vector-ability of the local vector, even inefficient anti-mosquito measures may result in some reduction of vector density, and thus reduce malaria transmission. (Past epidemics, while devastating, were due to the unchecked and overwhelming production of the malaria mosquito.) Even a 30 to 35 percent spray efficiency may result in some control of malaria--although at a relatively high cost.

### Major Recommendations

1. General: The Malaria Control II project agreement should be amended to provide specific conditions to be met prior to procuring insecticide for 1985. "Absolute requirements" should include:

2. That the criteria for selecting areas to be sprayed in 1984 are based solely on epidemiologic grounds.

3. That the overall 1984 spraying operations have been carried out with significant improvement in efficiency as determined by an in-depth field evaluation conducted by GOP, WHO, and USAID representatives on the basis of surprise field visits. (More time should be allotted so that all four provinces can be visited.)

4. That all the recommended safety measures have been implemented during the 1984 spray season.

5. That, within one month following completion of the 1984 spray operations, all remaining insecticides have been collected from the field, delivered to central sites, inventoried, and a final report submitted.

Additional "relative requirements" should include:

1. Improving the surveillance system to provide more reliable epidemiologic data for planning the 1984 spray operations.

2. Conducting operational research with the highest priority going to the study of the resting habits of vector species in areas with different geographic and ecologic features.

3. Using malathion as the insecticide of choice until there is entomologic and parasitic evidence to indicate need to change.

Evaluation Team: Dr. George P. Georghiou, University of California at Riverside; Dr. Jesse H. Hobbs, U.S. Centers for Disease Control; Dr. Imtiam Hussain Shah, NMTC/Lahore; Dr. L. Boschi, WHO/Islamabad; and Dr. William Chin, USAID/Islamabad. Report dated September 30, 1983.

SRI LANKA: INTENSIVE MALARIA CONTROL PROGRAMME, ANTI-MALARIA CAMPAIGN  
FIRST INDEPENDENT ASSESSMENT

Problem and Overview. Nearly 75 percent of the population of Sri Lanka lives in malarial areas. The overall incidence of malaria decreased recently from about 50,000 positive cases in 1980 to 38,566 in 1982. During this time, however, the number of cases of P. falciparum malaria (and mixed infections) increased. This is a serious matter, especially as the main objective of the present anti-malaria campaign is reduction and subsequently elimination of indigenous P. falciparum infections. Whether this recent increase is due to a decreased sensitivity of the parasite to anti-malarial drugs remains to be determined. Malathion spraying of houses has continued to be the main control measure. In 1982, about 3.5 million persons (about 23 percent of all Sri Lankans) were protected with indoor residual spraying with Malathion.

U.S. Assistance. The assessment was not initiated by A.I.D. and the report does not refer to U.S. assistance.

Purpose of the Assessment. Purposes were to assess: (1) the present status of malaria in Sri Lanka; (2) progress made by the Malaria Control Programme in implementing the recommendations of the fourth annual evaluation; (3) operations (and operational problems) during 1982 and their relationship to the proposed Plan of Operations for 1982-1987; and (4) the participation of other health service personnel in the anti-malaria campaign and the role of the campaign in the primary health care system. The assessment took place during two weeks with team members dividing into four groups for field visits.

### Major Findings

1. The overall incidence of malaria appeared to be decreasing in 1982, but there has been a serious increase during the first four months of 1983. This is due both to natural factors (prolonged drought leading to pooling and increased mosquito vectors) and human factors.

2. Status of the disease. During early 1983, there was a seven-fold increase in P. falciparum transmission, a threefold increase in P. vivax transmission, and an epidemic outbreak in the "Intermediate Zone" along the Maha Oya and Kelani Ganga rivers. Outbreaks occurred in 19 health areas where the population involved totals 2.23 million.

3. Complexity of human and bureaucratic factors responsible. Human factors have included administrative bottlenecks related to supplies and transport, poor operations, and a breakdown in the surveillance system. In addition, failure to fill staff vacancies at both headquarters and the regional level has resulted in inadequate supervision of field activities and lack of monitoring

and prompt analysis of operations. This in turn has delayed remedial action. A decline in discipline, morale, and motivation among the campaign staff, as well as increasing indifference to anti-malaria activities in some sectors of the population are also exacerbating the situation.

4. Failure to implement earlier recommendations. Of 18 major recommendations contained in the fourth annual evaluation, only one has been fully implemented. Four have been partially implemented; 13 have not been implemented.

5. Spraying operations are not satisfactory by any standard.

6. The potential for epidemic outbreaks in the development areas is bound to increase due to the high parasite reservoir in Sri Lanka, active population movement, and serious ecological change. The Ministry of Health alone will not be able to deal with this problem.

7. Prophylactic administration of chloroquine is becoming more and more common and is particularly appropriate in development areas (although the treatment regime should be changed).

Project Design and Policy Implications. Continuing weaknesses throughout the Malaria Control Programme, and the fact that recommendations of previous evaluations have not been implemented, suggest one of two situations. Either malaria control is not a very high government priority, or the design of the program is inappropriate for the existing conditions. In either case, funds invested are not being effectively utilized. This situation may cancel out some of the successes that might otherwise be achieved by development efforts such as the Mahaweli resettlement program.

### Major Recommendations

1. Virtually every aspect of the program needs attention if the present increase in malaria is to be halted. Specific measures to be taken include the following.

2. Susceptibility testing. In view of the increase in P. falciparum transmission and the vulnerability of Sri Lanka with regard to importation of resistant P. falciparum strains from Southeast Asia--and in view of the present lack of parasite monitoring activity--susceptibility testing of P. falciparum should be undertaken at once at several representative locations. Funds are available for 1983.

3. Surveillance should be improved to permit quick response to emergency situations and prompt monitoring of focal outbreaks. This requires improving laboratory services, in particular, filling the many vacant microscopist positions.

4. Implementation of recommendations. Annual evaluation without subsequent implementation of recommendations is a meaningless exercise. Furthermore, continuing external aid is dependent on continuous evaluation of progress. Greater attempts must be made to implement recommendations.

5. Spraying operations require marked improvement in technique of application, supervision, evaluation, health safeguards, reporting methods, and the supply system. In view of the need for improved cooperation by householders, a special training course on how to approach and elicit their cooperation is also recommended.

6. Intersectoral committees should be established to deal with the possible increase in epidemic outbreaks in the development areas. Meetings should be held at central and regional levels at least twice a year and make provisions for adequate malaria control measures in advance of population settlement.

7. Government policy relating primary health care to malaria control should be implemented. Health institutions and government health personnel (including the "family health workers") must play a more active and cooperative role. The one-day of training provided for the primary health care workers is not adequate and should be supplemented by periodic in-service training.

8. Community involvement. Greater efforts should be made to involve community members in malaria control (as is also government policy).

9. Programme staffing and management problems must be resolved.

10. Epidemic survey. Given the present potential of a major malaria epidemic, a survey should immediately be undertaken of the areas where increased transmission of P. falciparum is occurring and a plan should be developed for remedial measures to control this epidemic.

11. The 1984 annual assessment. Given the serious epidemiological trend and present operational and management problems, the next external assessment should be carried out in depth (for a period of at least six weeks), tentatively in March-April, 1984.

Assessment Team: Dr. A.V.K.V. Silva (team leader), GSL Ministry of Health; Mr. B.H. Passaperuma, GSL Dept. of External Resources; Prof. G. Davidson, consultant, U.K. Overseas Development Authority; Mr. L. Cowper and Dr. C.W. Hays, USAID consultants; Dr. D.A. Muir, WHO/ Geneva; Dr. K.M. Rashid, WHO/SEARO Regional Malaria Advisor; Dr. S.C. Chakrabarti, WHO consultant; Mr. A.T.P.L. Abeykoon, GSL Ministry of Plan Implementation; and Mrs. P.M. Mahroof, Ministry of Finance. Report dated June 15-30, 1983.

## BANGLADESH: THE FAMILY PLANNING SOCIAL MARKETING PROJECT, INTERIM EVALUATION

Problem and Overview. In 1976 the government of Bangladesh declared rapid population growth to be the most serious problem for the country, and it has taken laudable steps to increase public awareness of the problem and to make modern contraceptive services widely available. Nevertheless, Bangladesh still has one of the largest, densest, and poorest populations in the world. Most women marry and begin bearing children during their teens and produce an average six to seven children during their lifetimes. The birth rate thus remains high (a crude birth rate of about 41 per 1000 population), contributing to an annual population growth rate of 2.4 percent. Family planning efforts have contributed to a decrease in the birth rate since 1976, but the proportion of Bangladeshis using some form of modern contraception is still low (a prevalence rate of only some 18 percent of all married couples of reproductive age).

Project Purpose. The project is part of the National Population Program of the Bangladesh government. The project's objective has been to increase the availability, acceptability, and thus use of non-clinical means of contraception (especially condoms and oral contraceptives) in order to help achieve the government's ultimate goals of fewer births, fewer abortions, a lower population growth rate, and improved maternal and child health. The "social marketing" strategy has been to harness a large, existing retail system and further develop it into a national distribution system without hiring large numbers of project staff. This system now consists of about 30 wholesalers, from which project sales representatives have now supplied over 85,000 local shopkeepers with two brands of condoms, two types (different dosages) of oral contraceptives, and one brand of vaginal spermicide tablets. Since most Bangladeshis rely on such local shops for their daily necessities, this system places contraceptives within easy access for all segments of the population. More recently, the project has expanded its rural outreach by recruiting and training a new category of providers--rural medical practitioners or "village doctors"--and adding mobile film units which provide educational showings to crowds as large as 3000 to 5000.

U.S. Assistance. The project has been implemented since its inception in 1974 by Population Services International (PSI), a New York-based private firm. A.I.D. has provided 100 percent of funding which, from 1974 through 1982, totalled approximately \$20 million. The project exists through an agreement between the Bangladesh government and PSI and relatively short-term contracts between A.I.D. and PSI.

Purpose of the Evaluation. This was a comprehensive, external evaluation. It had two purposes: (1) to provide a description and analysis of the project, and (2) to help USAID/Dhaka decide on the project's future. The evaluation was scheduled at a time when USAID/Dhaka was considering expanding its private-sector

activities in support of the national family planning program. It was conducted through five weeks of planning, document review, interviews with key personnel, observation visits, analysis, and discussions of preliminary findings with USAID and PSI staffs.

### Major Findings

1. Impact: The Social Marketing Project can be considered a family planning success story. More than one fourth of all Bangladeshis using some form of modern contraception use a product provided by the project. This amounts to about 50 percent of all non-clinical protection provided by the national program (67 percent of condom protection, 21 percent of oral contraceptive protection, and 70 percent of spermicide protection--a total annual rate of 931,000 couple-years of protection). In fact, since 1975, the entire increase in non-clinical protection provided by the national program has been the result of sales by this project. In addition to providing contraceptives to a large number of couples in need, the project has also legitimized and broadened discussion of contraception in this conservative Muslim country. The project's promotional efforts have been so successful that, throughout Bangladesh, "Raja" and "Maya" (the brand names used, respectively, for the condoms and oral contraceptives initially introduced by the project) have become generic words for "condom" and "birth control pill."

2. Cost-effectiveness. Unit costs of output (sales of products to retailers and doctors, training for retailers and doctors, and advertising) are low. Consequently, the cost of contraceptive protection provided by the project is lower than in most other family planning projects in Bangladesh--about \$1.66 per couple per year (excluding the cost of donated contraceptives).

3. Relationship to other family planning efforts. The project is viewed as an integral and continuing part of the national program, undertaking activities complementary to those of the government and other non-governmental organizations and helping legitimize and increase discussion and understanding of family planning throughout the country. PSI appears to have excellent rapport with the Ministry of Health and Population Control.

4. Institutional status. The short-term, project-oriented atmosphere which was acceptable earlier is becoming detrimental. It is very difficult to attract and retain top quality commercial-sector people when the future of the organization is unclear.

Project Design and Policy Implications. The project has demonstrated the efficiency of the social marketing concept--namely, that a significant impact can be made in a low-income, largely rural developing country, and at a relatively low unit cost, by harnessing and developing a large existing marketing system and without hiring a large project staff. The project has also demonstrated the effectiveness of the social marketing strategy in

legitimizing and broadening awareness and discussion of contraception in a large conservative country which is often described as too conservative to accept overt promotion of contraceptives.

### Major Recommendations

1. A.I.D. should continue to fund the project, using a contractor for technical assistance, and the project should continue to do what it does best: market branded products aimed at increasing contraceptive use. Some changes and improvements are necessary, however, including the following.

2. Diversify products offered. Project management should: (a) consider adding several more brands of condoms and oral contraceptives and test-marketing other contraceptive methods; and (b) expand its offering to include non-contraceptive "family health products" (oral rehydration salts for children, aids for pregnant and lactating women, and useful household medicines).

3. Improve management by instituting: (a) a management development system; (b) a computerized management information system; and (c) systematic classification of sales outlets.

4. Evaluate and measure the effectiveness of various project elements including: (a) the activities and further potential of the "village doctors"; (b) the value of retailers as family planning educators; and (c) the relative value of the print, radio, television, film, and other media used in generating awareness and knowledge of specific family planning methods.

5. Expand the private-sector role in family planning. A.I.D. is correct to consider expanding the social marketing strategy (e.g., to voluntary sterilization activities and by adding "social advertising"). But these activities should probably not be undertaken by the Social Marketing Project itself. Rather, they could be undertaken by a broader structure--formulated by the Bangladesh government, A.I.D., and PSI--in which the Social Marketing Project would be seen as one of several "divisions" with the added activities being undertaken by other divisions.

6. Provide long-term funding. At a minimum, A.I.D. should take the lead in institutionalizing the project and should provide it with longer-term funding.

Evaluation Team: John Davies, consultant, and assistant (name not provided). Report dated September 2-October 8, 1983.

NEPAL: POPULATION POLICY DEVELOPMENT PROJECT,  
MID-TERM REVIEW

Problem and Overview. Recent rapid population growth has caused serious deterioration in the country's resources and nullified many potential gains from technological and economic development. The future is made difficult by past rapid growth not only because of the deterioration of resources but also because the present population is so young that even a drastically lowered fertility rate will still bring about a massive increase of people. Conventional provision of family planning services, which has been ongoing for several years, is essential but insufficient for dealing with this problem.

U.S. Assistance. The Population Policy Development Project Agreement was signed in 1979 as a three-year, \$2-million grant (project no. 367-0130). Its stated purpose was "to develop a population policy support system, including the capacity to undertake and analyze operations and fertility determinants research and assess their relationship to and impact on development." The project provided support to the National Population Commission of the government of Nepal for work in four areas: local research (\$850,000 or 42.5 percent of the grant), training and professional development (\$545,000, or 27.25 percent), dissemination of policy and related population information (\$305,000), and consultative services (\$300,000). The outputs were to be research studies that would form the basis for seminars, workshops, and publications. The project provides most of the Commission's funding.

Purpose and Methodology of the Review. Purposes of this review were to examine and assess the quality, quantity, and effectiveness of the Commission's programs, plans, and procedures funded through the U.S. grant, to examine the effectiveness of expatriate technical assistance provided to the Commission, and to identify obstacles to institutional performance. Fieldwork and writing took two and a half weeks in November-December, 1982.

Major Findings. The project has had major difficulties. The government of Nepal and USAID/Kathmandu are to be commended, however, for supporting this bold venture in population policy.

1. Start-up difficulties. Conditions precedent were not met until almost one year after authorization and accomplished little until April 1982, two and a half years after authorization.

2. Present Potential. The Commission was reorganized as an independent agency in April 1982. Since then, it has acquired a full-time secretariat and staff and appears able to move forward.

3. Activities to date. The Commission has carried out activities in each of the project's four designated areas (sponsored 17 research projects, four regional and one national conference for dissemination of population information, and sent 18 Nepalis

abroad for population policy training).

4. Much of the research, however, does not relate sufficiently to policy development and implementation. The Commission does not yet appear committed to formulating, adopting, and implementing policies to alter incentives with regard to childbearing. Instead, it still seems to regard its main task as demographic research and calling attention to the population problem.

Project Design and Policy Implications. There is urgent need to move simultaneously and immediately in two directions: (1) reduction of the birth rate, and (2) reduction or elimination of immigration. The moment is now propitious for stronger implementation of a coordinated population policy, including policies that will give people incentives for small families and disincentives for big ones.

Major Recommendations. A.I.D. should extend the present project, but future funding should depend on whether the Commission improves its performance during the remainder of this project. The extension should be a no-cost extension until September, 1985.

1. Use of an expatriate advisor will no longer be necessary, however, and should not be extended after July, 1983.

2. The Commission's highest priority should be to develop an effective integrated policy aimed at rapidly reducing population growth. It should not be simply research and advice.

3. Choose more appropriate research topics. The Commission should confine its research to projects with clear, direct relevance to population policy. It should leave basic demographic and general population research to other agencies.

4. Improve training. The Commission should: (a) speed up and improve selection of candidates for long-term training and invitational travel abroad; and (b) develop more in-country programs for training Nepalese personnel in population policy work.

5. The government should increase the powers of the Commission.

a. The government's Rules of Business should be amended to give the Commission a statutory basis for its existence and functions.

b. The Commission should be given the power to allocate funds, in collaboration with the Ministry of Finance, to other government agencies in order to hasten implementation of population policies.

c. The Commission should be given the authority to deal with foreign donors and provide technical coordination for their population policy programs.

d. The Commission should be given flexibility for recruiting core and other staff.

e. The Commission should be given the authority to serve as a clearinghouse for information on all population activities in Nepal and should increase the role of information dissemination in its overall program.

6. The Commission should develop informal consultative relations with its counterparts in line agencies to increase cooperation in developing and implementing population policies.

7. The Commission should not continue to expand its staff. Instead it should focus on improving efficiency and streamlining work to achieve major priorities.

8. Pilot projects. The Commission should take responsibility for pilot projects to test the feasibility and effectiveness of antinatalist policies.

Review Team: Dr. Kingsley Davis (team leader), University of Southern California; Dr. Sarah Clark, Office of Population, AID/Washington; Mr. Ram Chandra Shrestha, USAID/Kathmandu; and Mr. Achyut Bahadur Rajbhandary, consultant. Report dated December, 1982.

## INDONESIA: THE INDONESIAN NATIONAL NUTRITIONAL SURVEILLANCE SYSTEM, THIRD INTERIM IN-PROGRESS EVALUATION

Problem and Overview. Despite recent economic gains in Indonesia, periodic food crises are still common as is chronic undernutrition. A national surveillance system to detect and prevent local famines could be a major aid in combatting this problem. The present project emerges from strong interest shown by various Indonesian government (GOI) officials--notably, from the National Board for Development Planning (BAPPENAS) and the National Institute for Health Research and Development--in developing such a system.

U.S. Assistance. A.I.D.'s "Nutrition Surveillance System Project" is actually a subproject of A.I.D.'s Health Training, Research and Development Project (no. 497-0273). It was begun in April, 1979 with a funding commitment of \$1 million (\$200,000 loan and \$800,000 grant) and was recently extended, at no extra cost, for a fifth year (to March, 1984). Technical assistance is being provided by Cornell University, Division of Nutritional Sciences, under a host-country contract with the National Institute for Health Research and Development of the GOI.

The project purpose is to design, test, and develop methods for nutritional surveillance that can be expanded into a national nutritional surveillance system. The strategy adopted was to concentrate first on a system to detect and prevent food crises (stress or famine situations in which food aid has to be distributed). The system developed, called an "Early Warning Information and Intervention System" (EWIIS), has now been implemented on a pilot basis in one kabupaten ("regency," or district) in Lombok province and further pilot-implementation has begun in three other kabupatens in Lombok and Central Java. Manuals have been written for use in transferring the system to other kabupatens and field testing of the manuals has begun on Bali.

Purpose of the Evaluation. The purpose of this evaluation was fourfold: (1) to determine the degree to which project objectives had been met by the original project termination date (March 30, 1983) and to identify constraints that had impeded attainment; (2) to review progress and outcomes resulting from recommendations of the 1982 second interim evaluation; (3) to assess Cornell's performance to date and make recommendations concerning Cornell's proposed scope of work and budget for the final year of the project; and (4) to provide recommendations as to whether and how the Nutrition Surveillance subproject and its "parent project" might advance the mounting GOI desires to expand the EWIIS both geographically and functionally. This was an external evaluation of three weeks' duration. Methodology consisted of interviews, document review, and field site visits to two of the pilot kabupatens.

## Major Findings

1. Progress at the local (kabupaten) level is quite good. Local officials are able to collect and analyze the necessary data and decide on actions to be taken, and they appear ready and able to maintain their present systems without assistance.

2. Progress at the provincial and central levels is less dramatic. Some resources are being mobilized to provide the necessary training and supervision at the provincial level but at the central level no structures or procedures exist as yet for coordinating short-run intervention strategies with long-range development planning or for using locally-generated data for national planning and policy formulation.

3. Limitations in the EWISS. The system still operates in only an ad hoc manner once a crisis has been detected. Activity to date has been dedicated to developing a system for identifying indicators to detect the conditions which lead to food crises before the crises develop. Indicators have not yet been developed for helping select the best intervention once a crisis arises, nor for helping determine the efficacy of a given intervention once implemented.

4. Active Indonesian interest in expansion. Demand for geographical expansion of EWISS is high. There is also growing interest in functional expansion--in adding indicators of food supply and distribution and also general nutritional status indicators in order to identify areas of chronic malnutrition.

Project Design and Policy Implications. Ultimately it is the governors and bupatis (kabupaten heads) who are the decision-makers that can prevent food crises in Indonesia. The primary strategy for preventing food crises in the country should thus be to pool the expertise of the governors and bupatis who have proven successful in combatting food crises within their own areas. If the EWISS is to achieve its optimal impact, it must increasingly draw on the expertise of, and assist, the governors and bupatis.

## Major Recommendations

1. Cornell, during the remaining year of the project, should:
  - a. initiate "operational research" to augment and consolidate the progress achieved in the Central Lombok and Boyolali pilot systems;
  - b. provide technical assistance to expand EWISS into a comprehensive surveillance system; and
  - c. conduct a proposed workshop at the end of the project to review its status and make findings available for the GOI's

1984/85 budgetary planning.

2. Indonesian institutions involved with the EWIIS should be encouraged to:

- a. finalize institutional arrangements necessary to maintain the system as a viable mechanism for averting food crises; and
- b. initiate nutritional surveillance for planning, monitoring, and evaluation purposes.

3. USAID/Jakarta should continue to support nutrition surveillance activities beyond the current project. It should immediately assess options for support to comprehensive nutrition surveillance and draw up plans while interest within the GOI remains high. In doing so it should review, from an intersectoral perspective:

- a. USAID's own stance on nutritional impact assessment in its various projects;
- b. capabilities and needs of relevant Indonesian institutions;
- c. relationships to other similar GOI/foreign donor programs, and (d) proposals submitted by the GOI.

4. Continued role for Cornell? Cornell remains the U.S. institution with the greatest accumulated knowledge and experience in nutrition surveillance in Indonesia. Nevertheless, any future contract should be opened to a fair competitive bidding process.

Evaluation Team: Abraham Horowitz, M.D., M.P.H., consultant (team leader); Roy Miller, Ph.D., Community Systems Foundation; Bruce Currey, Ph.D., Flinders University, Australia; Dr. Saad A. Basaib, BAPPENAS (GOI); and Mr. Soepardan, Ministry of Coordination of People's Welfare (GOI). Report dated April 5, 1983.

## INDONESIA: LOCAL GOVERNMENT TRAINING II, INTERIM EVALUATION

Problem and Overview. Over the course of Indonesia's Second Five-Year Plan (1974-1978), the philosophy of development through top-down planning was increasingly discarded by the government of Indonesia (GOI) in favor of decentralization, bottom-up planning, and social development. Among the important lessons learned were two that led to the present project. First, it will not be possible to achieve the development plan goals without effective planning and implementation at the regional level. Second, the performance of the BAPPEDAs (provincial and sub-provincial development planning bodies) must be improved by recruiting and training qualified personnel. In 1979 the Ministry of Home Affairs, with USAID assistance, produced a report titled A National Strategy for Training in Regional Development Planning and Management (commonly known as "Buku Kuning"). This proposed, as a solution, a training strategy to improve and expand as rapidly as possible the professional capacity of the Agency for Personnel Education and Training (Badan Diklat) of the Ministry of Home Affairs. The report received the strong endorsement of the relevant governmental authorities and provided the basis for the present project.

U.S. Assistance. "Local Government Training-II" (project no. 497-0308), was designed to provide a large portion of the funding that would be required, over an estimated four-year period (1980-1984), to carry out the proposed training strategy. The project is to cost \$16.24 million, of which A.I.D. is providing \$9.5 million (a \$2.5-million grant and a \$7-million loan)--about 59 percent of total projected costs. The project purpose is "to assist the government of Indonesia in bringing about more effective performance of all BAPPEDAs [provincial and sub-provincial] in regional development planning and management, through implementation of the National Training Strategy." A.I.D. provides funding for a central Jakarta office, four regional training centers, a variety of training courses specified in the Buku Kuning, and for technical assistance. The latter is being provided by the consulting firm, Planning and Development Collaborative International (PADCO).

Purpose of the Evaluation. The purposes of this evaluation (called for by the loan agreement) are: (1) to assess progress to date and identify issues and problems in meeting project objectives; (2) to assess the adequacy of advisory services provided by the contractor; and (3) to make concrete, practical recommendations for the future. Timing is opportune since a promising new director-general of the Agency for Personnel Education and Training is in the process of preparing a "new directions" long-term development strategy for the agency and a manpower development plan for the Ministry of Home Affairs, and has asked the PADCO team for assistance. The evaluation was carried out from February 8 to March 22 through interviews, document review, and field visits to observe training activities in progress.

Major Findings. The project is not yet being implemented, or even conceptualized, in ways that optimize its potential. It could significantly upgrade regional development planning and management of provincial and sub-provincial (kabupaten and kotamadya) planning bodies throughout Indonesia. This is not happening. The project generated a respectable number of training activities during its first two years, but their quality and relevance is questionable. Implementation problems relate to underlying conceptual problems.

1. Implementation problems

a. Inadequate staff capabilities of the implementing agency. Not enough attention was given during project planning to the capabilities and orientation of the designated implementing agency, the Agency for Personnel Education and Training. Its actual capabilities were limited and oriented toward conventional civil-service administration rather than development.

b. Poor project management. For its first two years, the project was not well guided either within the Agency for Personnel Education and Training or by USAID/Jakarta. There were detrimental delays by USAID in communicating its guidelines for project management and disbursement of funds. Internal project management has also been inadequate (as authority is vested in only one part-time employee who is at too low a level in the civil service hierarchy to provide the leadership required). A serious consequence is that mistakes made were neither identified nor corrected and ill-advised precedents were established.

c. Late arrival of technical assistance team. Delays in finalizing the grant agreement caused the PADCO team to arrive over one year later than originally anticipated. It was then immediately under great pressure to deal with pressing issues and decisions made were not always fully appropriate to the Indonesian context, needs, and priorities.

d. Emphasis on quantity at expense of quality. Project managers were under considerable pressure to produce quickly demonstrable accomplishments. Both the project and GOI budgeting processes called for outputs measured in terms of numbers of courses taught and numbers of people trained. This accounts for the impressively large number of people who have received training. The quality and relevance of the training do not appear to have been adequately considered, however.

2. Conceptual problems: Project managers were not given sufficient guidance and do not yet seem to have an adequate understanding of the project's objectives. The Buku Kuning, which has become the program's "holy book," is regarded as a blueprint for quantifiable program outputs rather than a strategic guide to a learning process. It does not adequately emphasize the extent to which the creation and strengthening of an institutional capacity within the Agency for Personnel Education and Training--to pro-

perly plan and implement, on a continuing basis, an appropriately focussed national training program--is at least as important as the training itself. Consequently, the process of developing institutional capabilities has been relatively neglected as compared to concern for outputs. The initial activities hold forth little realistic promise of enabling the achievement of more basic objectives.

3. Opportunity for change. Despite shortcomings, five factors make optimism possible. (1) GOI commitment has been reaffirmed by policy directives and greatly increased budgetary support for the training activities. (2) The "new directions" of the new director-general of the Agency for Personnel Education and Training are more in line with the basic principles of this project. (3) The trainers and curricular materials produced by the project provide a basis for progress. (4) USAID attention is more constructively focused on the project than before, and (5) the full PADCO team is now actively at work.

Project Design and Policy Implications. Project start-up is often difficult because the host government is less enthusiastic about the project than is A.I.D. In this case, however, the GOI appears to have pressed forward, while A.I.D. was not able to keep up, either in fielding its technical assistance team or in providing USAID personnel to work with the GOI in ascertaining that start-up activities were consistent with project objectives.

Major Recommendations. USAID/Jakarta and the Agency for Personnel Education and Training must jointly make serious efforts to rectify the existing situation and the Project Assistance Completion Date should be extended two years so objectives can be achieved. The technical assistance (PADCO) contract should also be extended.

1. The National Strategy must be revised. Revision should: (a) place primary emphasis on strengthening the institutional capacities of the Agency for Personnel Education and Training; (b) incorporate means for continuing revision in response to changing circumstances; and (c) explicitly support the GOI policy of decentralization, participatory process, and bottom-up planning in all aspects of conceptualization and implementation. The Buku Kuning should no longer be used as the primary guide for implementation.

2. Institutional relations, project management, and manpower planning should be improved through specific steps detailed here.

3. Curriculum, materials, and training. Training and course objectives must be clearly identified and stated and supporting materials must be complete, relevant, and attractively packaged.

Evaluation Team: Russell H. Betts, Ismid Hadad, Mochtar Buchoori, Sutomo Roesnadi, and Millidge Walker. Report dated March 28, 1983.

NEPAL: RADIO EDUCATION TEACHER TRAINING PROGRAM  
FINAL EVALUATION

Problem and Overview. His Majesty's Government (HMG) of Nepal has made a major commitment to providing free universal primary education. This has created a heavy demand for trained primary school teachers. As of 1981, however, only about 36 percent of primary school teachers in Nepal had received any formal training in principles and methods of teaching. The Institute of Education at Tribhuvan University was providing training to about 800 to 900 teachers a year but there was need for a more cost-effective approach for training greater numbers of teachers, especially in the rural and more remote areas.

U.S. Assistance. The goal of the present project (367-0123) is to improve the skills of in-service primary-school teachers and thereby improve the quality of education received by children in rural and remote areas. In 1978, USAID/Kathmandu agreed with HMG to develop and implement a program to train primary teachers through the medium of radio reinforced by written, self-instructional materials and periodic workshops. (Participants were to be teachers with the School Leaving Certificate pass but no previous training in teaching.) The project also included installation of a shortwave transmitter and antenna and an administrative building with a fully functioning studio. Southern Illinois University at Carbondale was selected to provide technical assistance. Total project costs are slightly over \$4 million, to which A.I.D. contributes almost \$3.5 million and HMG about \$.5 million.

Purpose of the Evaluation. The present evaluation was conducted at the request of AID/Washington as a prelude to planning for a follow-on project. Five weeks were spent interviewing HMG officials and project staff and reviewing research documents and some of the texts and broadcasts produced by the project. Two members of the evaluation team spent 11 days in two districts interviewing teachers enrolled in the program and observing their classes.

Major Findings. The project has been successful in reaching its quantitative goals, but it has not achieved its desired impact of improving teaching techniques.

1. Quantitative goals have largely been met. About 3,000 teachers have been enrolled, 2,500 radios and 6,000 sets of self-instructional materials distributed, and 200 hours of instruction have been broadcast or are in preparation.

2. The project is successfully reaching the target group of untrained rural primary teachers. Most participating teachers consider the materials and programs useful and understandable.

3. Impact on content rather than techniques. The project seems to be having some impact on teachers' knowledge of education and subject areas in the curriculum. It seems to be having less of

an impact on their teaching techniques. The certification exam, postponed a year but now scheduled for June, 1983, should provide the first large-scale indication of impact.

4. The project did not fully achieve its desired impact because of the following design and implementation problems:

a. Lack of institutional support. The project had five directors and three changes of institutional affiliation or status in four years.

b. Initial staffing delays occurred, in part because salaries and other incentives were insufficient to attract a stable, qualified staff.

c. Staffing delays led to materials being produced without proper field testing.

d. Funds were insufficient for the planned fieldwork and workshops. These, therefore, did not get implemented.

e. Logistical problems of distributing materials to nearly all districts in the country proved enormous.

Project Design and Policy Implications. The project goal was highly ambitious, especially given that training is only one of many influences on a teacher's behavior. Limited physical facilities and instructional materials, community attitudes, traditional role models, and the lack of incentives for teaching all combine to create a school culture often very resistant to change. The time frame and geographic scope were also ambitious given communications problems in Nepal. Nor is there, at present, an appropriately trained cadre of locally available resource people to run workshops and provide teacher support.

Recommendations. A.I.D. should continue to support radio education in Nepal, but with certain changes.

1. Modify project purpose. The purpose should be changed from a training-methods focus to providing upgrading in content areas (especially math, science, Nepali, and English) in a manner that requires only minimal support services.

2. Increase motivation for participants. The present target audience would still be appropriate, but teachers should be motivated to study by the prospect of passing a certification exam and getting a salary increase at the end of the course.

3. Secure institutional support. Prior to beginning any follow-on project, there must be firm assurance of adequate institutional support.

4. More thorough materials development. Time must be set aside

to carefully design and pretest materials.

5. The scope and pace of implementation must be more realistic in light of the project goals and limitations in the existing communications network.

Evaluation Team: Dr. Barbara Butterworth (team leader), Principal, Keys School, Palo Alto, California; Dr. Dibya Man Karmacharya, Institute of Education, Tribhuvan University; and Dr. Richard Martin, AID/Washington. Report dated April, 1983.

SRI LANKA: DEVELOPMENT SERVICES AND TRAINING PROJECT,  
EVALUATION OF TWO SUB-PROJECTS:  
SUPPORT FOR THE SRI LANKA INSTITUTE OF DEVELOPMENT ADMINISTRATION,  
and THE MAHAWELI ENVIRONMENTAL ASSESSMENT

Problem and Overview. One of the main constraints to socio-economic development in Sri Lanka is the lack of project design and management skills on the part of many Sri Lankan officials.

U.S. Assistance and Project Purpose. Recognizing this need, USAID/Colombo established the Development Services and Training Project (No. 383-0044). Its purpose is "to strengthen GSL [government of Sri Lanka] capabilities to carry out development programs." The project strategy is to recognize targets of opportunity and fund them as sub-projects. Ultimate beneficiaries are to be the rural poor who will be resettled under the Mahaweli irrigation program as well as farmers in the dry zones.

Methodology of the Evaluation. The evaluation was conducted during one week of discussion and document analysis in Colombo.

Sub-project A:  
SUPPORT FOR THE SRI LANKA INSTITUTE FOR DEVELOPMENT ADMINISTRATION

Problem and Overview. The Sri Lanka Institute for Development Administration (SLIDA) was established in Colombo in 1979 to provide in-country training in development administration, given the high costs of such training abroad and the reduced donor funding for such training. The Institute's primary objective is to improve the skills, knowledge, and attitudes of Sri Lankan officials so that they can better meet development objectives. In addition to training, the Institute has also been assigned functions in management consultancy, applied research, and publication. It appears to have a good reputation among Sri Lankans as a training institution.

U.S. Assistance and Sub-project Purpose. Since 1982, USAID/Colombo has provided the Institute with about \$100,000 of assistance (of a projected \$150,000). Specific objectives of this sub-project are not recorded in any documents. Rather, a February 1982 "letter of understanding" simply outlined the types of assistance (training and consultancies) the U.S. might provide and specified conditions precedent for such aid. Prior A.I.D. funding to the Institute totalled \$86,000 (a \$25,000 grant from AID/Washington's Science and Technology Bureau in FY 1980 and \$61,000 from the Development Services and Training Project's general participant training component in 1981).

Major Findings

1. General: There are clearly identifiable changes and accomplishments as a result of this sub-project.

2. Institutional development. In May, 1982, SLIDA was granted corporate status (a condition precedent), giving it greater autonomy, operational flexibility, and the ability to offer higher salaries than standard GSL pay scales allow. Since then, it has completed a comprehensive 1984-86 Corporate Plan which includes a faculty and staff development plan (also a condition precedent) and specifies ambitious expansion of facilities and services. The Institute still has far to go, however, in fully carrying out its training, research, and publications mandate.

3. Beneficiaries. The chief beneficiaries have been the eight SLIDA faculty members who have received training in the U.S. The next level of beneficiaries will be the hundreds of GSL officials who will be trained by these faculty.

4. Ad hoc arrangements. There has been no formal sub-project agreement, no formal statement of sub-project objectives or criteria for judging progress, and only ad hoc monitoring.

Project Design and Policy Implications. The lack of USAID attention to this sub-project might argue for its discontinuation. Nevertheless, it appears that, with very little time and money, A.I.D. has managed to help strengthen a promising institution.

Recommendation. Continuation of USAID/Colombo's current modest level of support seems warranted. However, further assistance should be properly formalized.

#### Sub-project B: THE MAHAWELI ENVIRONMENTAL ASSESSMENT

Problem and Overview. The Accelerated Mahaweli Program (AMP) is the largest development effort underway in Sri Lanka. It involves construction of irrigation canals and reservoirs in the Mahaweli River Basin in order to make previously arid land suitable for settlement and development by about one million settlers and to increase Sri Lanka's agricultural production and hydroelectric power output. However, five forest reserves and five wildlife reserves are wholly or partly included in this area. Construction of physical infrastructure is expected to reduce the prime wildlife habitat by about 17 percent.

U.S. Assistance Through This Sub-project. As a major donor to the Mahaweli Program, A.I.D. agreed in 1979 to provide a grant of \$750,000 for an environmental assessment of the entire Mahaweli area as a sub-project of the Development Services and Training Project. Its purpose was "to study the environmental impact of the Accelerated Mahaweli Development Program and identify follow-on investigations and projects to mitigate negative impacts and strengthen positive impacts." This was the first major measure for dealing with the potentially adverse impact of the Mahaweli program on the natural environment. The assessment was carried out by the U.S. firm of Tibbets-Abbatt-McCarthy-Stratton (TAMS) between August, 1979 and October, 1980.

## Major Findings

1. The environmental assessment prepared through this sub-project has had a tremendous positive impact. Not only did it fully accomplish its immediate purpose of establishing a blueprint for action on environmental impacts throughout the Mahaweli area, but it has become a seminal document in stimulating sensitivity to environmental concerns throughout Sri Lanka. Specific impacts have included the following.

2. Institutional [environmental] development. Among 160 recommendations produced by the assessment, the overall general recommendation was for the GSL to establish a "national coordinating agency for natural resources." This was done with the creation in 1981 of a Central Environmental Authority. An Environmental Division was also established within the Mahaweli Authority. Other GSL institutions concerned with the environment have also been strengthened as a result of this sub-project.

3. Environmental Plan of Action for the AMP. The Mahaweli Authority consequently commissioned TAMS to prepare such a plan. Completed in November, 1981, it assigns specific responsibilities to various GSL agencies concerning environmental impacts on fish and wildlife, forests, fuelwood sources, and so on.

4. Impact on other donors. The World Bank has now included a requirement for an Environmental Action Plan as a condition precedent for its assistance in development of AMP's "System C."

5. Further USAID actions have included: (a) adding environmental concerns to the terms of reference for "System B" design and supervision funded under A.I.D.'s Mahaweli Basin Development I Project; (b) requiring that the consultant's team include an environmental planner; (c) earmarking \$400,000 in the Mahaweli I Project for measures to mitigate impacts on wildlife and other elements of the environment; and (d) design of a new \$5-million Mahaweli Environment Project which will establish four national parks and upgrade the Department of Wildlife Conservation.

Project Design and Policy Implications. Not all of the 160 recommendations in the assessment report originated with the TAMS team. Many merely endorsed moves already being considered within the GSL. Thus what the assessment did was to add validity to appropriate tentative initiatives and thereby facilitate their acceptance and implementation. In this way, A.I.D. was able to leverage a relatively small investment to influence much larger investments on the part of the host government and other donors.

Recommendation. This sub-project is no longer needed in Sri Lanka, but it should be seriously considered for application elsewhere.

Evaluator: Fred C. Fischer, AID/Washington (Director, ASIA/PNS).  
Report dated September 26, 1983.

PHILIPPINES: U.S. ASSISTANCE TO PRIVATE AND VOLUNTARY  
ORGANIZATIONS IN THE PHILIPPINES, FISCAL YEARS 1980-1982,  
PVO CO-FINANCING, PROGRAM EVALUATION

Overview. There are over 15,000 private and voluntary organizations (PVOs), foreign and indigenous, working in the Philippines. Many play an important role in promoting development. Over the years, numerous PVOs in the Philippines have received support from AID/Washington through centrally-funded grants. Then, during fiscal years 1976-1978, USAID/Manila directly provided nearly \$10 million in operational program grants to six PVOs in the Philippines. This laid the foundation for the PVO Co-Financing Project, following a model already established in other Asian countries.

Project Purpose. The goal of the PVO Co-Financing Project (No. 492-0345) is "sustained increase in private development activities involving beneficiaries and private development organizations to complement [Philippine] government-funded and managed development efforts." This is to be accomplished by "engaging the expertise of U.S. and Filipino PVOs in designing and implementing development activities to meet the identified needs of low income groups" (the project purpose). PVOs were to attempt to satisfy certain basic human needs of disadvantaged populations by increasing incomes and by providing or expanding education, sanitation, health, family planning, nutrition, and legal assistance.

U.S. Assistance. A total of \$5 million in U.S. grant funding was initially approved for a three-year period to begin in fiscal year 1980. The project was to fund up to 75 percent of the cost of selected projects submitted by Philippine and U.S. PVOs. PVO grantees were required to provide a contribution of at least 25 percent of the total subproject cost. A target was also set, however, for PVOs to go beyond the required 25 percent and actually furnish 50 percent of costs, thus bringing the grand total for the project to \$9.73 million. The project was subsequently extended for an additional year (FY 1983) and another \$2 million in U.S. grant funds was added. In addition to the subproject grants, the project also funds technical assistance and training to help PVO staffs improve their ability to design and implement projects. The total project cost amounts to about one percent of USAID/Manila's annual budget.

Purpose and Methodology of the Evaluation. The purpose of this evaluation was to assess progress to date and to identify lessons to use in developing a five-year follow-on project. The evaluation was carried out through 11 weeks of document review, interviews, and site visits to 11 (over half) the sub-projects funded through this project.

Findings. The project has demonstrated the soundness of the co-financing approach and the ability of PVOs to promote development among rural, low-income groups.

1. Progress toward meeting the project purpose has been good.

a. Major targets have been met. The target of funding 20 to 30 PVO subprojects has been met. By the end of 1982, 21 proposals had been funded, out of 57 submitted. (The average U.S. contribution per grant was over \$200,000, for a total of \$4.6 million). Of the 21 subprojects, which are located throughout the country, 14 are sponsored by seven U.S. PVOs (and receive two-thirds of the total funding). Seven are sponsored by six Philippine PVOs. The counterpart funding requirement of 25 percent contribution by the PVOs has been met, but not the 50-percent target.

b. Positive impact on PVO capabilities. The capacity of the PVOs to design and implement local development projects to benefit low-income groups has improved noticeably. Most of the 11 sub-projects evaluated are successfully achieving their objectives; the others are making adequate progress while trying to overcome obstacles not apparent at the outset.

2. It is still too early to assess the impacts of the PVO sub-projects on intended beneficiaries. It is estimated that 287,708 persons will benefit directly, and 186,192 indirectly, from 19 of the 21 subprojects. Most (13) of the 21 subprojects focus on nutritional improvement, 7 on education and human resource development, and one on health and family planning. Four of the Filipino projects focus on helping upland minority groups.

3. Many sub-projects share several shortcomings:

a. Weak project design--over-optimistic designs with unrealistic targets and time-frames (many sub-projects will have to be extended to accomplish their objectives); lack of valid baseline data and adequate evaluation plans;

b. Inadequate participation by the intended beneficiaries;

c. Lack of support by national and local governments; and

d. Difficulty in establishing mechanisms for sustaining activities beyond the grant period.

4. Effectiveness as compared with other types of projects. Despite difficulties, the PVO subprojects appear more successful in promoting development among the poorest majority than are comparable efforts through other development programs.

5. USAID/Manila project administration too ad hoc. USAID has adopted a policy of "maximum flexibility" in the review and approval of proposals. Consistent with this policy, there is no required standard format for proposals nor explicit criteria for reviewing proposals and making funding decisions.

Project Design and Policy Implications. PVO projects, while smaller in scale, are similar in major regards to other A.I.D.-assisted projects. First, their targets are usually overly optimistic, time-frames are often unrealistically short, and

potential technical, administrative, and sociocultural difficulties are not fully understood before implementation is well underway. Second, like other development projects, whether a PVO project is successful depends largely on dedicated and conscientious project management as well as active participation by intended beneficiaries in all aspects of the project. However, while PVOs may not have the technical expertise of some other development organizations, they usually make up for this by the dedication and conscientiousness of their staffs and their greater ability to involve beneficiaries in their activities.

Recommendations. A modified PVO Co-Financing follow-on project should be developed, approved, and implemented.

1. USAID/Manila should change its "maximum flexibility" policy to one of "reasonable flexibility" with explicitly stated procedures for project administration. Related to this:

2. A "mission manual order" should be adopted clearly explaining the project purpose, sub-project selection criteria, implementation procedures, and specific USAID staff responsibilities.

a. High quality criteria for reviewing and judging proposals should be made explicit.

b. Criteria should favor smaller (simpler) proposals, with shorter implementation periods, which would have a more immediate impact on development. Incremental funding should be considered for large, more complex projects.

c. Likelihood of sustainability should be a major criterion.

d. USAID/Manila should improve the review process by reviewing proposals on an ongoing basis, by convening a formal review committee, and by shortening the time between receipt of proposal and notification of approval or rejection to 60 days.

3. USAID/Manila should streamline procedures for registering Philippine PVOs and advancing funds, and should provide better technical assistance and training to the PVOs.

4. Staff workload implications of the new procedures proposed for the follow-on project should be carefully considered.

Evaluation Team: Bernard J. Salvo (team leader), AID/Washington; Raul Viilavicencio, De La Salle University, Manila; Manuel Diaz, Ateneo de Manila University, and Richard Rhoda, USAID/Manila. Report dated August 23-November 5, 1982.

SRI LANKA: PVO CO-FINANCING PROJECT  
END-OF-PROJECT EVALUATION

Overview. The traditional approach to problem-solving at the local level in Sri Lanka is the formation of a temporary, or sometimes more permanent organization, to tackle the problem. In recent years the government of Sri Lanka (GSL) has shown a growing interest in marshalling the considerable resources of such groups, increasingly known as PVOs (private and voluntary organizations) for assisting local communities in self-development. It was this strong interest that provided the background for USAID/Colombo's initiation of the PVO Co-Financing Project.

U.S. Assistance. The purpose of this project (no. 383-0060) is to increase opportunities for local communities to participate in their own development by assisting indigenous and U.S. PVOs in undertaking collaborative activities that improve the lives of the poor. It is a three-year project approved in 1979 to run to 1983 for a total of \$500,000 (of which half was to be a U.S. grant, one-fourth was to be provided by the GSL, and one-fourth by the PVOs).

Purpose and Methodology of the Evaluation. This was a joint A.I.D.-GSL evaluation. Its purpose has been to: (1) examine progress to date; (2) determine to what degree the project objectives have been achieved; and (3) determine whether or not the project should be continued and, if possible, at what funding level. It was conducted in two phases--an initial preparatory phase and a month-long field phase. The field phase began with a week of file analysis followed by site visits to all 11 sub-projects (each team member being responsible for two projects) and, finally, summative analysis.

Major Findings

1. General: The project is well managed, enjoys strong GSL support, and has largely achieved its goals within the limited funding provided. Although firm data on beneficiary impact and cost-benefits are lacking, the project has improved the lives of many poor rural Sri Lankans.

2. Good GSL support. GSL interest and participation in planning, implementing, and evaluating the sub-projects has been commendable. This has had a positive effect on the sub-projects.

3. Good support for indigenous PVOs. The project has excelled in providing balanced support for Sri Lankan as well as U.S. PVOs.

4. Inadequate evaluation. Evaluation of the sub-projects by the PVOs conducting them has generally been inadequate for producing reliable measurements of beneficiary impact as well as cost-benefit ratios.

5. Funding has been adequate to date. This level will not be adequate in the future, however, as the number of worthwhile proposals is increasing.

6. Effective PVO guidelines. USAID/Colombo has developed easy-to-understand "standard provisions" to guide the PVOs. By eliminating bureaucratic jargon and references to unavailable A.I.D. handbooks, much of the usual confusion has also been eliminated.

7. Good selection process. The selection process has not been pro forma but has sought rural activities that would meet project goals. Of 38 proposals reviewed, 11 were funded.

The sub-projects (and the responsible PVOs) are: Training in Agriculture and Livestock Breeding and Care (Diyagala Boys' Town); Extension Services for Rural Women in Family Health and Income Generation (Overseas Education Fund of the League of Women Voters); Training of Women in Agriculture and Animal Husbandry (Yahapath Endera Farming Center); Motivating Rural Women in Family Health (Lanka Mahila Samithi); Training Workshop on Project Management, and Rural Women Leaders' Exchange Program (Sri Lanka Women's Conference); Indigahena Village Development Project (Sri Lanka Overseas Foundation); Meegoda Semi-Urban Development Project (U.S. Save the Children Federation); Vocational Training for the Physically Handicapped, and Integrated Development of Kimbulwena Oya Colonization Scheme (International Human Assistance Programs, Inc.); and Experimental Village Development Project (Marga Institute).

### Project Design and Policy Implications

1. The value of adequate evaluations is the most important lesson learned.

2. Quality leadership and proper top-level management is one of the most important factors in sub-project success.

3. Simplification of the PVO standard grant provisions was an innovative process that has been of great assistance in helping PVOs meet their responsibilities, particularly in financial management of A.I.D. funds. AID/Washington and other missions should seriously consider replication of these guidelines.

4. The co-financing arrangement has strengthened the GSL's sense of responsibility for project success and has also reduced problems associated with fiscal year-end obligations. (Development of the project with the GSL and consequent annual lump obligations of funds may be unique and could be a beneficial model for other A.I.D. missions.

### Major Recommendations

1. General: If staffing is adequate, the project should be

continued for at least an additional five years and funding raised to \$1 million. The following changes are recommended.

2. Evaluation. USAID/Colombo should institute--under the present project--more rigorous evaluation procedures.

3. Replication. Sub-projects that are especially successful should be studied systematically and discussed by USAID and the GSL for replication or adaptation on a larger scale.

4. Reassessment of priorities. Objectives in the project guidelines should be assessed and re-ranked periodically to accord with overall priorities of USAID and the GSL and thereby encourage the PVOs to concentrate more in these areas.

Evaluation Team: Mr. Robert Craig, Sr., team leader, AID/Washington; Ms. A.J. Liyanage, Ministry of Plan Implementation, GSL; Mr. E. Siribadhana, Ministry of Finance and Planning, GSL; Mr. Nagalingam Mahesan, PVO Officer, USAID/Sri Lanka; Mr. Donald B. Clark, USAID/Sri Lanka. Report presented April 26, 1983.

THAILAND: CO-FINANCING PROJECT No. 493-0296 OF USAID/THAILAND  
WITH THE PRIVATE VOLUNTARY ORGANIZATIONS, INTERIM EVALUATION

Problem and Overview. The overall development strategy of the Thai government encourages multiplying and improving local-level private-sector development efforts. A history of voluntarism exists in Thailand and the Buddhist emphasis on "making merit" through acts of generosity supports the government's interest in involving private voluntary organizations (PVOs) in development activities.

U.S. Assistance. During the period 1976-1979, A.I.D. funded 18 PVO projects in Thailand under the Asia regional project, "Private and Voluntary Organizations." In 1980, the present PVO Co-Financing Project (No. 493-0296) was initiated to continue this funding for an additional 5-year period. Of the total project cost of \$10 million, A.I.D. is providing \$5 million (other donors \$4 million, and the Thai government \$1 million). This co-financing arrangement was to allow project review, approval, and funding to occur at the mission level, thus giving the mission the flexibility to respond relatively quickly to PVO proposals. Each A.I.D.-supported PVO project is reviewed by the Department of Technical and Economic Cooperation of the Thai government which in turn clears it with the appropriate ministries and agencies.

Purpose of the Evaluation. The purposes of this evaluation are: 1) to assess the extent to which the project purpose has been achieved; 2) to assess the management of the PVO sub-projects; to assess the effectiveness and impact of the PVO sub-projects; 4) to assess the effectiveness of the sub-project approval process; and 5) to make recommendations for the design of PVO Co-Financing II. Conclusions are based on document review, visits to sites of 15 projects, and interviews with PVO staff members and A.I.D. and Thai officials.

### Major Findings

1. The project has been effective and should continue into a second phase. Several lessons have been learned about PVO work in Thailand that can be used to good advantage in the coming phase.

2. The PVOs' financial management practices have been good, but their progress reports are often late and sometimes non-existent.

3. The weakest aspect of the PVO projects is their design. The PVOs are good at identifying needs and target groups, but they often fail to specify reasonable project objectives that can be assessed through monitoring and evaluation.

4. A.I.D.-supported PVOs in Thailand have been effective in reaching the rural poor and many have worked with the poorest of

the poor.

5. The projects reviewed vary widely in their definitions and degree of participation. In only two cases did the mode of participation seem important to the distribution of benefits.

6. All projects except one have left behind a sustained level of activity. This ranges from from new institutions to on-going groups to strengthened governmental activities.

7. Many elements of the PVO projects merit replication, but little replication has taken place. The reason is failure to disseminate lessons learned.

8. Project selection criteria are unnecessarily complicated.

9. Approval time for PVO sub-projects does not appear to have been shortened by the co-financing arrangement.

10. Direct support to indigenous [Thai] PVOs has not increased.

11. Staff assignments and responsibilities in USAIDn/Thailand's Office of Human Resources and Training (which manages this project) are unclear, and workloads are undermining staff morale.

12. The belief that PVOs are "management intensive" for A.I.D. was not borne out by this review.

13. The number of PVO sub-projects receiving A.I.D. support, their funding schedules, and their costs all appear appropriate.

#### Recommendations and Policy Implications for USAID/Thailand

1. USAID/Thailand should concentrate its PVO management time on the design phase. It should encourage PVOs to think more carefully about outcomes and impacts and about ways to assess these during and after implementation.

2. The Office of Human Resources and Training should review and clarify its staff responsibilities. No additional staff should be hired until this is done.

3. The selection process for projects should be regularized. Selection criteria should be simplified and distributed to the PVO community.

4. USAID/Thailand should determine more clearly the priority it places on strengthening Thai PVOs and make appropriate management arrangements to support this decision.

5. USAID/Thailand should support collection and dissemination of lessons from project experiences that warrant replication.

6. In project design, A.I.D. should:

- a. Encourage the use of revolving loan funds;
- b. Insist that market research be done prior to plans for production or training; and
- c. Ensure that leadership training and community development efforts incorporate an action component around which changes in participants' skills can be assessed.

Evaluation Team: Dr. Mary B. Anderson and Dr. Nicola Tannanbaum, independent consultants. Report dated Summer, 1983.

REGIONAL: GRANT TO ASIA FOUNDATION FOR "EXPANDED PROGRAM FOR FURTHERING HUMAN RIGHTS IN ASIAN COUNTRIES",  
ASIA FOUNDATION IN-HOUSE EVALUATION

Overview. In 1977 and 1978, the Asia Foundation was strongly encouraged by the Carter administration, including the President himself, to expand its efforts to improve human rights in Asia. The Asia Foundation was selected because of its ongoing program in law and social justice and its experience and contacts, going back to the 1950s, in promoting the growth of more open and just societies in Asia. The purpose of the grant (AID/ASIA-G-1420) was "to implement programs and activities that will encourage or promote increased adherence to civil and political rights in various A.I.D. countries as set forth in the Universal Declaration of Human Rights." This was a three-year grant (1979-1982) totalling just over \$1 million. The particular focus was to be on providing legal assistance to the poor, promoting the rights of women, and furthering human rights in general.

Purpose of the Evaluation. The purpose has been to evaluate the achievements of the three-year program and to extract lessons learned. Conclusions are based on written and oral reports, other observable results, and an earlier external evaluation.

Major Findings. The grant was implemented in accord with the grant agreement and has fulfilled its general purpose. The direct and indirect beneficiaries probably number in the hundreds of thousands, and a delayed ripple effect will extend to others. Sixty-six subgrants were made to organizations and individuals in Bangladesh, Korea, Malaysia, the Philippines, and Thailand. Of these, 33 (the larger and middle-sized subgrants) were for projects of Asian institutions or organizations, 10 were for distribution of legal and human rights books and journals to Asian and Pacific libraries, and 23 (the smaller subgrants) supported Asian attendance at conferences and seminars, short internships, and observation tours, and consultancies by American experts.

I. The five specific objectives of the grant were met as follows.

1. Legal aid was provided to poor people through legal literacy programs, clinical legal education, and expanded outreach programs of legal aid centers and bar associations;

2. The status and legal rights of women, and the education of women as to these rights, were clearly advanced through seminars, publications, and women lawyers' associations;

3. In limited situations, the administration of justice was made more humane as a result of cooperative action programs of bar associations, social and religious voluntary organizations, and the courts;

4. Human rights outreach activities of universities were

extended in four countries through legal literacy and clinical legal education programs; and

5. Asian participation in regional and international human rights activities was increased.

II. The following lessons were learned through this experience.

1. Reasons for failure. Of the 66 projects, 3 were clear failures and 4 were marginal. In each case, reasons were insufficient planning, commitment, and leadership on the part of the project principals. In two cases, changes in the political climate also limited success. Logistical difficulties often slowed implementation, but not seriously where committed leadership existed.

2. Initiative and genuine commitment on the part of local project leaders is critical. The most successful projects were characterized by intelligent, pragmatic planning and strong leadership in implementation. Foreign initiatives and getting out ahead of local planning and action usually do not work.

3. Success is much more likely when activities emanate from an established organization (such as a university, a women's organization, or a bar association).

4. Some changes in attitudes and behavior appear to have occurred. A clear effect was to broaden and strengthen the leadership base of persons concerned with enhancing and protecting civil and political rights. Some ripple-effect changes also took place outside the small circle of project principals.

5. A mix of small, medium, and large grants (or subgrants) is optimal. Size is secondary in importance to "integrated" programming (linkage to other ongoing activities). Large subgrants alone would not have been desirable, given the stage of human rights development and the experimental nature of most of the proposed activities. The Foundation's decision to use small or seed-money permitted it to encourage a wide range of recipients to experiment with new ideas and techniques with a minimum financial risk. An incremental approach is often more effective than a one-time large grant; when a succession of small grants is incremental in nature, the cumulative impact can be greater than the sum of the individual activities.

6. More long-term benefits might have been achieved had more emphasis been placed on institution-building rather than provision of legal aid services to the poor.

7. Ability to respond quickly to project opportunities is of great importance. Many potentially good projects were aborted while waiting A.I.D.'s approval in the start-up period. A.I.D.'s subsequent speed-up of its approval procedures and its willingness to permit substitutes for projects that became moot contributed significantly to the successes that were

achieved.

8. Counterpart contributions, as reported, were slightly less than grant funds spent on the projects. The poor are in no position to provide counterpart funding, the recipient institutions were themselves stretched for funds, and fewer local lawyers than anticipated proved willing to volunteer services on a pro bono basis.

9. Earlier and closer monitoring could have improved the chances for success. This refers both to the Asia Foundation and to A.I.D.. The Foundation's reporting and evaluation of progress could have been made more useful to A.I.D. had A.I.D. responded with more substantive comment on each of the three annual reports submitted while activities were underway.

10. Final reporting by grantees was unsatisfactory in many cases. Many reports were only perfunctory, uncritical and totally lacking in substantive evaluative comment.

11. Post-project evaluations of individual projects, and overall evaluation of the program, are only as good as the basic reporting data--which tends to be poor unless guided.

Project Design and Policy Implications. Political and cultural sensitivity to the intrusion of foreign ideas, advice, and assistance in the area of human rights exists to some degree in all Asian countries and limits what an American institution can do. Care and respect for political and other local sensitivities is essential. Difficulties can be avoided, or dealt with successfully, by making sure that Asians assume and retain major responsibility for planning and implementation of human rights projects.

### Major Recommendations

1. Follow-up support for proven institutions is needed. Many of the most promising institutions continue to need outside assistance. Without this, initial investments may be lost.

2. Plans, commitment, and the leadership of the recipient institutions should be re-checked before a grant is actually awarded to verify that sufficient commitment and capabilities still exist. This is especially crucial when delays have occurred between project development and funding.

3. Reporting requirements need to be agreed to and emphasized at the outset of the grant. These should include: number and kind of beneficiaries, financial accounting, and evaluative criteria.

Evaluation Committee: Harry H. Pierson (director), Dr. Robert S. Schwantes, Julio A. Andrews, Doris G. Bebb, Ben Kremenak, and Dr. Elizabeth H. White. Report dated November 18, 1983.

INDIA: PL 480, TITLE II, FOOD FOR WORK: TANKS AND DAMS,  
PROJECT OF CATHOLIC RELIEF SERVICES: DELHI ZONE,  
IMPACT EVALUATION STUDY

Overview. Catholic Relief Services (CRS) implements Food-for-Work projects in India with the general goal of promoting rural development. The projects are chiefly construction projects intended to bring new or increased benefits to the local population. The projects also bring immediate employment benefits to the workers hired to carry out the construction. These workers receive their wages in food commodities provided by the U.S. government through CRS. The magnitude of the program is indicated by the amount of food commodities distributed in India by CRS during fiscal year 1980--a sum corresponding to 21.8 million man-days of labor. CRS has its Indian headquarters in New Delhi and implements the program through five regional offices.

In one of the five CRS regions, the Delhi zone, a major part (about 45 percent) of food commodities distributed through CRS Food-for-Work projects during the period 1978-1981 went for the construction of 37 irrigation tanks.

Purpose and Methodology of the Evaluation. The immediate purpose of this evaluation was to identify and document the impact of the 37 irrigation tanks. This was one of several similar studies commissioned by USAID/India to help A.I.D. and CRS gain a better understanding of the impact of their Food-for-Work projects. The studies are being conducted for A.I.D. by the Centre for Research, Planning and Action (CERPA) in New Delhi.

Issues that concerned USAID included: (1) the purpose for constructing the tanks; (2) whether the tanks constructed had achieved this desired purpose; and (3) whether this CRS program is helping small and marginal farmers and landless workers.

Conclusions are based on data collected through a field survey conducted by trained CERPA data collectors by means of structured interview schedules. A total of 740 persons were interviewed. These included 444 project beneficiaries (men who availed themselves of irrigation benefits from the tanks) and a control group of 148 "non-beneficiaries" (men who lived in the vicinity but did not receive such benefits). Only males were included in the sample on the grounds that women in India are seldom land owners.

Major Findings. About 800 peasant families appear to derive benefits from the irrigation tanks. The primary beneficiaries, however, are not the smallest, marginal farmers or landless workers.

1. The 37 tanks serve an average of 22 beneficiaries each. Almost all these beneficiaries are married. 82 percent are cultivators. Nearly half are illiterate. Almost all are Hindus. Most belong to low castes (as do most of the non-beneficiaries).

2. The beneficiaries are people who were wealthier at the

outset of the projects than were the non-beneficiaries. The average size of land owned by the beneficiaries was rather large. (Nearly 80 percent each own more than 5 acres of unirrigated land.) The beneficiaries' incomes were also greater than the non-beneficiaries'. (Nearly 60 percent of the beneficiaries have incomes greater than 1000 rupees per month--although, even so, very few of their homes have electricity or piped water.)

3. The proportion of the beneficiaries' land being irrigated increased due to the tanks (from about 40 percent at pre-project to about 60 percent at present). Among the non-beneficiaries, land under irrigation averages only about 20 percent.

4. Agricultural output of the beneficiaries increased from pre-project to present. Increases ranged from about 20 to about 45 percent depending on the season and crops (i.e., kharif vs. rabi). Agricultural output of the non-beneficiaries remains significantly lower because they own much less land.

5. Employment levels of the beneficiary families rose an average 17 percent from pre-project to present. The additional irrigation provided by the projects created increased work opportunities for the beneficiaries and their families. As compared to the control group, average employment for the beneficiary group was 60 percent higher after the projects.

6. The proportion of income beneficiaries derive from off-farm activities increased slightly as a result of the new tanks.

7. The overall incomes of the beneficiaries increased an average of 51 percent from pre-project to present (although not all of this can be attributed to the projects).

8. The projects appear to have caused changes in the consumption patterns of more than half of the beneficiaries. About half of these beneficiaries said the changes were for better quality food, including milk, and that their improved nutritional status was reflected in less illness and improved growth in their children. About a third said the changes meant more clothing.

9. Fulfillment of traditional socioeconomic obligations. Most beneficiaries said the projects made it easier to meet socioeconomic obligations such as marriage of dependents, redemption of old debts, attending festivals, and making religious pilgrimages.

10. Literacy appears a determining factor in who gets access to project benefits. The more literate people tend to benefit more.

11. The investment. Food commodities equivalent to 6,797 bulgar tonnes were distributed during the four-year period when the 37 tanks were constructed. This investment helped generate one-time employment in the magnitude of 1.68 million man-days of labor in connection with the construction work. In addition, repetitive full-time employment was generated for 345 persons because of the increased productivity of the tank-irrigated areas.

12. Variation in commodities used. The number of man-days worth of Food-for-Work commodities used in constructing the tanks varied greatly. (55,837 man-days worth of commodities were distributed in the Mirzapur consignee area vs. 7200 and 8133 man-days, respectively, in the Mariabad and Majghai consignee areas.) The area irrigated per tank in Mirzapur was also relatively high.

13. The tanks. According to most beneficiaries, the water supply is usually adequate, water seepage is normal and not a source of worry, but some silting does occur. Maintenance is not carried out on any regular basis but only when required.

Recommendations. The only recommendations provided by the report are those of beneficiaries interviewed. When asked to give suggestions for improving the program, most beneficiaries (about 85 percent of the sample) did not give any. Those who did suggested:

1. Constructing the tanks of stone;
2. Raising the water level in the tanks;
3. Adding more tanks; and
4. Linking the program with loans for pumpsets.

#### Project Design and Policy Implications.

1. Impact on poorest farmers and workers. The construction of these irrigation tanks helped increase both agricultural output from the land irrigated by the new tanks as well as the incomes of some 800 families living near the tanks. The projects appear, however, to have widened the gap between the poorest and the better-off families. (How much wealthier the better-off families actually are is not clear from the report.)

2. More analysis needed. Useful quantitative data are provided by this study. However, the essential task of analyzing these findings and translating them into programmatic recommendations was not carried out in preparing this report. Ideally, the scopes of work for all evaluation studies should require: (a) analytic conclusions (moving beyond data tabulation) as well as (b) recommendations by the evaluators, in addition to those of beneficiaries, for improving the program.

Evaluation Team: S.P. Ahuja (project director) and staff of the Centre for Research, Planning and Action, New Delhi. Report dated April, 1983.

INDIA: PL 480, TITLE II, FOOD FOR WORK: DEEPENED IRRIGATION WELLS,  
PROJECT OF CATHOLIC RELIEF SERVICES: MADRAS ZONE,  
IMPACT EVALUATION STUDY

The Problem. Drought conditions have prevailed during the entire past decade in the part of Madras where this project was carried out. The drought became especially severe during the late seventies. Wells dried up, or produced salty water, and many were abandoned for this reason. Many villagers were left without water for irrigation and suffered from scarcity of food. It was in the wake of acute drought that this project was undertaken.

U.S. Assistance. In 1978 and 1981, Catholic Relief Services (CRS) sponsored a series of well-deepening projects in Madras. The strategy was to deepen existing irrigation wells so that local well-owners would have an increased supply of water.

The well deepening was carried out as part of the Food-for-Work program that CRS implements in India with the general goal of promoting rural development. The projects are chiefly construction projects intended to bring new or increased benefits to the local people. Workers who carry out the construction are paid in food commodities provided by the U.S. government through CRS. The magnitude of the program is indicated by the amount of food commodities paid out in India by CRS during fiscal year 1980--a sum corresponding to 21.8 million man-days of labor. CRS has its Indian headquarters in New Delhi and implements the program through five regional offices, of which Madras is one.

Purpose and Methodology of the Evaluation. The purpose of this study was to provide a better understanding of the impact of the deepened irrigation wells completed in 1978 and 1981 in the Madras Zone of CRS. Issues that concerned USAID included: (1) the reason for deepening the wells; (2) whether the deepened wells achieved their intended purpose; and (3) whether they are helping needy segments of the population (such as landless laborers and marginal farmers). This was one of several similar studies commissioned by USAID/India to help A.I.D. and CRS gain a better understanding of the working of Food-for-Work projects and their impact on economic and social development on the poorer people of rural India. The studies are being conducted by the Centre for Research, Planning and Action (CERPA) in New Delhi.

Conclusions are based on formal interviews with 308 project beneficiaries (well owners whose wells were deepened by the project) and a control group of 45 non-beneficiaries. The study was carried out on 19 well projects out of the 95 done in FY 1978 (73 beneficiaries interviewed) and on 37 of the 216 projects done in 1981 (235 beneficiaries interviewed). Data were collected through a field survey conducted by trained CERPA data collectors by means of structured, pre-tested interview schedules. Projects and beneficiaries were selected by means of a two-stage stratified sampling design.

## Major Findings

1. Overall impact: Increased irrigation, made possible by the deepened wells, has helped considerably in raising the incomes of the intended beneficiaries. The increase is much greater for the 1978 beneficiaries than for the 1981 beneficiaries. This suggests that about 2 to 3 years is required for a well owner to maximize efficiency of his irrigation facilities (by increasing the cropped area and changing the cropping pattern).

2. Agricultural production increased after the wells were deepened. The cropped area per beneficiary increased, as did the percentage of irrigated area. The combined effect of the increase in cropped area and irrigated area is reflected in increase in output. This was about 70 percent higher for the 1978 group and 33 percent for the 1981 group. In value terms, the increase in output was about one-third (40 percent in 1978 and 33 percent in 1981).

3. Beneficiaries' employment levels increased after the wells were deepened (by about 21 percent for the 1978 beneficiaries and 17 percent for 1981 beneficiaries). The beneficiaries' employment levels were about one-third higher than those of the non-beneficiaries (35 percent higher in 1978 and 30 percent higher in 1981).

4. Beneficiaries' income levels increased by an average of about one-third (39 percent in 1978 and 31 percent in 1981). Most of the increase derived from agriculture and allied activity (e.g., animal husbandry). The beneficiaries' average incomes were higher than the non-beneficiaries' in both 1978 and 1981, especially in the amount derived from agriculture.

5. The projects did help poorer, less advantaged people. The beneficiaries interviewed were predominantly middle-aged, married, male farmers. The majority were small and marginal farmers (86 percent in 1978, 93 percent in 1981). About half had incomes ranging from only 100 to 300 rupees per month. Most had little formal education. (About 36 percent were illiterate, about 33 percent had primary education, and 24 percent had middle or higher level education.) About a quarter to a third belonged to scheduled castes and tribes or backward classes. Almost all owned their own homes, the standard of which was mixed. Some 80 to 85 percent of the households had electricity, outside if not inside, but fewer than 10 percent have sanitary facilities. The majority (about 76 percent) depend on their wells for their water supply. (Nothing is reported concerning landless laborers).

6. The beneficiaries were quite similar to the non-beneficiaries in terms of socioeconomic and demographic characteristics.

7. Effectiveness and characteristics of the deepened wells.

-The deepened wells yield a more continuous supply of water for the beneficiaries than do the non-beneficiaries' wells for

the non-beneficiaries. (About 65 percent of the beneficiaries' wells yield water continuously. The proportion of non-beneficiaries whose wells yield water continuously was 62 percent in 1978 and 51 percent in 1981.)

-Most of the wells that were deepened were in areas that lack other sources of irrigation. Nearly half the wells deepened were ones that had dried up.

-About 80 percent of beneficiaries had used their own money to dig the original wells. About 18 percent of the wells were originally dug with Food-for-Work assistance.

-Only a minority of well-owners consulted any development authorities regarding deepening the wells.

-About two-thirds of the beneficiaries expressed total satisfaction with the wells.

-An average of two family members participated in the well-deepening work in 1981, as compared to one in 1978. There was also an increase in hired labor from 1978 to 1981.

8. The average cost per well is estimated to have been 1166 kilograms of bulgar units in 1978 and 1250 kilograms in 1981. Additional employment this generated is estimated at 93 man-days in 1978 and 67 man-days in 1981. This means that the average cost of the wells deepened was higher in 1981 than in 1978, although the returns were lower in 1981. The pay-back period for the 1981 wells (4-1/4 years) is also longer than it was for the 1978 wells (2-1/3 years).

9. Many beneficiaries know Food-for-Work (FFW) was involved. Asked whether any steps were taken to combat drought under the FFW program, about 70 percent answered yes and knew it was to deepen the wells. Only some 10 percent said they would have deepened their wells without FFW assistance.

Recommendations. None are provided by this study. Useful quantitative data are provided, but the essential task of interpreting these findings and translating them into "bottom-line" conclusions and programatic recommendations was not carried out. Ideally, scopes of work for all evaluation studies should require: (a) analytic conclusions (moving beyond data tabulation), as well as (b) recommendations by the evaluators for improving either the project or related future projects. Also, reports of such studies should begin with a concise description of the project (summarizing where, how, and why it was carried out).

Evaluation Team: S.P. Ahuja (project director) and staff of the Centre for Research, Planning and Action, New Delhi. Report dated January, 1983.

INDIA: THE OILSEED GROWERS' COOPERATIVE PROJECT,  
MID-PROJECT JOINT EVALUATION

The Problem. In recent years, the demand for edible oils in India has been far greater than domestic production. In 1982-83, for example, even with massive imports of food oils, it was barely possible to maintain per capita consumption at 50 percent of nutritional requirements.

Project Purpose. The purpose of this project is to establish an integrated oilseeds and vegetable oil production, procurement, processing, and marketing system that will help meet the need of India's people for edible oils.

U.S. Assistance and Project Strategy. This is a seven-year project (1979-86) financed by local currency being generated from commercial sales in India of soybean oil provided by the U.S. Food for Peace Program (PL-480 Title II). The soybean oil is provided under a transfer authorization between A.I.D. and the Cooperative League of the United States of America (CLUSA). CLUSA, as the cooperating sponsor (intermediary) procures and transfers the donated oil to India's National Dairy Development Board (NDDB). This is done under a CLUSA-NDDB memorandum of agreement and a multiyear operational plan prepared by CLUSA and A.I.D. NDDB manages the project and has established within itself an Oilseeds and Vegetable Wing (NDDB/OVOW) for this purpose. CLUSA is responsible for monitoring and reporting on progress.

Processing and marketing are to be done through "grass-roots" cooperatives--oilseed growers' cooperatives that the participating farmers will themselves control. Plans are modeled after the "Anand Cooperative Pattern," which the NDDB successfully used in developing the dairy industry. The strategy is as follows. Using proceeds from the sale in India of the donated U.S. soybean oil, the project: (1) helps participating farmers to improve their production of oilseeds; and (2) helps the newly established cooperatives to procure the oilseeds from the farmers (while giving the farmers an assured market), to process the oilseed efficiently, and to market profitably the edible oils produced.

NDDB/OVOW's primary function is to develop the institutional infrastructure required for the cooperative system. While NDDB/OVOW has overall management control initially, the project places major responsibility with the Oilseeds' Growers Federations of five participating Indian states for organizing and improving the grass-roots cooperatives and for improving the entire process from growing the oilseed to marketing the final product. Eventually the five state federations are to be included in a National Federation, which is to be established by the end of the project. NDDB/OVOW will then phase out.

Purpose and Methodology of the Evaluation. The purpose of the evaluation was: (1) to assess progress to date, including impacts of the project on beneficiaries and the likelihood of achieving

end-of-project objectives; (2) to summarize lessons learned; and (3) to make detailed recommendations for helping achieve the project's objectives. Methodology consisted of five weeks of document analysis, interviews, and field visits to Anand and project sites in the five participating states.

### Major Findings

1. Overall performance has been impressive, although achievements have fallen short of the original and revised targets. The project is basically well designed, is being well implemented, and is well staffed and supported at NDDB.

2. Start-up was delayed about a year by delays in shipment of the donated oils and their subsequent sale in India, by two state governments' initial concern over the strong role of NDDB, by a monsoon and storm, and by misunderstandings and disagreements among NDDB, CLUSA, and A.I.D. over provisions in the project agreements (e.g., jurisdiction in India of the U.S. Inspector General).

3. Oilseed "production enhancement" is progressing, but it is too early to determine whether the project can help increase yields. Progress and prospects are quite different for each of the five states. Madhya Pradesh has made a good start.

4. Procurement levels have been below target. The cooperatives have not been able to buy from member farmers the quantity of oilseed anticipated. Future procurement levels are very difficult to predict. The currently budgeted revolving fund for procurement is very inadequate. Project assumptions and policies concerning pricing are questionable.

5. Problems in oilseed processing. The plan was to acquire and renovate existing processing plants, and to construct new ones with the latest technology, to permit the federations to compete with private oilseed processors. Problems include:

a. Bureaucratic procedures for securing the licenses needed for operating the plants require 1 to 1-1/2 years.

b. The handling of materials for incoming oilseeds, in-process materials, and finished products is all done manually, and is thus uneconomical.

c. Plants have not been able to operate enough days a year to offset the high fixed and capital investment costs.

d. Hexane losses are very high in the solvent plants.

6. Marketing progress mixed. Sales of donated oils have been below target. Marketing of project-produced oils at remunerative prices has generally not been a problem.

7. Financial management and planning is very weak within NDDB/OVOW, the state federations, and the processing plants.

Project Design and Policy Implications. The overall project strategy appears sound, but the project design appears to have been weak in three main ways: over-optimistic assumptions about the speed with which activities could be accomplished, over-optimistic assumptions about yield increases, and failure to build in adequate financial planning and management capabilities.

### Major Recommendations

1. Oilseed "production enhancement" should be improved by:
  - a. Improving the distribution and storage of inputs (pesticides, fertilizers, and oilseeds);
  - b. Stabilizing annual yields at moderate levels rather than trying to increase them substantially;
  - c. Recruiting a Ph.D. to each federation headquarters to oversee research;
  - d. Advance planning to ensure early results from research;
  - e. Hydrological surveys to locate groundwater sources; and studies to find inexpensive, low-energy usage, highly efficient means of water distribution on small farms with wells.
2. Procurement. The project should adopt a uniform pricing policy and concentrate on providing the inputs and technology needed to increase yields. The many procurement issues should be the subject of careful, ongoing operations research.
3. Oilseed processing. The entire process should be mechanized and the power-failure problem solved.
4. Marketing should be improved. Centralizing market information, analysis, and forecasting within a group of well-trained analysts, who have access to the NDDB computer, could reduce the cost of good information and give the federations a competitive advantage in the market.
5. Financial management should be improved as follows.
  - a. The operating (MYOP) budget should be reclassified into the three major activities being supported: developmental, operational, and capital.
  - b. The state federations should be divided into geographic regions and the processing plant managers given semiautonomous jurisdiction within their area.
  - c. The present budget deficit should be made up by providing 37,000 MT of soybean oil above the 160,000 MT already approved.
  - d. The federation share capital provided by NDDB should be related to the success a federation has in achieving its individual and cooperative society membership.
  - e. Professional financial analysts are needed immediately within NDDB/OVOW and to train personnel in the federations.

Evaluation Team: An eight-member team (six experts recruited by CLUSA, one representative from India's Ministry of Agriculture, and one representative from NDDB/OVOW). Report dated June, 1983.

SRI LANKA: NUTRITION PROGRAMS IN SRI LANKA USING U.S. FOOD AID,  
INTERIM EVALUATION OF P.L. 480 TITLE-II PROGRAMS

Problem and Overview. Among the poor in Sri Lanka, malnutrition continues to be a serious problem. A respected 1976 survey revealed that 42 percent of preschool children were malnourished, and evidence is that malnutrition is at least as prevalent today.

U.S. Assistance. The P.L. 480 Title-II Program of food supplementation began in Sri Lanka in 1957 when a school feeding program was initiated through CARE. This has evolved into the School Biscuit Program, an effort to provide 1.25 million school-age children with 44 grams of nutritious biscuit on 180 school days each year. In 1972, CARE added a second program which distributes to needy children, through the health care system, a weaning food called Thripasha (meaning "triple nutrient value"). A.I.D. funding through 1981 for both programs totalled \$85 million in commodities. In 1981, the cost of U.S.-provided commodities was \$2.88 million for the Thripasha Program and \$1.68 million for the School Feeding (Biscuit) Program.

Purpose and Methodology of the Evaluation. The purpose of the evaluation was: (1) to assess the nutritional impact and cost-effectiveness of the program, relative to all other food and nutrition programs in Sri Lanka; and (2) to make recommendations for improving the program and for establishing an ongoing monitoring and evaluation system. Methodology consisted of: first, design and execution of impact and cost-effectiveness studies; second, quantitative analysis; and, third, interpretation of the quantitative results by knowledgeable persons in Sri Lanka and preparation of the report during four weeks' on-site analysis.

### Major Findings

#### I. The Thripasha (Maternal Child Health) Program

1. Impact: The program is reaching needy children and helping improve their nutritional status. In addition to providing nutrients, distribution of Thripasha through government-sponsored MCH clinics is an incentive for children and family members to visit the clinic on a regular basis, allowing the health staff opportunity to treat cases and provide preventive services. It is not possible to determine the impact of Thripasha alone, but evidence is compelling that the package of services provided through the clinics has improved nutritional status and that, without Thripasha, this improvement would not have been achieved.

2. Comparative impact: The amount of nutritional improvement in this program surpasses that seen in any other food supplementation program that has been subjected to comparable analysis.

3. Cost-effectiveness: Thripasha delivers more nutrient per rupee than its nearest competitor. With regard to protein, it is

twice as cost-effective. The cost of producing Thriposha is only slightly higher than the cost of the commodities.

## II. School Feeding

1. Impact: The benefits of this program are virtually impossible to quantify at this time. Intuitively it can be argued that the biscuits help fill the nutritional gap for elementary school children, but it is not and will not be possible to identify any exact nutritional impact. Further studies, however, may be able to show correlations between school feeding and school attendance.

2. Cost effectiveness: A higher percentage of costs goes to producing the biscuits than is true for Thriposha. The biscuits are more expensive per calorie and per gram of protein than Thriposha. However, unlike Thriposha, they are ready to eat; as they do not need to be mixed with water, they are very appropriate for the schools, many of which lack safe drinking water.

## III. Management

1. Management structures are not optimal due, at least partly, to the complex interrelationships among the concerned ministries, A.I.D., and CARE. Fragmented control over food and nutrition matters often results in non-productive debate about validity of information rather than appropriate focus on central issues.

2. Operational aspects of the programs are satisfactory. Some abuses (e.g., sharing, spoilage, and selling of the food) do occur, as in all programs of this kind, but are not excessive.

## Major Recommendations

### I. The Thriposha (Maternal Child Health) Program

1. Expand the program. A.I.D. should work together with the government of Sri Lanka and CARE to establish an expansion plan, taking into consideration production capacity, transport costs for additional commodities, and the capacity of the health care system. To the extent possible, expansion should be achieved by increasing the proportion of locally-grown commodities.

2. A.I.D. should maintain or increase its level of support through P.L. 480 as the shift toward indigenous commodities progresses.

3. The government of Sri Lanka and CARE should continue to collaborate to increase coverage through both the MCH system and the commercial market. They should determine the rate of commercialization and geographic expansion, but sales, distribution, and promotion should be contracted out to a single firm, which will return a percentage of the profit to CARE and the government.

4. Commodity mix. The planned phase-out of gifted ICSM commo-

dities should be accompanied if possible by the addition of milk.

5. Beneficiary targeting should be improved.

6. Mothers should be trained to assist in filling out the health charts for their children. This would improve the educational component and ease the staff burden.

## II. School Feeding

1. P.L. 480 Title-II should not be used for island-wide expansion of school feeding, despite the government of Sri Lanka's desire for such expansion. However, because of the Sri Lankan government's especially strong commitment to school feeding, the current program should be maintained, unless there is a mutually agreed upon plan for phasing down.

2. Beneficiary targeting at the level of the individual child would be both ineffective and too costly, unless it were part of a health care program. In any case, the current basis for targeting is obsolete and needs updating.

3. Commodity mix: A wheat-based commodity must be used for the biscuits, unless the biscuits are replaced by something else entirely--which would almost certainly be a mistake.

## III. Management

1. A simplified management structure should be developed for coordinating all food programs in Sri Lanka.

2. A common, shared information (monitoring and evaluation) system should also be established. This system should be based on the routine collection and use of a minimum quantity of relevant data at the point of service delivery. It should carefully monitor impact as well as process variables.

3. Research and field experiments should be carried out to systematically explore some of the basic issues over which much arguing presently takes place.

Project Design and Policy Implications. This has been a thorough attempt as possible to demonstrate nutritional impact --to show that the P.L. 480 program in Sri Lanka has helped reduce malnutrition. While the Thripasha supplement clearly appears to have contributed to nutritional improvement, it cannot be said that the school feeding program has a nutritional impact. Support for it must be argued on other grounds.

Evaluation Team: William Drake, Ph.D. (team leader) and Roy Miller, Ph.D., Community Systems Foundation; Abraham Horwitz, M.D.; Harold Rice, Ph.D., and John Gunning, AID/Washington; and Gnani Thenabadu, M.B.B.S., M.P.H., USAID/Sri Lanka. Report dated October, 1982.

PHILIPPINES: REAL PROPERTY TAX ADMINISTRATION PROJECT (RPTA II),  
END-OF-PROJECT EVALUATION

Project Purpose and Background. The Real Property Tax Administration Project ("RPTA II") is a major part of the Philippine government's effort to promote self-sufficiency among local governments by improving their ability to generate sufficient local revenues to finance their development programs. The project was initially designed as part of the Provincial Development Assistance Program (PDAP) of the Office of the President. In 1978, it was placed under the Ministry of Local Government and Community Development (MLGCD). In 1982, administrative control and supervision were transferred to the Ministry of Finance (MOF). By May 1983, the project was to have attained the following outputs:

- 300 demonstration local government units fully tax mapped, assessment/appraisal completed, records converted, collection systems in place and processes documented for replication;
- Staff trained to advise on implementing and replicating improved uniform processes or systems in other jurisdictions;
- Trained MOF central, regional, and provincial or city staff able to replicate and train local government personnel in installing improved RPTA processes;
- Coordinated central and regional MOF and MLGCD policies and strategies to administer and promote RPTA improvements; and
- Permanent RPTA management support systems organized and functioning, including a Monitoring and Evaluation Unit and an Information and Education Unit.

U.S. Assistance. Project funding totals \$19.85 million. Of this, \$10 million is an A.I.D. loan (492-0298, or 492-W-048). The Philippine government provides \$9.85 million. The project agreement was signed in May, 1978 with project activity to be completed by May, 1983.

Purpose and Methodology of the Evaluation. The purpose of this evaluation was to provide the Ministry of Finance with: (1) an independent assessment of progress in establishing a sound structure, processes, and systems for the long-term replication and expansion of the RPTA program; and (2) recommendations for improving the program and institutionalizing tested processes and systems. Methodology included document review, interviews with key personnel, and field visits to the Ministry of Finance project headquarters and sample local government offices (4 regional offices, 10 provincial offices, and 17 city or municipal offices) on the major islands of the country.

## Major Findings:

Achievements. RPTA II has achieved significant gains, the major of which are:

1. At least 150 demonstration local government units have completed tax mapping, assessment/appraisal, and records conversion. A total of 183 are in various stages of completion.

2. A central RPTA project management office has been created in the MOF with regional support from MOF regional directors.

3. 241 employees have participated in formal training courses or seminars, either in the Philippines or the U.S.

4. A Project Monitoring and Evaluation Systems Manual has been prepared and field implementation has been started. A Monitoring and Evaluation Unit has also been set up and started functioning.

5. Participating local government units have demonstrated initiative and drive despite serious delays in the arrival of the planned financial and commodity supports.

Major constraints include:

1. Certain requirements of the budgetary system were not complied with. These turned out to be major obstacles in providing, on a timely basis, the funds and commodity supports needed by the local government units.

2. Project managers were somewhat inefficient in controlling project performance. This is because: (a) the "new" project management team needed a "learning period," which was not adequately planned for--a weakness in other major projects as well; and (b) project managers proceeded without developing detailed plans and schedules for technical implementation and for providing the resources required for operations.

Major Recommendations. The Ministry of Finance should take 14 actions:

### A. Organization:

1. Public information and education campaigns. Secure active participation of MLGCD and local government executives (including barangay leaders) in undertaking public information and education campaigns to support tax collection activities in those locales where tax mapping, assessment/appraisal, and records conversion have already been completed.

2. Regionalization. Gradually delegate more authority and responsibility to regional RPTA project managers.

3. Redefine the role of the central project management

office, so that it will be primarily concerned with policy matters and necessarily centralized services.

4. Designate a full-time Project Executive Officer, define his or her responsibilities for results, and provide him or her with adequate authority for making operational decisions.

5. Design and prescribe a Project Organization Manual defining the functions, responsibilities, and relationships of all the units and offices involved.

B. Systems and procedures:

6. Design and prescribe an Operational Planning and Control Manual.

7. Design and prescribe a Project Financial Planning and Control Manual to guide and monitor the flow of Philippine government and USAID funds.

8. Design and prescribe a Logistics Manual.

9. Design and prescribe an internal control system to ensure that land improvements are completely inventoried, correctly appraised and assessed, and included in the tax rolls.

10. Design and prescribe a standard system and procedures for tax-due billing, collection, and accounting.

11. Conduct a study of the automation requirements of selected cities and first-class municipalities that will serve as pilot projects

12. Prepare Implementors' Technical Procedures Manuals, one each for the central, regional, city/provincial, and municipal offices.

C. Training:

13. Establish a Project Management Training Program for officers and managers at all levels.

D. Extension of RPTA II. It appears that the timetable for RPTA II may be extended. Given this:

14. No new starts should be made during the extension period. (Five recommendations provided for using the additional time.)

Evaluation Team: not identified. Evaluation conducted on contract for the Philippine Ministry of Finance. Report dated May, 1983.

PHILIPPINES: AUDIT REPORTS OF USAID/PHILIPPINES PROJECTS,  
FY 1980-1983 (AN ANALYSIS OF 11 REPORTS)

Overview. Since the beginning of fiscal year 1980, audits have been conducted on 11 projects sponsored by USAID/Philippines. These audits produced 83 recommendations. This report summarizes the main conclusions of the 11 audits. The projects audited were: the Rural Roads Program, the Local Water Project, Population Planning II, the Rural Electrification Program, Real Property Tax Administration, the Cooperative Marketing Project, Rural Roads II, ESF Philippines (Elementary Schools Construction and Project Design), the Nonconventional Energy Development Project, the Crop Protection Project, and Freshwater Fisheries Development. (Three non-project audits were also conducted but are not covered in this analysis. They were: USAID/Philippines Travel Procedures, USAID Impreset Fund/Cashier Operations, and Local Procurement Practices.)

Purpose for the Analysis. The purpose for analyzing these 11 audit reports was to identify problems common to USAID projects in the Philippines in order to help the mission make improvements where possible. The analysis focused on examination of the 83 recommendations contained in the audits.

Major Findings. Many of the problems discussed in the audit reports seem to be specific to the individual project. Four common problems, however, characterize several projects. These are as follows.

1. Handling of commodities (17 recommendations, 6 projects).

-The FY 1980 Population Planning II audit: five recommendations indicate that POPCOM should establish more effective methods for handling, reporting, and maintaining inventories of family planning commodities.

-The FY 1980 Rural Electrification audit: three recommendations concern proper National Electrification Administration reporting, warehouse controls, and disposal of excess property.

-Commodity handling was also an issue in the audits of the Nonconventional Energy, Real Property Tax Administration, Freshwater Fisheries, and Crop Protection Projects.

2. Handling of funds (12 recommendations, 7 projects).

No one problem emerges as most critical. Recommendations cover a wide range, including:

- Repayment of funds from a participant,
- Payments to consultants for days not worked,
- Use of construction funds,
- Acceptability of cost submissions,
- Loan practices,

- Deposit of funds in an interest-bearing account, and
- Use of PL-480 Title-I Trust Fund.

3. Reporting and monitoring (8 recommendations, 6 projects).

Five projects were found needing more effective systems for reporting and monitoring such things as: billings, shipments, sub-project work completion dates, and input deliveries.

4. Implementation and related planning (8 recommendations, 6 projects).

The recommendations focus on implementation, financial, maintenance, or training plans. Major changes were recommended for some projects:

- Cooperative Marketing: new implementation, financial, and training plans.
- Real Property Tax Administration: a major shift in the primary implementing agency.
- Nonconventional Energy: a new implementation plan.
- Rural Roads II: new maintenance and technical assistance plans, and
- Crop Protection and Freshwater Fisheries: planning for cooperation among different organizations involved with the project.

Other recurring problems included:

- Procurement (3 projects),
- Evaluation (7 projects),
- Implementation procedures (4 projects),
- Technical issues (3 projects),
- Disbursement (2 projects),
- GOP [Government of Philippines] counterpart performance (3 projects), and
- Marketing requirements (2 projects).

Recommendations. USAID/Philippine project officers should pay particular attention to the above four aspects of their projects. (Specific recommendations for each project are included.)

Analysis by: Richard Rhoda and Carmelita Abad, USAID/ Philippines. Report dated April, 1983.

SOUTH PACIFIC: THE TONGA COOPERATIVE FEDERATION,  
INTERIM EVALUATION OF PROGRESS AND PROSPECTS

Problem and Overview. The Tonga Cooperative Federation was established in 1977 by about 60 "primary societies" (local cooperatives throughout the islands of Tonga) for the purpose of supplying them with groceries and other household needs. By 1981, the Federation was dormant and virtually bankrupt. A feasibility study in 1981 concluded that, with adequate management, training, and capital assistance, the Federation could become a viable institution for promoting economic self-help projects among disadvantaged segments of Tongan society. A plan was developed through which expatriate (foreign) managers would be supplied by foreign donors (A.I.D. and Peace Corps, Britain, and Commonwealth Nations) for two years, during which time Tongans were to be found, selected, and trained to take over the management roles. Other support includes a grant from the Tongan government, a loan from the Tongan Development Bank, investments by member cooperatives, and capital and commodities from several foreign donors.

The Project Purpose: is to promote and implement economic self-help programs among disadvantaged segments of Tongan society.

U.S. Assistance. Through an Operational Program Grant (879-0251), A.I.D. has provided: (1) \$191,000 for working capital, building construction, and training; and (2) two foreign experts (a manager, through Agricultural Cooperative Development International, and a fisheries expert, through the Volunteer Development Corps). The project began in early 1982.

Purpose of the Evaluation (Not stated in the report.)

Major Findings

1. Progress to date has been outstanding, especially in developing the wholesale merchandising (of groceries and other household goods), which is the principal business of the Federation. Growth has been spectacular, greatly exceeding expectations. (The volume of sales quadrupled from early 1982 to a million-dollar-a-year rate by the end of 1982.)

2. Profits: As expected, the wholesale business has not shown a profit, although a nominal profit (about \$20,000) may be achieved in 1983. This business can become moderately profitable, but is unlikely to produce the long-term financial base that is needed.

To operate profitably, the Federation must have a substantially greater gross margin percentage. To increase the total gross margin it must increase the percentage of imported goods. This need is well understood, but details will take time to work out.

3. Diversification: The Federation should diversity its activities, even though this places a considerable strain on both management and finances. Diversification should be pursued,

nevertheless, because it offers benefits to several segments of Tongan citizens (farmers, fishermen, and craftsmen) in addition to the members and customers of the cooperative stores.

a. Handicrafts. The Federation is buying artifacts made by Tongan craftspeople and selling them locally and for export. This business is very small; a small profit margin appears possible.

b. Vanilla marketing. Several primary societies (local coops) are involved in this business. The Federation helps them by providing a reliable and honest marketing system, by arranging bank loans, and by helping provide better processing methods. This has brought higher incomes to the member vanilla growers.

c. Fish marketing. The Federation is just entering this business, carefully, under an expatriate manager. It buys fish from individual fishermen and will serve as their marketing agent.

d. Other projects under consideration include wholesaling of agricultural inputs (e.g., seeds, fertilizer) and marketing of agricultural produce (e.g., root crops).

4. Beneficiaries: The main beneficiaries are the members of the village coops who are receiving an increasingly reliable supply of reasonably-priced consumer goods. At present there are 74 member coops with about 2600 member families. Members are almost all rural and generally among the lowest income groups in Tonga.

Secondary beneficiaries include: (a) vanilla farmers, who are improving their incomes by using their cooperatives for processing and marketing their vanilla beans; (b) village craftspeople, mostly women, who are provided an outlet for their handicrafts; and (c) fishermen, for whom a marketing system is being created to assure a reliable market for their catches.

6. Financial management has greatly improved. From utterly chaotic and totally unreliable records, the financial manager has developed an accounting system that is both accurate and timely. Weaknesses that still exist are being given careful attention.

7. Some progress has been made in meeting other "organizational indicators" set for the project (e.g., organizational chart drawn up). But many organizational tasks have yet to be completed.

8. Selection, placement, and training of Tongan successor management is an urgent priority but difficult to achieve. To have Tongan successors in place and ready to run the business at the end of the initial two years will clearly be impossible. Salaries will be a major problem. To attract persons of the ability, training and character needed will require salaries exceedingly high by Tongan standards. The jolt to the budget will be severe. Prospects for any substantial profits are threatened by the inevitability of increased costs as paid employees are put in place to succeed the expatriate managers.

9. The Federation can, with continued support and continued good management, provide substantial benefits to Tongan individuals, the society, and the economy.

### Major Recommendations

1. Transition from expatriate to Tongan management. It is essential that the present expatriate manager and financial manager be retained for an additional two years. The shift to Tongan management must not be abrupt.

2. Profits: Each new activity must be required to produce profits.

3. Additional funds, beyond what can be generated internally, will be required for at least a few more years to support growth and diversification.

Project Design and Policy Implications. Foreign funding and donated expatriate management have succeeded in transforming a dormant and virtually bankrupt organization into an increasingly viable enterprise. Project plans specified that at the end of the initial two years management would be turned over to Tongans, who would be paid by the Federation. This sounds good, but was highly unrealistic--as is often the case with plans for self-sufficiency. Instead, the initial expatriate investment must now be followed with continued expatriate involvement to prevent cancellation of achievements to date and the possible return of the Federation to its previous dormant and near-bankrupt state.

Evaluation Conducted by: R. Bruce Gervan, Agricultural Cooperative Development International and Volunteer Development Corps. Report dated February, 1983.

SOUTH PACIFIC: WOMEN'S RING OF FRIENDSHIP, REPUBLIC OF KIRIBATI,  
SEVENTH QUARTERLY REPORT (INTERNAL MID-PROJECT REVIEW)

Project Purpose. The purpose of this project is to build an institution that will integrate the women of Kiribati into the development process and improve their standards of living. The strategy is to help the selected institution, the National Federation of Women (AMAK), to train and educate women of Kiribati in skills leading to such development. The emphasis during the first two years was to be on training staff to carry out this work.

U.S. Assistance. The project is funded through a grant (879-0251-G-00-1012-00) from A.I.D. to the Foundation for the South Pacific (FSP). A.I.D./FSP assistance to AMAK began in December, 1981.

Purpose of this Report. The FSP country director advisor/trainer who has overseen this project during its first 21 months is now rotating to a new position. This report is an internal "mini-evaluation" prepared by that director as an end-of-tour analysis of progress during the initial period of the grant.

Major Findings

1. AMAK has evolved under this project into an influential independent organization. It has grown from a small government unit under the Ministry of Health and Community Affairs into an increasingly respected institution.

-AMAK now has its own headquarters with 13 paid local staff members, a "woman's interest assistant" seconded from the government, and an FSP expatriate "women's interest advisor." Its physical facilities include an administration building, a meeting house, a local materials demonstration kitchen, and on-site agricultural demonstration projects.

-The work of AMAK has expanded from only Homemakers' Clubs to include workshops, training seminars, and community project work with all women's clubs throughout Kiribati.

-AMAK's influence now extends beyond women's work to community development in general. AMAK is often invited by government ministries to participate in policy meetings and seminars as well as overseas conferences and training programs. AMAK's nutrition field worker sits on the National Nutrition Committee. Island councils and schools also ask AMAK to teach and demonstrate projects in community development.

-The AMAK headquarters on Tarawa has become a focal point for visitors to the island. Its agricultural demonstration projects include goat breeding, vegetable gardening, and a pending chicken and pig rearing project. Because visitors can see

what AMAK is trying to stimulate, it has gained a reputation of being an institution that acts instead of just talking.

2. Analysis of community life and needs for improvement. During the project's first year, AMAK collected and tabulated socioeconomic data from the islands to determine the main needs to be met. AMAK staff (specifically, its seven "women's interest workers") are now collecting island and club profiles which will identify resources for development on each island.

3. The current modus operandi, or strategy, is to reach as many women as possible through mobile outreach by "women's interest workers." This has proven very effective. This close contact with AMAK increases the women's motivation and interest in following up on ideas presented at AMAK's educational workshops. (Workshops emphasize combining practical work--e.g., building smokeless stoves--with lectures, to avoid boring participants.) This has stimulated many clubs and individuals. The level of AMAK activity directly influences the level of the women's activity.

4. The women's interest workers have helped initiate over 60 projects. These include vegetable gardens, chicken and pig rearing, building water tanks and toilets, and starting bakeries and tailor shops. The women's interest workers have now all completed at least one tour of the islands in their districts. Their work progressed slowly, however, until they were posted to the outer island.

5. Training progress. AMAK staff have visited every island in Kiribati giving more than 60 3-day workshops in nutrition, family planning, health and sanitation, and related subjects.

6. Flexibility. AMAK has been flexible in changing strategies that proved ineffective. For example, it became apparent that not many island women were willing to take on the time and transportation costs to travel to training courses on a central island, as was initially planned. AMAK therefore switched to mobile training courses instead.

7. The budget shows a surplus. Travel costs have been lower than planned because of village women provide food and lodging to AMAK's women's interest workers. AMAK proposes using the surplus funds for additional training of Kiribati women.

8. Only one activity, nutrition field work, is behind schedule This is because it was difficult to recruit a qualified local woman. The nutrition field worker still needs more training and supervision before she will be able to carry out the planned bi-monthly nutrition workshops and bi-monthly radio broadcasts.

9. Although AMAK has become much more effective, continued training and support are still needed in many areas.

Project Design and Policy Implications. Time: In institution-building and training projects, enough time must be allowed for staff, once trained, to become accustomed to new skills, work habits and, most importantly, to become innovative thinkers. Time is also required to sort out minor personal and cultural conflicts that pose stumbling blocks even though the broad aim and concepts of the project have been learned and understood.

### Major Recommendations

1. A.I.D. should continue to assist AMAK for the next three years, as is being proposed by FSP.

2. Goals for and evaluation of future project work. Project success during the first two years of this grant was to be measured in terms of institution building (e.g., number of workshops conducted). In the future, progress should be programmed and measured in terms of AMAK's ability to cause improvements in specified socioeconomic areas (i.e., Have nutrition, hygiene, and family planning improved?).

3. AMAK should maintain constant, direct contact with the clubs it supports. It should continue to do this through its women's interest workers and weekly radio broadcasts.

Report Prepared by: Kathy Fry Nast, Foundation for the Peoples of the South Pacific, Inc. (Country Director, Kiribati). Report dated September 30, 1983.

SRI LANKA: HOUSING PROGRAMS OF THE GOVERNMENT OF SRI LANKA,  
EVALUATION OF PRESENT PROGRAMS

Problem and Overview ...not included in evaluation report.

Project Purpose ...not included in report.

U.S. Assistance ...costs and time-frame not included in report.

Purpose of the Evaluation. The evaluation was carried out to assess performance to date and changes that have occurred since earlier reports. It focused on two A.I.D.-supported programs, Aided Self-Help and Slum and Shanty Upgrading, as well as Sri Lanka's Direct Construction Program. The latter is not funded by A.I.D.'s Housing Guaranty loan, but has significant influence on other housing activities.

Major Findings

I. The Aided Self-Help (ASH) Program

A. Technical Aspects

1. Recent changes appear to have improved the program. These include: (a) combining model villages, fisheries, and electoral housing with the ASH program; (b) modifying the building supply process; (c) carrying out some ASH projects in urban areas as part of the Electoral Housing Program; and (d) modifying some unit designs to reduce costs and better meet the needs of the intended beneficiaries. However, some changes (such as the decision to use local materials to the maximum extent possible) have not yet been introduced at the district level.

2. Unit production has been the most productive of the public sector, even though it will not reach the program's original goal (of 50,000 units). Production has been slowed by lack of funds and shortages of building materials--which could be solved by the use of locally produced materials.

3. Revised design standards are greatly improved, in contrast to earlier when the most commonly used plans were not well designed for traditional rural life and were too costly to build.

4. Costs have increased dramatically. The cost of a standard materials package has roughly doubled since 1979, due to inflation. The National Housing Development Authority (NHDA) has therefore been forced to modify designs and materials.

5. Staffing difficulties. It is difficult for the NHDA to attract and keep qualified technical staff due to the higher salaries available in the private sector and abroad (especially the Middle East).

## B. Administrative and Financial Aspects.

1. The Rural Housing Program is a relatively low priority, even though it is the government's only low-income program serving primarily the rural poor. It has been handicapped by a lack of funds and must compete continually with the Urban Housing Program which enjoys higher priority. This is where the leverage of A.I.D.'s Housing Guaranty funds could be brought to bear.

2. Cost recovery: the program is in massive arrears. The major cause seems to be that it still focuses on production of units and not significantly on measures to recover costs.

3. Affordability and level of subsidy. The Sri Lankan government has now agreed that full capital cost recovery will be obtained on the A.I.D.-supported programs. However, this decision does not seem to have been communicated to field staff, let alone the target population. A desire on the part of key government officials to base future programs on what the target population can afford would probably be the single factor most able to reduce the subsidies in the ASH program.

II. Slum and Shanty Upgrading. This program of the Slum and Shanty Upgrading Division (SSD) of the Urban Development Authority was established to improve infrastructure in existing slum and shanty areas.

1. The SSD has made progress in establishing itself and expanding its activities and capabilities, but it is not yet fully equipped or capable of dealing with the task at hand.

2. Staffing difficulties are similar to those encountered by the ASH program. This has created implementation problems and would make it difficult to expand the SSD program.

3. Administrative and financial aspects. The SSD is in an anomalous position in the Urban Development Authority. It has generally been recommended that the SSD be attached to the NHDA and closely affiliated with the ASH program. It has also been recommended that it take on new implementation responsibilities, and that its staff, support, and funding be increased.

4. Good design and infrastructure standards. The staff has developed excellent design criteria for the varied conditions found in upgrading projects. Infrastructure standards are designed to meet basic health and sanitation needs at minimum cost.

5. Costs are quite low. However, the feasibility of slum improvement projects is questionable, since the more expensive projects cost almost as much as new self-help units. There is no cost recovery in these projects; subsidization is 100 percent.

## Major Recommendations

### I. Aided Self-Help (ASH) Program

1. Implementation. Continued efforts must be made to distribute new directives (e.g., for the maximum use of local materials) and to assist district personnel in their implementation.

2. Financial aspects. A formal budget allocation mechanism, with conditions precedent for A.I.D. Housing Guaranty drawdowns, should be established to give the Rural Housing Program (and other A.I.D. programs) greater leverage for necessary funding.

3. To improve cost recovery, the NHDA must better understand the priorities of the people and gear collection programs accordingly. A study to identify the spending and borrowing habits and earning capacities of the people, and where housing fits into their priorities, should be considered.

### II. Slum and Shanty Upgrading

1. The whole Slum and Shanty Upgrading Division needs re-organizing and expanding, as well as strengthening of its relationships with both government and non-government social welfare, community development, and health and employment creation groups.

2. Subsidies must be reduced if this program is expanded as the 1983-87 Plan specifies. The feasibility of slum improvement projects must be examined more closely, and the program put on a far more rational self-financing basis.

3. Studies should be carried out very soon, as previously recommended in the A.I.D. Housing Management Study, before the SSD becomes too firmly entrenched in its present situation.

Evaluation Conducted by: PADCO (Planning and Development Collaborative Intl.), Washington D.C. Report dated October, 1982.

THAILAND: RESULTS OF PROJECTS CONDUCTED BY  
THE PUBLIC ADMINISTRATION SERVICE  
TO IMPROVE MANAGEMENT PROCESSES IN THE ROYAL THAI GOVERNMENT:  
PLANNING, BUDGETING, ACCOUNTING, AND PERFORMANCE AUDITING,  
INTERIM EVALUATION

Problem and Overview. In implementing development projects and in economic management generally, the Thai government has found its existing management systems inadequate in several respects. Development planning did not always mesh with annual budgeting. Data provided by the budgetary and accounting systems were often inadequate for the needs of decision-makers and implementing agencies. Monitoring and evaluation have been intermittent and fragmentary. Finally, few linkages existed among these four management systems. Four central staff agencies are most directly concerned with these problems--the National Economic and Social Development Board (NESDB), the Bureau of the Budget, the Comptroller-General's Department, and the Office of the Auditor General. In addition, these problems also affect the ministries responsible for implementing programs and projects.

Project Purpose, Size, and Duration. To improve, integrate, and coordinate the four separate management systems, the Thai government, through its Department of Technical and Economic Cooperation (DTEC) contracted with the Public Administration Service (PAS) in January, 1982, to provide consulting assistance to the four central staff agencies and the implementing ministries. The contract covers a slightly less than two-year period (February, 1982 to December, 1983) and provides for 220 man-months of assistance from PAS for a total of \$1.8 million. The primary purpose has been to strengthen and link the government's management systems horizontally (among the central staff agencies) and vertically (between the central agencies and the ministries and governmental bodies at other levels). The project was also to focus on the feasibility of decentralization (delegating aspects of planning and budgeting to the ministries and provincial and local bodies).

Purpose of the Evaluation. The evaluation sought to determine: (1) the success of PAS efforts in bringing about the desired changes; (2) the success of PAS in building the institutional capacity in the relevant agencies to continue implementing changes after termination of the contract; and (3) "lessons learned" from the project for future technical assistance in policy development. The evaluation was conducted by means of three weeks of extensive interviews and document review.

Major Findings. The results are mixed.

1. Many of the "terms of reference" in the scope of work are not being satisfied. When the contract terminates in December, 1983, none of the systems proposed will be fully operational. Yet, most of the projects are promising and at the threshold of implementation. It is very possible, however, that they will

lose their momentum without strong top-level support by the Thai government and continued assistance from A.I.D.

2. Many of the weaknesses are serious and stem from the scope of work being too broad, general, and overly ambitious. So broad were the terms of reference affecting the NESDB, for example, that it turned down a major project proposed for monitoring and evaluation. Only after PAS staff conducted a mini-feasibility study and developed a new work plan did several useful projects get under way.

3. Implementing the new accounting system proposed by PAS is central to the success of all the projects. This system was to be in operation by December 1983 but will not be before late 1984 unless additional technical assistance is provided.

4. Progress has been chiefly with the "horizontal" systems. The PAS team has done little to develop vertical management systems or to promote decentralization and delegation of authority.

5. Coordination and attempts at integration have been spotty. Implementation of separate but related projects has proceeded on an ad hoc basis, thereby lowering the quality of several major projects.

6. Inappropriate PAS staffing decisions have also slowed progress.

7. Many problems could have been avoided by: (a) conducting a brief feasibility study before finalizing the scope of work, and (b) providing a clear, concrete scope of work/terms of reference.

Major Recommendations. The systems (projects) now at the threshold of implementation merit continued support, and PAS should be retained, but only under the following rigorous conditions:

1. Compliance with detailed terms of reference prepared and approved by the RTG and USAID/Bangkok;

2. Designation of the present chief of party in NESDB as overall chief of party;

3. Prior approval of all PAS staff by the chief of party, DTEC, USAID/Bangkok, and the evaluation team; and

4. Periodic evaluation (about two weeks every quarter) by an external adviser approved by DTEC and USAID/Bangkok.

Project Design and Policy Implications. For a policy development project to succeed, the following precautionary steps are recommended:

1. Conducting feasibility studies and preparing detailed speci-

fications prior to the award of the project;

2. Developing explicit criteria for evaluating proposals from contractors;

3. Carefully checking qualifications of staff proposed by the contractor;

4. Getting advance time commitments from the host government for a full-time counterpart working group;

5. Providing for external evaluation of project progress rather than relying on the contractor's reports; and

6. Cutting down the scale of grandiose projects in favor of smaller and more manageable projects.

Evaluation Team: Donald Axelrod and Clark Neher, consultants.  
Report dated July, 1983.

THAILAND: USAID ASSISTANCE FOR REMOTE SENSING IN THAILAND:  
AN EVALUATION

Problem and Overview. Remotely sensed satellite data facilitate the identification and mapping of a wide variety of geographic and natural resource conditions--including forestry, soil, water, agricultural land use, and urbanization. The Royal Thai Government (RTG) recognized the value of satellite imagery as a data source and in 1971 decided to join the NASA remote sensing programs. Remote sensing data were not seen as a response to a specific development problem but, rather, as a tool for providing information: (a) otherwise unavailable at reasonable cost--if at all; (b) on a frequent, recurrent basis; and (c) useful for problem-solving in all sectors.

U.S. Assistance. Since 1972, A.I.D. has supported three remote sensing projects in Thailand designed to help develop the capability, in Thailand and the ESCAP region, to receive, process, interpret, and apply remotely sensed satellite data. Under the first project (the Earth Resources Technology Satellite Project, implemented 1972-1979 for \$261,000), A.I.D.--among other donors--provided technical assistance and equipment to Thailand's National Research Council (NRC), the RTG agency responsible for remote sensing. In the follow-on project, Remote Sensing Technology for Development (RSTD, project 493-0314, implemented 1979-1982), A.I.D. provided an additional \$290,000 (and the RTG \$5.172 million) for further training and equipment. This project's purpose was "to establish the capability within the RTG to meet line agencies' and policy-makers' needs for timely and relevant remote sensing data for effective resource management." The third project, the Asian Remote Sensing Training Center (498-0253), was also begun in 1979 for the purpose of improving natural resource management in the ESCAP region. It established the Asian Regional Remote Sensing Training Center (ARRSTC) in the Asian Institute of Technology. The Center's purpose is primarily to provide training in visual and digital techniques for analyzing Landsat data, but is also supposed to provide outreach services to scientists and technicians in the region. A.I.D. contributes \$5.6 million, the RTG \$1.835 million, and other donors \$0.5 million. A.I.D. provides for five resident professors, scholarships, and equipment. Both projects have been implemented through project grant agreements between USAID/Thailand and the RTG's Department of Technical and Economic Cooperation.

Purpose of the Evaluation. This evaluation constitutes an end-of-project evaluation for the RSTD project and a mid-course evaluation of the training center project. It focused on the operations of the RTG remote sensing "network" (i.e., the production and delivery of Landsat data by NRC and its use by RTG agencies) and attempted to draw conclusions for A.I.D. regarding technology transfer in general. Conclusions are based on one month's document analysis and interviewing in Bangkok during May, 1983.

## Major Findings

1. Overall, remote sensing technology is being effectively utilized in Thailand for resources assessment, evaluation, and planning.

2. A.I.D. projects have played an important facilitating role in this transfer process and the role of U.S. institutions together (A.I.D., NASA, and U.S. universities) has been much greater than that of any other country. The U.S. private sector has also made a contribution in the form of computing equipment donated (in effect) by IBM.

3. Nevertheless, the chief RTG objective (to obtain data useful for crop measurement and forecasting) has not been achieved and other potential applications also appear under-researched. The NRC remote sensing unit is technically sophisticated in its production and outreach functions but suffers from production backlogs. Many RTG user agencies lack the simple analysis equipment that would enable them to analyze remote sensing data more fully. Most also lack ready access to the type and quality of interactive digital analysis equipment needed for extracting more detailed information.

4. The training program at ARRSTC is conceptually sound but is progressing poorly. Because of implementation delays, only two classes have graduated thus far, outreach services have barely begun, and the center is not yet an integral part of AIT's academic program. The IBM software is appropriately "user friendly" but unable to meet the center's objectives.

5. The A.I.D.-supported projects have been too "technology-driven." Their design did not adequately explore the technology management and user diffusion requirements. Problems in these areas that have been unresolved for a few years might have been avoided through better project design and evaluation.

Project Design and Policy Implications. The main shortcomings in both projects appear attributable to faulty assumptions during project design. Closer adherence to A.I.D.'s project design requirements (especially the "assumptions" part of the logframe analysis) might have resulted in a more successful mix of activities and better implementation. USAID/Thailand's inability to allocate enough staff to the NRC projects was an unfortunate weakness in implementation.

## Major Recommendations

1. A.I.D. should continue to assist Thailand in remote sensing but should take specific measures to help the NRC and ARRSTC solve present problems. Any additional assistance should focus on user agency needs.

2. A.I.D. should adhere to the following guidelines with regard to the transfer of all new, rapidly changing "high technologies":

- a. Allow more flexibility for mid-course corrections during implementation;
- b. Be sure logframe "assumptions" are examined vigorously;
- c. Plan for close mission attention to institutional and management issues;
- d. Examine ways to help countries minimize costs caused by short time lapses between equipment "generations"; and
- e. Be sure that complementary and topping-off equipment needs of all agencies in the network are addressed.

Evaluation Team: Dr. Robert Muscat (team leader), independent consultant; and Mr. Kenneth Craib, Dr. Richard Ellefsen, and Dr. Matthew Willard, all of Resources Development Associates, Inc.