

PD-ABS-708

154 911 212

**Final Report:
Evaluation of WEC's Activities Under the
US-AEP Cooperative Agreement**

November 4, 1994

Submitted to:

World Environment Center (WEC)

419 Park Avenue South
Suite 1800
New York, NY 10016

Submitted by:

ITRI

Investment & Trade Resources International
4617 North 26th Street
Arlington, Virginia 22207-4109
(703)527-3235; (703)527-2251 fax

Executive Summary

The World Environment Center, a not-for-profit, non-advocacy organization, received a grant from the U.S. Agency for International Development (USAID) / U.S. - Asia Environmental Partnership (US-AEP) for \$3,471,130 over a 2-year period from September 1992 to September 1994. WEC's non-federal pro bono contributions under this agreement were to total \$5,002,000, and were primarily in the form of time volunteered by U.S. environmental experts and Asian industry and government participants. The purpose of the grant is to "support better environmental, health, and safety policies and practices in the Asia region" through creating or strengthening ties between U.S. and Asian companies, organizations, and agencies. Specifically, the program is to conduct 100 individually tailored audit and assessment missions (U.S. exchangees to Asia) and 100 on-the-job internships, seminars, workshops or study tours of Asian exchangees to the U.S.

Program Summary

WEC got the program off to a quick start, and by the end of the second quarter had programmed or implemented 68% of the first year's exchanges based on its draft Work Plans. Disagreements emerged between WEC and the US-AEP Secretariat in late 1992 concerning the strategy and focus of the exchange effort. These differences were resolved through the April 15, 1993 Work Plan which set forth the Secretariat's strategy for implementing industry-to-industry, largely USAID Mission-driven environmental business exchanges (EBEs). At that point all existing plans for EBEs were terminated, and there was a virtual six-month hiatus in the program while WEC, the Secretariat, and staff of Tropical Research & Development (TR&D) assisted USAID Missions in programming the 75 EBE slots allotted to them under the April 1993 Work Plan. As of May 10, 1994, 145 EBEs (73% of the 200 targeted) had participated in 59 WEC environment business exchange projects. Fifty-seven (57%) of these EBEs were from USAID Mission identified projects; less than 10% of the EBEs originated from direct proposals from industry.

WEC exchanges covered a variety of industrial sectors, especially the urban sector and vehicles, and several environmental areas, particularly waste minimization, emissions, environmental management, and waste water. Sixty-eight percent (68%) of the EBE projects involved Technical Assessments, 8.5% involved Factory Assessments, almost 12% related to Corporate Environmental Programs, and the remainder involved leveraged efforts with the World Bank or other types of environmental assistance.

Findings and Conclusions

Of the individuals contacted for this evaluation, the vast majority saw the program as highly successful in promoting business relationships between individuals and organizations in the U.S. and Asia. In most cases, there was significant potential for transactions involving U.S. environmental experience, technology, and practices within 1-3 years as a result of relationships developed during the exchange. In many cases, actual business transactions (e.g., joint ventures, licenses, and distributorships), as well as sales have occurred.

The high quality support provided by WEC staff, particularly that related to logistical arrangements, directly contributed to the success of this exchange program. Moreover, the Principal Investigator's strong technical background, professionalism, and rapport with the US-AEP Secretariat and various Implementing Organizations, has had a significant, beneficial, effect on this effort. The involvement of key business-

oriented individuals and organizations, such as R.J. Gurley (Thailand) and USAID/India's TEST program, has enhanced the program's ability to target EBEs whose participation in the program can result in near-term economic and or environmental impacts.

Weaknesses in the program centered around its use of exchanges as stand-alone activities, and its lack of a coherent strategy for follow-up or engagement of participants (EBEs and Hosts) as long-term partners of WEC or the US-AEP. Furthermore, the effort, as it is being implemented, does not include any procedures for measuring its effectiveness or impact (beyond anecdotal evidence). The lack of an institutionalized approach or system within WEC for documenting and tracking volunteers (both EBEs and Hosts) also undermines WEC's ability to fully capitalize on the wealth of talent and expertise participating in this exchange effort.

Recommendations

The US-AEP / WEC cooperative agreement has met with considerable success, despite the difficulties encountered during its early implementation. Currently the US-AEP and WEC are finalizing an agreement to extend this effort through February 1995. In planning for this extension and for future environmental business exchange efforts, the evaluation team recommends that WEC pursue changes related to the following:

- Assuming that knowledge of economic / environmental impacts is desired by WEC, WEC should pursue an explicit mandate (and budget) related to continuation of its relationship with EBEs and Hosts. Procedures for tracking these impacts need to be included in the plan for project evaluation and monitoring, as well as in the grant agreements with EBE participants.
- Related to the above, WEC should expand its follow-up with EBEs and Hosts by developing a strategy and mechanisms for tracking and communicating the status of relationships initiated during exchanges and engaging EBEs and Hosts in the broader US-AEP and WEC programs.
- WEC should develop more coherent procedures and a system for tracking contact information and other relevant data for all program participants (EBEs and Hosts).
- Trip Reports should be redesigned to improve their usefulness, and WEC should develop a strategy for the distribution of key findings and lessons learned during the exchanges.
- WEC should institute more formal understandings or written agreements related to the responsibilities of various intermediate organizations (USAID Missions, TR&D, Tech Reps, or others) in designing, implementing, or following up activities connected with WEC's business exchange program.
- WEC should try to ensure that any extension to this cooperative agreement, or similar future effort by WEC, includes mechanisms for conducting ongoing evaluation and program monitoring, and that these procedures are clearly discussed in the work plan(s).

Table of Contents

| | |
|---|----------|
| Executive Summary | i |
| I. Program Evaluation | 1 |
| 1. Program Background | 1 |
| 2. The Cooperative Agreement | 2 |
| 3. Evaluation Team and Methodology | 3 |
| 4. Scope and Organization of the Report | 4 |
| II. WEC Performance Against Program Targets and Objectives | 5 |
| 1. Logframe | 5 |
| 2. Implementation Preparations and Start-Up | 5 |
| 3. Analysis of Overall Activities (Outputs) to Date | 10 |
| 4. Analysis of Costs | 14 |
| 5. Program Outcomes | 15 |
| 6. Key Findings | 19 |
| a. Management | 19 |
| 1) Program Management | 19 |
| 2) EBE Grant Application and Funding | 19 |
| 3) Problem Identification and Resolution | 20 |
| b. Partners and Customers | 20 |
| 1) Partners | 20 |
| 2) Customers | 21 |
| c. Working Relationships/Communications | 22 |
| 1) WEC and US-AEP Secretariat / TR&D | 22 |
| 2) Internal WEC | 22 |
| 3) With Other US-AEP Implementing Organizations | 23 |
| 4) With EBEs and Hosts | 23 |
| d. Evaluation Monitoring and Feedback | 23 |
| e. Resources | 24 |
| 1) Resource Availability | 24 |
| 2) Staffing and Training | 24 |
| f) Administration | 25 |
| 1) Support Systems | 25 |
| 2) Files | 25 |
| 3) Reports and Deliverables | 25 |
| g) Environmental/Economic Impacts | 26 |
| h) Total Quality Management (TQM) | 27 |

| | |
|--|-----------|
| III. Evaluation Conclusions | 28 |
| 1. Management | 28 |
| 2. Partners and Customers | 28 |
| 3. Working Relationships/Communications | 29 |
| 4. Evaluation Monitoring and Feedback | 29 |
| 5. Resources | 30 |
| 6. Administration | 30 |
| 7. Environmental/Economic Impacts | 30 |
| 8. Total Quality Management (TQM) | 30 |
| 9. Program Strengths and Weaknesses | 31 |
| | |
| IV. Recommendations | 32 |
| | |
| V. Appendices | |
| A. Table Comparing Work Plans | 34 |
| B. Results from the Review of 17 Targeted Projects | 37 |
| C. List of Documents Reviewed | 45 |
| D. Individuals Contacted During Evaluation | 46 |

I. Program Evaluation

1. Program Background

In mid 1991, the World Environment Center¹ was approached by senior officials of the U.S. Agency for International Development (USAID) to discuss a potential federal initiative involving collaboration of U.S. and Asian industry, government and non-government organizations aimed at improving environmental conditions and fostering sustainable development in Asia.

Formal announcement of the U.S.-Asia Environmental Partnership (US-AEP) was made by President Bush during a trip to Singapore in January 1992. The US-AEP was to consist of a coalition of American and Asian businesses joined together to support better environmental, health, and safety policies and practices in the Asia region. Equally important, the activities proposed under the US-AEP were intended to create or strengthen relationships between U.S. and Asian companies, organizations, and agencies. The US-AEP includes representation from a range of participating U.S. government agencies, under the leadership and primary funding of USAID.

Immediately following the President's announcement, USAID officials began work to articulate strategies and to develop implementing programs based on the previous year's discussions. Four main components emerged as the core of the US-AEP: environmental fellowships, exchanges, and training (FET); technology cooperation; energy and environmental infrastructure (EEI); and regional biodiversity conservation.

In February 1992, Antony Marcil, President of WEC, joined Henrietta Holsman Fore, Assistant Administrator for Asia, USAID, live on

WorldNet to present their image of the US-AEP and the role that WEC and other institutions would play in this innovative Partnership.

Justification for a non-competitive award to the WEC was prepared by Thomas Nicastrò, Chief, Asia/DR/TR (April 29, 1992) based on the fact that WEC was the only institution with an effective two-way business exchange program already operating in Asia. Other institutions identified for cooperative agreements under the US-AEP's FET Component during this early period included The Asia Foundation (TAF), the newly formed U.S. Environmental Training Institute (USETI), and the U.S. Environmental Protection Agency (EPA).² WEC's proposal to the US-AEP was submitted on June 1, 1992, and

² Cooperative Agreements were signed with USETI on September 28, 1992 and with TAF on December 22, 1992. An inter-agency agreement was signed with EPA effective August 25, 1992.

TAF's objectives were threefold: 1) To provide opportunities to address significant environmental problems and identify relevant economic and technological solutions through professional affiliations, 2) to develop a network of environmental professionals in the U.S. and the Asia-Pacific region, and 3) to promote multi-disciplinary and cross-institutional discussions of environmental and natural resource issues and appropriate solutions to environmental problems.

The objective of USETI's CA was to increase awareness of environmental problems and potential solutions throughout Asia by: 1) improving access to information on appropriate environmental training courses available to Asian officials and businessmen; 2) improving the capacity of Asians to assess environmental problems and take action and to understand the full range of relevant U.S. technologies and practices; and 3) promoting environmentally sustainable technology and management principles.

EPA's objectives were to: 1) facilitate technology transfer through the development of long-term relationships and the development of professional and institutional networks and 2) create demand for policy reform and/or voluntary compliance with environmental regulations.

¹ WEC is a non-profit, non-advocacy organization founded in 1974 to serve as a bridge for the exchange of information and expertise among industry, government, non-governmental and international organizations.

the Cooperative Agreement (CA) was signed on September 24, 1992.³

2. The Cooperative Agreement

The Cooperative Agreement, No. AEP-0015-A-00-2055-00, between the US-AEP and WEC was signed on September 24, 1992. The stated purpose of the CA was to support better environmental, health, and safety policies and practices in the Asia region. The proposed effort was designed to support the US-AEP generally, and the FET component (later renamed the Professional and Organizational Development (POD) component) in particular. The CA is to focus on industrial and urban issues, but also include agro-industry and rural industrial and economic growth centers.

The grant, entitled *AID/WEC Cooperative Agreement In Support of the U.S.-Asia Environmental Partnership*, includes \$3,471,130 in authorized USAID funding and \$5,002,000 in non-federal cost sharing by WEC. The term is from September 24, 1992 to September 30, 1994.

Fifty-nine percent (59%) of the total CA budget was to be in the form of non-federal pro bono contributions. These services were based on an average value of US\$800/day for corporate, government, and NGO volunteer experts and counterpart contributions of staff time and local logistical support.

The CA includes funds for two program initiatives, the Short-Term Technical Assistance (STTA) and the Short-Term Professional

Development (STPD); business development activities by WEC; staff salaries (U.S. and Asian); and an evaluation. A description of each of these areas is provided below.

Short-Term Technical Assistance (STTA): 100 individually tailored audit and assessment missions, organized on a pro bono or partially funded, basis from the U.S. to Asia. Such activities were to vary according to need and availability of appropriate technical services. They were to be as brief as several days, or as long as several months. While pro bono services were to be the preferred option for all technical assistance assignments, there was a provision for up to one-fifth of these exchanges to involve paid consultants. The average cost to USAID was estimated at \$5,900 per exchange. Pro bono contributions were estimated at \$1,312,000 over two years.

Short-Term Professional Development (STPD): 100 activities including on-the-job internships, seminars and workshops, and study tours of Asians to the U.S. Like STTAs, STPDs' duration was to vary according to individual need and circumstances. Usually, however, they were to be of a longer duration than STTAs, averaging 45 days. The average cost to USAID for an STPD was estimated at \$9,425. Total pro bono contributions were estimated to amount to \$3,690,000 over the two years.

Business Development Surveys and Liaison: WEC proposed to undertake four comprehensive Business Development Survey trips during the CA. These trips were to include senior WEC staff and a senior industrial specialist seeking to expand existing WEC country programs and open WEC International Environment and Development Service (IEDS)⁴ programs in new countries (including Korea, Singapore,

³ The proposal's approach to implementing the business exchanges was consistent with the approaches being used on other existing CAs. At the time of the proposal, WEC held:

- three regional cooperative agreements (CA) with USAID in support of programs in Central and Eastern Europe, Asia, and the Near East;
- a bilateral agreement with USAID/Bangkok;
- a LAMP agreement with USAID/OFDA; and
- a bilateral agreement with USAID/Jakarta (under negotiation in mid-1992).

A bilateral grant agreement with USAID/Manila was also entered into later in 1992.

⁴ Using volunteer and other experts, IEDS makes environmental management expertise available directly to industries and governments in 32 countries at little or no cost. Since it was launched in 1982, IEDS has completed over 250 activities and worked with over 900 host-country professionals.

and Taiwan). A total of four business development trips were planned for the two years. Four Liaison Trips to the region were also planned in order to facilitate the STTA and STPD programs.

Staff: Intensive, sustained administrative and in-house technical support was planned for the STTA and STPD programs. The budget provided for four full-time staff, complemented by part-time staff in both Arlington and New York City. Staff in WEC's Bangkok and Jakarta offices were also expected to contribute to implementation of the STTAs and STPDs. Funds were also allocated for six part-time country coordinators (to be designated during first year of the CA).

Evaluation: Funds were set aside in the CA to be allocated for a consultant team to conduct an evaluation of the program during the middle of the second year. Specifically, the CA provided for the evaluation to be coordinated with other US-AEP evaluations, so that the results could contribute to anticipated longer-term US-AEP programs.

3. Evaluation Team and Methodology

In May 1994, WEC contracted with Investment & Trade Resources International (ITRI) to conduct an evaluation of its performance under Cooperative Agreement with the US-AEP.

The evaluation was conducted by a team of three individuals: Tracie E. Monk (Team Leader), Edward Glaeser, and Alice Willard. Ms. Monk has a background in the environment and energy sectors and in supporting trade and investment activities in Southeast Asia. She was also part of a quality assurance team from Management Systems International / Resource Triangle Inc. working with the US-AEP in 1993-94, and is President of ITRI.

Both Mr. Glaeser and Ms. Willard are experienced in conducting USAID evaluations.

Over the last six years, Mr. Glaeser has led and/or participated in more than 16 evaluations and institution/management analyses for USAID, including the Private Rural Initiatives Project evaluation in Bangladesh (1994) and the evaluation of Indonesia's 16-year PVO Co-Financing I and II Projects. Ms. Willard has over 12 years of experience conducting USAID evaluations, including participation in a comprehensive review of 346 USAID evaluations for quality, completeness, and clarity.

A team planning meeting consisting of the WEC principal investigator, the US-AEP QA Officer, TR&D's Manager for the POD Component, and the evaluation team was held on May 18th at WEC's Arlington office. The evaluation team's strategy for conducting this final evaluation of the project was discussed, as were the team's concerns regarding the difficulty of securing field inputs given the lack of a travel budget and the requirement that the evaluation's final report be completed in advance of the MSI evaluation team's return from Asia. (An MSI team, under the leadership of the US-AEP QA Officer, was concurrently conducting an interim evaluation of the entire US-AEP program).

Following the May 18th meeting, WEC provided the evaluation team with contact information for most of the environmental business exchangees and for many of the Hosting institutions. A Microsoft Access relational database was developed and utilized to perform statistical analyses pertaining to the exchanges (see section II.3. of this report) and to assist the evaluation team in targeting and distributing survey questionnaires.

A stratified sample of the projects initiated prior to the evaluation was developed. This sample covered 17 of 59 projects (29%), and involved 7 of the 8 countries.⁵ It also included examples of three project types: technology

⁵ Note that while neither of Nepal's two exchange projects was selected for examination, the results of the exchange related to electrification of the three-wheel vehicle "tempos" was discussed with the hosting organization (IPRI) and the USAID Mission.

assessment, factory assessment, and corporate environment program; and was illustrative of the various forms of WEC assistance provided to exchanges (substantive and logistical).

Members of the evaluation team personally interviewed 19 people: eight WEC staff in Arlington, VA and New York City; four members of the US-AEP Secretariat; five TR&D staff; the US-AEP QA Officer; and the Sanders International program manager for the TEST program.

Attempts were made to send surveys to each of the 69 Asian EBEs. Forty-two (42) EBE surveys were successfully transmitted by fax. These Asian EBEs represented 26 organizations. Asian Hosts were targeted based on their participation in one or more of the targeted projects. Out of a potential pool of 39 Host names, lack of contact information and communications difficulties limited the number of Host surveys distributed to 17.

Telephone interviews were conducted with nine U.S. EBEs and 14 U.S. Hosts who had participated in one or more of the 17 targeted projects. Individuals at six USAID Missions were contacted via Internet e-mail. US-AEP Technology Representatives representing countries involved in past US-AEP/WEC business exchanges (6 of the 9 Tech Reps) were sent faxes soliciting their insights on the program.

A list of all individuals interviewed or who responded to surveys, faxes or e-mail concerning this evaluation is provided as Appendix D.

The team expresses its sincere appreciation for the excellent cooperation and support received from WEC officials in Arlington and New York; from staff of US-AEP and TR&D; and from the numerous individuals and organizations participating in this program.

4. Scope and Organization of the Report

This report is divided into four major sections. Section I: *Program Evaluation*, provides background on the cooperative agreement and on how the evaluation was organized and conducted.

In Section II: *WEC Performance Against Program Targets and Objectives*, the results of the team's review of program documents, data analysis, interviews, and responses to surveys and other questions are provided in the form of statistical analyses of the overall program activities and summaries of significant findings.

Section III: *Evaluation Conclusions* provides the conclusions of the evaluation team, particularly related to the categories discussed in section II.6. Section IV: *Recommendations* includes suggestions for WEC related to its execution of future environmental business exchanges.

The categories examined in Sections II-IV were defined by the US-AEP's Interim Evaluation Team in an effort to be consistent across US-AEP program areas. Topics such as Total Quality Management (TQM) are therefore discussed in the findings and conclusions of this report, even though they were not a part of the original cooperative agreement between WEC and the US-AEP. Per the request of WEC and the US-AEP, the WEC evaluation team has limited the comments and recommendations contained in this document to WEC's activities under the cooperative agreement. We have refrained from commenting on the US-AEP's business exchange efforts or from making recommendations concerning US-AEP's involvement in any future environmental business exchange program since these topics will be covered by MSI, Inc. as a part of the US-AEP interim evaluation.

II. WEC Performance Against Program Targets and Objectives

1. Logframe

The program objectives, output, and outcomes as defined in the US-AEP logframe, which is based on the Workplan, are as follows:

STRATEGIC OBJECTIVE: To increase awareness of environmental problems and potential solutions throughout Asia by introducing environmental technologies, practices, and evaluation and problem solving tools and financial expertise.

PROGRAM OUTPUTS: 100 individually tailored audit and assessment missions. 100 on-the-job internships, seminars, workshops or study tours of Asians to the U.S. Four business development surveys and liaison trips. Project enhancements.

PROGRAM OUTCOMES: To create or strengthen ties between U.S. and Asian companies, organizations, and agencies. To identify and introduce relevant U.S. technologies, environmental practices, environmental evaluation and problem solving tools and/or financial expertise. To link learning and confidence building experiences to work situations and institutional settings which can contribute to institutional development.

A summary of Program Outputs is provided in sections II.3 and II.4 of this report; Program Outcomes, as communicated by individuals and organizations contacted during this evaluation, are discussed in section II.5.

2. Implementation Preparations and Start-Up

Review of program documentation and interviews with staff at WEC, the Secretariat, and

TR&D revealed that implementation of this cooperative agreement changed significantly following the submission of the final Work Plan in April 1993. For this reason, we have separated discussion of implementation into two distinct periods: (1) September 1992 - April 15, 1993 and (2) April 15, 1993 to May 10, 1994, when this evaluation was initiated. Most of the findings, conclusions, and recommendations provided in this report are derived from the latter performance period.

a. September 1992 - April 15, 1993

Following signature of the Cooperative Agreement (CA), WEC immediately began preparing for implementation of the exchange program based on its previous discussions with USAID officials and the strategies outlined in its proposal. The Program Manager, William Knowland, had been hired May 1992 following preliminary discussions with USAID. WEC hired the remaining program staff during the two-to-four months following the signing of the CA.

The CA required that WEC submit its First Annual Work Plan within 60 days of the effective date of the agreement. It further required that the Work Plan...

...give particular attention to outputs, emphasizing the steps which will be taken to enhance the developmental and environmental impacts from the proposed work. Outputs may be related to particular environmental problems, to particular countries, to a specific range of technologies, etc., but they must be related to objectives and purposes above and beyond the accomplishment of exchange missions alone, and they must be quantifiable. Attention will also be given to the opportunities for leverage, building on

WEC's own network and/or programs of other organizations.

A draft work plan was prepared and submitted to the US-AEP Secretariat on November 5, 1992. Revised work plans were submitted on December 17, 1992 and January 6, 1993 — none of which received approval from the US-AEP Secretariat. These plans were based on discussions with USAID officials during 1991-92, as well as the WEC proposal and the CA.

The first exchange occurred in February 1993, based on WEC's strategy as defined in the initial draft work plans. According to the first semi-annual progress report, 50 Short-Term Technical Assistance (STTA) exchange opportunities had been identified by WEC as of March 1993 — 23 were underway (candidates identified and dates set) and 14 were completed. An additional 50 Short-Term Professional Development (STPD) exchanges had been identified — 31 were underway.

At the same time that WEC was implementing its draft work plans, Henrietta Holsman Fore was leaving USAID and Molly Kux, the USAID Program Manager, was transferring oversight responsibility for the CA to the US-AEP Director General, Lewis P. Reade. Reade, in turn, was working with a newly organized Secretariat and new staff from TR&D to formulate his vision for the US-AEP program.

Discussions within the Secretariat and TR&D in late 1992 resulted in several findings which held significant consequences for the WEC effort. These included the following:

- A recognition within the Secretariat that the limited number of exchanges (WEC), fellowships (TAF), and training (USETI) supported under the US-AEP were, by themselves, unlikely to have a significant long-term effect on Asia's environmental sector — and that the goal should instead be to focus on creating an atmosphere conducive to furthering U.S.-Asian business relationships.
- The objectives of the three CAs under the FET component (WEC, TAF, and USETI) represented potential overlap and redundancy.
- Initial feedback from USAID Missions regarding the US-AEP program was negative — focusing on a perceived lack of focus within the US-AEP and poor coordination among the numerous implementing organizations who were sending business development missions to Asia.

The Secretariat expressed its concern with WEC's approach to the environmental business exchanges in a series of meetings between WEC staff (Will Knowland and Larry Lai) and the US-AEP Secretariat (Owen Cylke) and TR&D (Melissa Dann) beginning in late 1992. The Secretariat's vision for the program was further articulated during discussions held March 19 and April 7, 1993.

During this period two other significant events affected the program. The first was a decision made at the annual USAID Mission Directors' Conference in March 1993, to make the US-AEP activities more responsive to Mission priorities. By allocating 38% of WEC's total exchanges (75 of 200) to five priority Missions,⁶ the Secretariat hoped to: (1) enfranchise the Missions in the US-AEP program, allowing field control of a significant number of business exchange slots; and (2) ensure that Missions' priorities were supported under the US-AEP.

This shift effectively transferred much of WEC's project identification and design responsibilities to the field, while retaining its functions as the logistics coordinator. The change was also indicative of USAID's emergence as the dominant player in this interagency effort.

The second major event during this period was the April 1993 departure of the WEC's

⁶ India (30 exchanges); Indonesia (10); Philippines (10); Sri Lanka (10); and Thailand (15).

Director for Asia Programs. This resulted in Will Knowland's promotion to manage WEC's Asia cooperative and bilateral agreements. According to individuals interviewed, the designation of Larry Lai (who the Secretariat and TR&D perceived as industry-oriented and responsive to their needs) as primary contact for this CA during this period had a positive effect on what had become a strained relationship between the US-AEP staff and WEC management.⁷

During this period, both Knowland and WEC's President, Tony Marcil, expressed WEC's concern to the Secretariat regarding what they viewed as a one-sided redefinition of the CA by the Secretariat. In particular, they felt that the new strategy:

- failed to recognize the benefits of industry-government-NGO collaboration;
- was not consistent with WEC's position as a non-advocacy organization; and
- significantly reduced WEC's involvement in the substantive planning, design, and follow-up of exchanges.

b. April 15, 1993 - Present

The final Work Plan was submitted by WEC on April 15, 1993, based on the Secretariat's strategy for conducting business-to-business exchanges under the US-AEP. Concurrent with this submission, WEC terminated planning on all exchanges (54 of which were under development). From early April to June 30, 1993, WEC focused on developing strategies for marketing the environmental business exchanges (EBEs) to the USAID Missions as well as to non-Mission countries.

⁷ In July 1993 Lai was promoted to Principal Investigator with formal management responsibility for the CA. In January 1994, Lai converted from WEC staff to subcontractor status with the MTL Group, Inc. Day-to-day management of the CA continued under Lai; Swarupa Ganguli formally received responsibility for tracking financial aspects of the CA. Policy and management decision-making resided with Will Knowland as Director, Asia Programs.

The table in Appendix A summarizes key elements of WEC's strategy, as presented in the draft work plans and the largely Secretariat-defined work plan dated April 15, 1993.

Under the final Work Plan, the WEC exchange program had two components:

Environmental Business Exchanges - U.S. to Asia: individually tailored exchanges, organized on a pro bono or partially funded basis, from the U.S. to Asia/Pacific. Such activities were to vary according to need and availability of appropriate technical services; and vary in duration from several days to several months. In some instances the services of paid consultants were to be used to complement or replace volunteer services.

Environmental Business Exchanges - Asia to U.S.: these exchanges included factory/industry visits and workshops for Asians and Pacific Islanders visiting U.S. industry. EBEs to the U.S. were to be designed around specific topics (e.g., pollution control and monitoring technologies), from one to six weeks in duration.

These components contained three generic programs:

Factory Assessment Program which was designed to enable Asian industry representatives to draw upon U.S. expertise to perform environmental audits of plant facilities and equipment and reap the benefits of working smarter and greener while reducing operating costs.

Technology Assessment Program which complemented the Factory Assessment Program and provided a vehicle for small groups of Asian industry officials to meet with their U.S. counterparts to review and evaluate new and alternative technologies for process control and pollution mitigation.

Corporate Environmental Program which was to bring U.S. and Asian industry leaders

together to explore challenges posed by environmental concerns and regulations.

Thirty-eight percent (38%) of the 200 EBEs were reserved for programming by five USAID Missions. Thirty-three percent were to be drawn from proposals addressing the three generic program areas above. The remaining 29% were intended for targets of opportunity which might arise during the course of this program.

The program identification/design, approval, and implementation process is depicted in the figure on page 9. Note that according to WEC, approximately 35-40% of inquiries from industry were rejected by WEC due to general misconceptions or lack of understanding regarding the intent of the program. Approximately 95% of Asia-driven projects (from USAID or Tech Reps) were accepted. The few that did not occur were rejected due to a lack of adequate information on environmental need or anticipated outcome from the exchange.

Between early April and September 30, 1993, only eight environmental business exchanges (EBEs) occurred. A primary reason for this inactivity was the absence of USAID Mission participation. Concerns about WEC's ability to implement EBEs under the new Mission-directed strategy led Reade to prepare a letter agreement between the US-AEP and WEC (July 7, 1993)

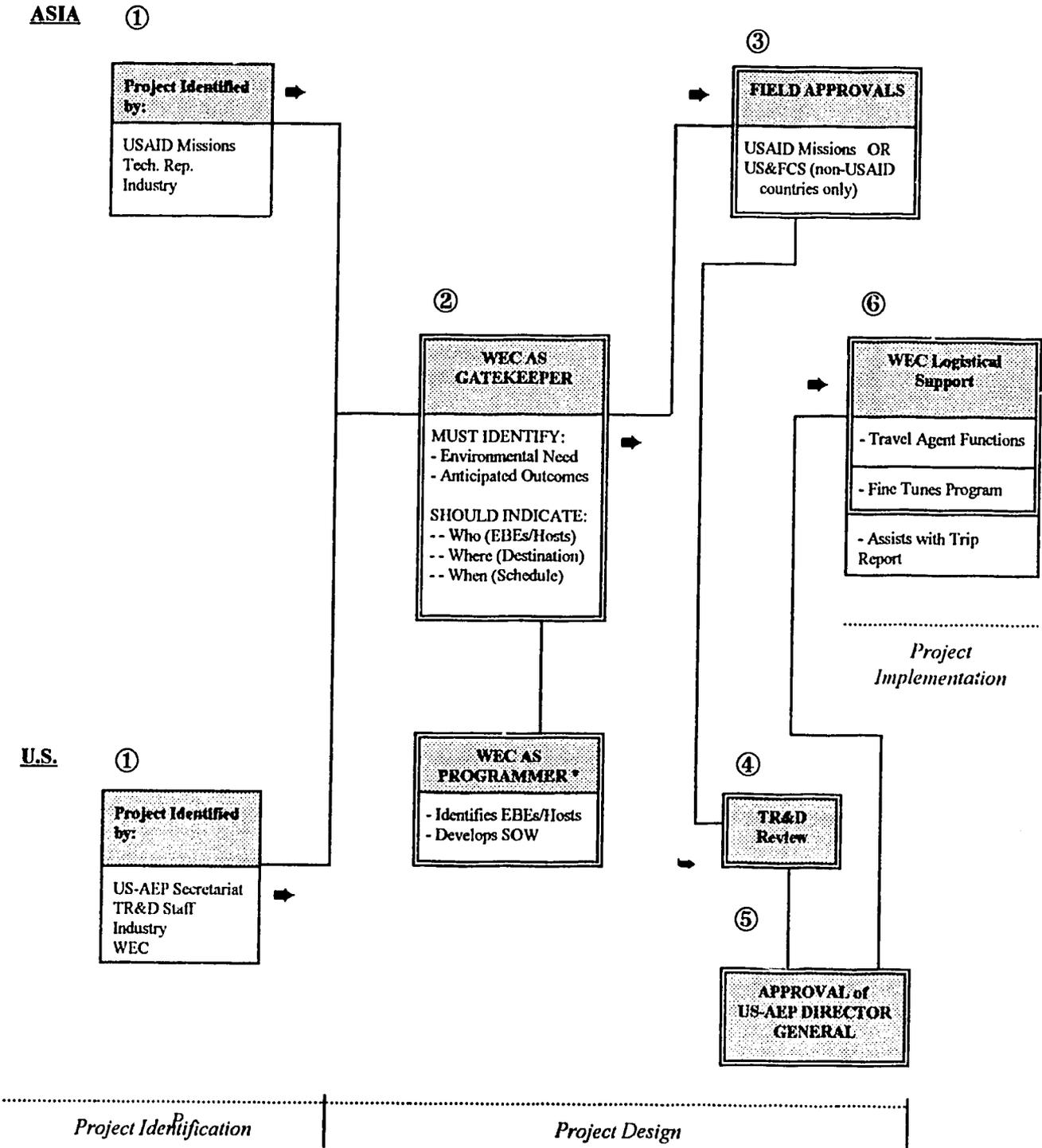
specifying targets for the year. Intensive marketing of Missions by both WEC and the Secretariat / TR&D was ultimately successful with 63 EBEs implemented during the fourth quarter of 1993.

Over the last six to eight months, a new stakeholder in the US-AEP/WEC CA has emerged in the form of the US-AEP's Technology Cooperation Representatives (Tech Reps). During 1993, Tech Reps, working through the U.S. Department of Commerce's Foreign Commercial Service (US&FCS), were stationed in nine Asian countries.⁸ Their involvement in the US-AEP program expanded significantly during early 1994, and Tech Reps are playing an increasing role in identifying EBEs, coordinating local meetings and in-country logistics, and following-up with EBEs and Host institutions after exchanges are completed. As one member of the Secretariat explained, "WEC's business exchange program is <now> an arrow in the Tech Reps' quiver."

As of May 10, 1994, 145 EBEs had participated in 59 WEC environment business exchange projects. An additional 20 projects involving 60 EBEs were under development. A breakdown of the EBEs participating in this program as of the evaluation is provided in section II.3. of this report.

⁸ Tech Reps were first stationed in three countries as of October 1993, with a mandate to identify one environmental trade lead per day. In January 1994, six additional offices were formally opened. Since early 1994, Tech Reps have been encouraged by the Secretariat to work directly with other US-AEP Implementing Organizations, including WEC, thereby more fully responding to the needs of Asian and U.S. businesses, governments, and non-government organizations.

PROJECT IDENTIFICATION AND APPROVAL PROCESS



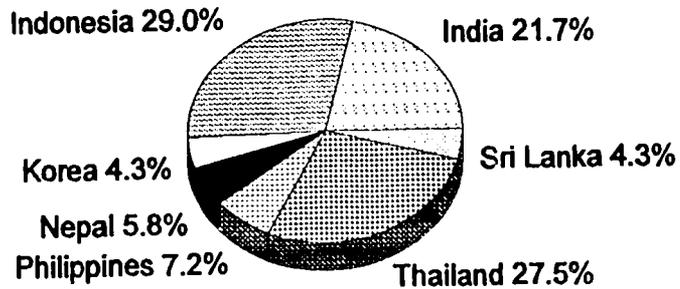
- Critical Step for WEC

* - Not all projects involve WEC as Programmer

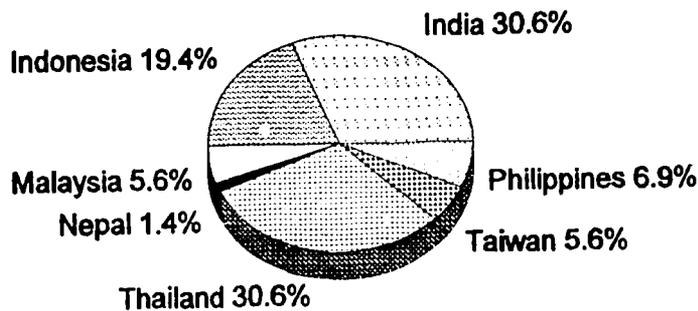
3. Analysis of Overall Activities (Outputs) To Date

As of the time of this evaluation, 145 individuals had participated in 59 exchange projects involving visits and technical discussions among over 250 firms and organizations. During this period, 69 EBEs from seven countries were hosted in the U.S., and 76 EBEs from the U.S. traveled to Asia. (See figures at right.) Approximately 9% of the total exchangees were female (not including exchangees participating in multiple projects).

Distribution of Asian EBEs (69 Asian EBEs)



Asian Countries Receiving U.S. EBEs (76 U.S. EBEs)



Of the 59 projects, 40 involved technology assessments, seven dealt with the Corporate Environment, five were factory assessments (four of these were bundled into one large effort in Sri Lanka), three were leveraged efforts involving the World Bank, and four projects did not fit within these categories.

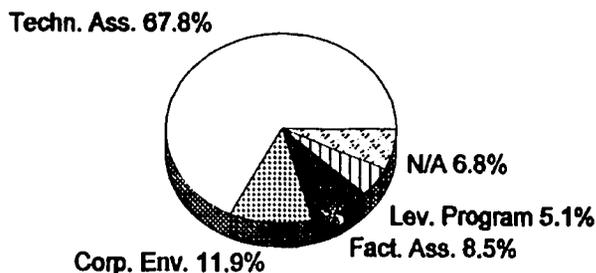
Sixty-six percent of these projects (39 of 59) were identified by the USAID Missions (including 15 through India's TEST program and 9 by R.J. Gurley of Thailand). The remainder were identified by industry (5), other US-AEP programs (4), World Bank (4), and WEC (3). In terms of total EBEs, 82 of the 145 (57%) were identified by the Missions; 10% each from US-AEP, Tech Reps, and WEC; and the remainder from the World Bank and industry.

Note that the percentages reflected in the various figures deviate from the targets originally set in the Work Plan: 38% from USAID Missions in the five targeted countries; 33% from Hong Kong, Malaysia, Taiwan, Singapore, or South Korea; and 29% from industry and in response to unforeseen opportunities.

Distribution of the projects by environmental concentration and by industry sectors are provided in the two tables on the next page.

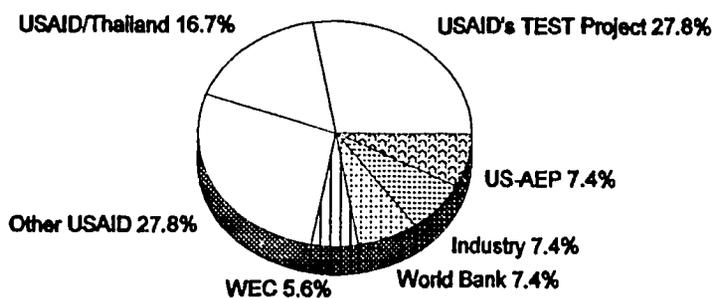
Types of Exchange Efforts

(59 Projects)



Sources of WEC EBE Projects

(Breakout of 59 Projects)



**WEC Exchanges:
Environmental Component**

| Number of Projects | Type of Environmental Consideration |
|--------------------|-------------------------------------|
| 12 | Waste Minimization |
| 9 | Emissions |
| 9 | Environmental Management |
| 8 | Waste Water |
| 6 | Alternative Fuels / Energy |
| 4 | Air Quality |
| 4 | Solid Waste |
| 3 | Hazardous Waste |
| 9 | Other Environmental Areas |

Note: Some of the 59 actual projects targeted multiple environmental areas.

The Other Environmental Areas include: demand side management, integrated resource planning, reforestation, water, and weather.

As discussed in the Program Background section of this report, implementation of the CA suffered a serious delay as a result of the new strategy agreed to in the April 15, 1993 Work Plan. The WEC quarterly report dated June 30, 1993, states that reasons why goals were not being met revolved around the fact that the USAID Missions (other than USAID/Thailand) had yet to respond by identifying exchanges.

The following two graphics illustrate the execution of exchanges under the CA, charting planned EBEs (Asia to U.S. and U.S. to

**WEC Exchanges:
Industrial Sectors Covered**

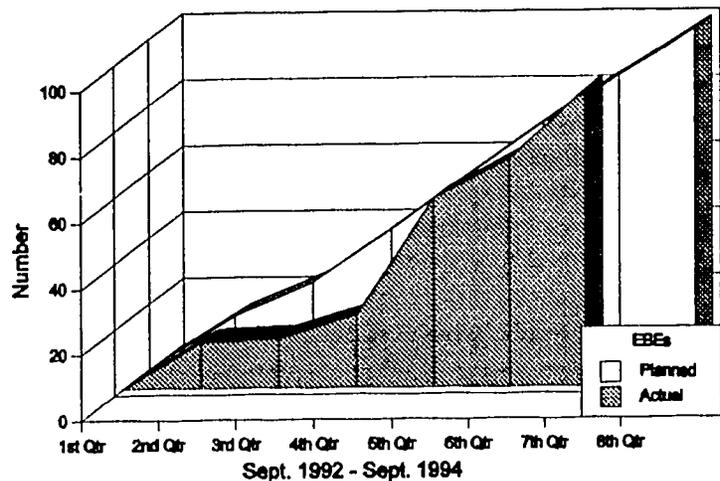
| Number of Projects | Type of Industry/ Sector |
|--------------------|---|
| 18 | General Industry |
| 10 | Urban Sector |
| 7 | Vehicles and Machinery |
| 5 | Petroleum / Petrochemicals |
| 4 | Chemicals, Pulp & Paper, Metals, Power (4 each) |
| 3 | Tanneries |
| 2 | Agriculture; Textiles; Natural Resources; Government (2 each) |
| 4 | Other Industries / Sectors |

Note: Some of the projects targeted multiple industries or sectors, therefore the above numbers total more than 59.

The other industries covered include: fertilizers, industrial estates, and cement.

U.S. to Asia Exchanges

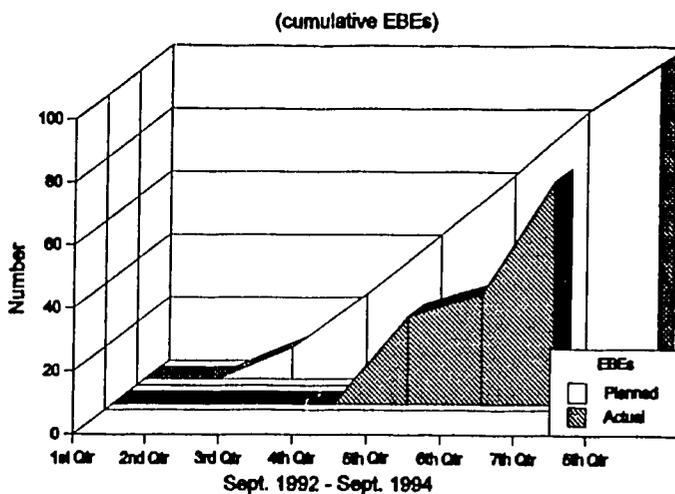
(cumulative EBEs)



Asia) as set forth in a memo from Larry Lai to Melissa Dann dated April 27, 1993.

It is important to note that despite a virtual hiatus in the project (April - September 1993), WEC successfully completed 71% of the Asia to U.S. exchanges (as of the May 1994), and had already implemented 90% of required U.S. EBEs to Asia. Given the EBEs currently planned for the period June - September 1994, WEC should clearly exceed the targets of 100 EBEs from the U.S. to Asia and 100 EBEs from Asia to the U.S.

Asia to U.S. Exchanges

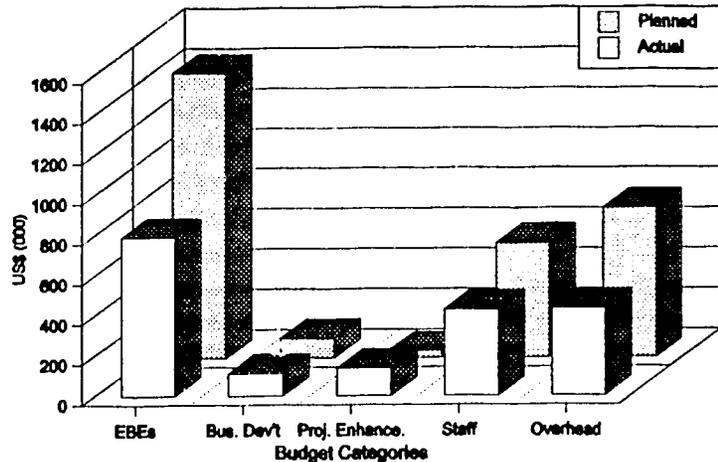


4. Analysis of Costs

Total project expenditures for this CA are running behind schedule. USAID authorized a budget of \$3,471,130 for this program, of which a total of \$3,271,130 has been obligated. As of June 6, 1994, a total of \$1,897,119 had been spent by WEC, leaving a balance of \$1,574,011 of authorized funds for the remaining four months of the project. According to WEC officials, \$110,000 of this amount involves costs which have already been incurred, but not paid. As of July 11, 1994, commitments for approved exchanges amounted to approximately \$388,946; plus WEC estimated that \$425,000 more would be needed to complete additional exchanges (\$250,000) and pay for staff costs (\$175,000) through

Total Program Expenditures

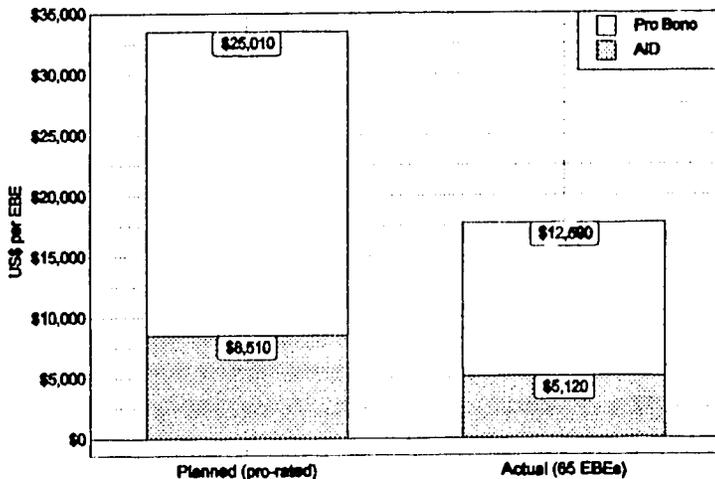
(thru June 5, 1993)



September 1994. At that time, there would be an estimated balance of \$650,000 of authorized funds remaining on the cooperative agreement (\$450,000 of obligated funds).

Direct Exchange Related Costs

(For 65 completed exchanges)



As of this evaluation, WEC has completed six of the eight budgeted business development survey/liaison trips to Asia. Another trip by WEC staff is planned for September 1994.

The original CA projected the average direct cost per exchange (not including WEC staff time, overhead, or similar expenses) at \$33,520. This was to include \$8,510 (25%) from USAID and \$25,010 (75%) in pro bono contributions from participants.

With many invoices still outstanding, a final accounting cannot be completed. However, of the 59 projects targeted for this evaluation, completed financial records were available for 33 projects involving 65 EBEs (see figure at left). The direct costs for these exchange projects averaged \$17,710 per EBE. Of this amount, USAID contributed an

average of \$5,120 (29%) and \$12,590 (71%) was provided through pro bono contributions by participants (both EBEs and Hosts).⁹

The significant difference between estimated expenditures per EBE and actual costs are due largely to the duration of the exchanges. Under the CA, the Short-Term Technical Assistance exchanges were expected to spend an average of 20 days on the exchange; Short-Term Professional Development exchanges were estimated at 45 days each. In reality, few of the exchanges lasted more than two to three weeks.

Under WEC's conservative approach to valuing pro bono contributions under this CA, other forms of contributions were not included in the calculations. For example, a number of participants interviewed during this evaluation spoke of in-house research and marketing efforts associated with these exchanges valued in the tens and hundreds of thousands of dollars. Contributions by other groups, i.e. TEST in the form of cost-sharing, and intermediary organizations such as the Small Industries Development Bank of India which assisted in project design and execution, are also excluded from WEC's calculation of pro bono contributions, as were the partial travel expenses born by certain other participants.

⁹ It is important to review the method of WEC's accounting for pro bono contributions. EBE's time is assigned a value of \$800/day. Each day of the exchange, plus two days preparation and two days Trip Report time are charged at that rate. Host's time is valued as \$800 per day of the exchange, e.g. the EBE may meet with eight Hosts one day, but a total value of \$800 is assigned for the day. Senior government personnel (EBEs and Hosts) are assigned a value of \$500/day.

In the case of the Nov. 1992 Megacities Conference in Indonesia, a pro bono value of \$136,000 was assigned to the project. This value covers the 34 conference participants, rather than being limited to the 12 funded under this CA. If the pro bono calculations are reduced to reflect only US-AEP participants, a value of approximately \$48,000 would be assigned. This would lower the percentage of pro bono vs. US-AEP contributions to 69% vs. the 75% anticipated in the CA.

5. Program Outcomes

Several individuals and organizations contributed to this report's findings on program outcomes. We have grouped these comments under the following three categories:

- Responses of Asian-based EBEs and Hosts (contacted through a survey questionnaire);
- Responses of Asian-based Intermediary Organizations (most of whom were contacted via Internet e-mail or fax); and
- Project Specific Descriptions and Findings (including 23 telephone interviews and specific survey responses related to 17 targeted exchange projects).

a. Responses of Asian-based EBEs and Hosts

Surveys were sent to 42 Asian EBEs representing 26 organizations and 17 Asian Hosts from 17 organizations. Eighteen responses (65% of organizations contacted) were received from the Asian EBEs and two responses (12%) were received from targeted Hosts. Findings from these survey responses are provided below.

Scope:

- Most of the exchanges found that the companies they met with were very appropriate to their needs.
- More than three-fourths of the respondents indicated that their primary expectation was either to improve their understanding of techniques/technologies available to address an environmental problem or to learn from the U.S. environmental experience. Less than a fifth of the respondents participated in their exchange in order to make business contacts or evaluate environmental technology in advance of a purchase.
- All but one respondent indicated that the exchange achieved their expectations, and 16 indicated that they would have liked to

have met with more businesses — none suggested that government officials be added to the exchanges, however, six suggested that more meetings be scheduled with non-government organizations.

Results:

- More than half of the respondents indicated that they would purchase pollution control equipment within three years of their exchange.
- Almost one-fourth of the Asian EBEs stated that they planned to enter into licensing, distributorship or similar business arrangements involving U.S. environmental technology within 1-3 years. Other results cited by the exchangees included additional environment-related training for their workforce and the creation of an environmental subsidiary.
- The majority of respondents saw themselves either engaging in further studies related to environmental problems or adopting new waste minimization or pollution prevention techniques following their exchange.
- Fifteen firms stated that they followed up with a Host company or institution, and more than half contacted a WEC office in either Asia or the U.S. Several others followed up with the USAID Mission, another US-AEP Program, or EPRI.
- Sixty-seven percent (67%) of the respondents indicated that the environment-related actions they take over the next three years will result in a 5 - 25% reduction in effluent or emissions from their facilities. One-third stated that their utilization of raw materials or feedstock will be significantly improved over the near-term. Almost one-fourth, however, suggested that most of the effects would

not be apparent over the next three years.

Other near-term benefits from the actions of these EBEs include: the disposal of "tons and tons of hazardous materials stored for decades"; improvements to urban conditions; development of environmental technologies appropriate to developing countries' needs; and improvements to working conditions.

Usefulness of Exchange:

- Respondents were asked to rate the usefulness of various forms of assistance provided through this CA. The responses of the 18 EBEs are summarized below. The scale equates 1 as somewhat useful and 4 as very useful.
 - Assisting Asian businesses to learn more about specific U.S. environmental practices and technology ranked highest, averaging 3.47.
 - Providing a cooperative forum for businesses, governments, and NGOs to better identify and jointly address their environmental requirements was 3.4.
 - Leveraging other USAID and World Bank environmental programs by organizing conferences and handling logistical arrangements for participants received an average ranking of 3.17.
 - Providing impartial technical analysis and support to Asian governments and businesses to identify technologies appropriate to local needs scored the least at 3.14.

Future EBE projects:

- In terms of additional recommendations so that the program becomes more responsive to exchangee needs...
 - two EBEs suggested that financing be given greater consideration;
 - two EBEs recommended improved targeting of exchanges, including a focus on decision-makers and emphasis on local

needs;

- two individuals emphasized the importance of learning about technologies "appropriate" to their needs;
 - two respondents requested that training be provided to their staff, particularly in the area of waste management;
 - several respondents suggested the need for additional materials (i.e., case studies) or follow-up visits, particularly related to waste minimization in the metals and textile industries; and
 - two EBEs requested additional follow-up involving business contacts, US-AEP, and WEC.
- Regarding additional forms of assistance for EBEs, four EBEs made specific suggestions related to financing. These included addition of financial institutions to EBEs' meetings and the provision of financial assistance (grants and loans), particularly for small businesses and new ventures.

Other suggestions included:

- continuing communications with EBEs, including establishing an exchange association or club and including EBEs in a Resource Listing;
- conducting more seminars with qualified speakers and supporting exhibitions of environmental protection and control equipment;
- providing EBEs with a list of investors who would be willing to invest locally; and
- improving coordination with USAID and interested local companies.

b. Responses of Asian-based Intermediate Organizations

Individuals at each of the five key USAID Missions were contacted via Internet e-mail — four responded. A USAID official in Santiago, Chile was also contacted concerning his recollections about the conception of the US-AEP.

US-AEP Technology Representatives representing countries involved in past US-AEP/WEC business exchanges (6 of the 9 Tech Reps) were sent faxes soliciting their insights on the program; two responded.

Information and comments from these individuals yielded the following findings regarding the exchange program:

WEC's Role:

- WEC's travel and logistical support was of high quality and, for the most part, flawless from their perspective.
- Larry Lai and WEC's project assistants are held in very high regard by field personnel.

Results:

- USAID Missions and Tech Reps are generally satisfied that the exchanges are meeting their expectations — namely, they are resulting in further negotiations between targeted organizations or cementing strategic environmental alliances between U.S. and Asian businesses or other organizations.¹⁰
- Most U.S. EBEs sent to Asia have either signed contracts or have entered into negotiations with Asian firms.
- The reverse, Asian EBEs sent to the U.S., has not yielded the same level of tangible, transaction-related results.

¹⁰ USAID/Philippines expressed concern that exchange participants do not always share the Mission's perspective of partnerships, which is a two-way relationship. Often, they explain, the U.S. counterpart is seen as a seller and the Philippines as a buyer.

Concerns:

- Lack of feedback, particularly related to the results of Asian EBEs' visits to the U.S., is perceived by most respondents as a significant weakness in the program. In particular, Missions note that this information would prove very useful in justifying and requesting additional resources to continue this type of activity.
- According to the Tech Reps and interviews with TR&D staff, the potential for conflict between Tech Reps and USAID Missions may be growing as each organization seeks to maximize its own priorities through use of WEC's exchange program. Missions' role as gatekeeper, allowing them to veto exchanges related to their country, requires attention before it jeopardizes the US-AEP's relationship with the Mission or the effectiveness of individual Tech Reps.
- One Mission requested that it be given more lead time prior to exchanges taking place and that it be kept informed of potential exchanges involving its country.

Future:

- Both USAID Missions and Tech Reps anticipate making greater use of the business exchange program in the future. Plans for use of WEC's business exchange positions should soon begin to appear in the Business Plans prepared by Tech Reps, and are already summarized in their monthly reports.

c. Project Specific Descriptions and Findings

A stratified sample of 17 projects was selected for more in-depth review by the evaluators. Of these 17 projects, one-quarter is related to USAID/India's Trade in Environmental

Services and Technologies (TEST) program.¹¹ This is consistent with the CA program as a whole, under which 15 of the 59 being examined for this CA involved leveraging the resources of TEST. Under this activity, WEC supported the administrative and travel functions of the exchanges. Substantive project design and identification of candidate EBEs and Hosts were largely performed by Sanders International.

Thirteen additional projects from seven countries were also selected. WEC's involvement in these efforts varied from minimal (issuing tickets and coordinating payments for hotel and per diem) as in the TEST exchanges to substantive (program design and execution) as in the recent Textile Industry exchanges from India. The results of 23 telephone interviews with U.S. EBEs and Hosts and survey questionnaires related to these efforts are presented below. Summaries of the 17 projects are provided as Appendix B at the back of this report.

WEC's Role:

- WEC's U.S. and Asian staff provided very good support to EBEs and Hosts, particularly related to travel logistics.
- WEC effectively utilized its IEDS volunteers and Asian offices in implementing many of the exchanges.

Results:

- Virtually all individuals contacted were very positive about the potential for business as a direct result of the exchange.

¹¹ TEST is implemented in India by the Industrial Credit and Investment Corporation of India (ICICI) and by Sanders International in the U.S. Its primary purpose is to identify and establish business relationships between Indian and American firms by serving as an intermediary between the disparate business and environmental cultures.

- Those exchanges identified and supported by R.J. Gurley (Thailand) and through USAID/India's TEST program appeared to have the greatest potential for near-term business results, e.g. less than one year.

Concerns:

- Many Hosts and EBEs felt that they would have been better prepared for the exchange had there been more time available during the project implementation process.
- Most respondents would have liked more follow-up by WEC, including feedback regarding the value of the visit and next steps planned by the EBE.
- Hosts tended to be less familiar with WEC and US-AEP in those instances where a prominent role was played by intermediate organizations (i.e., Sanders International) or consultants.
- New USAID regulations limiting use of business-level air travel by EBEs may adversely affect volunteers' willingness to participate in the program — particularly for those individuals who are not motivated by the prospect of near-term business opportunities. (For further details, see page 44.)

6. Key Findings

a. Management

1) Program Management

Problems related to philosophical differences in the approach to organizing and executing the EBE effort, coupled with new direction from USAID, hindered implementation of the program in early 1993. Prior to that time, WEC had been actively pursuing implementation as conceived in its proposal and the CA.

Disagreements among key players involved in discussions over the content of the CA Work Plan contributed to a perception of the CA by many WEC staff as:

- difficult and not conducive to collaboration between WEC and US-AEP staff and incompatible with WEC's image of itself as a non-advocacy organization; and
- not directly contributing to WEC's long-term goals to develop self-sustaining WEC-like organizations throughout Asia.

These perceptions, coupled with WEC management's confidence in Larry Lai's ability to implement a high quality program and to respond appropriately to the US-AEP Secretariat's evolving needs, led WEC senior managers to distance themselves from the day-to-day operation of this CA. While their lack of direct involvement had minimal effect on execution of the CA, it limited WEC's ability to benefit institutionally from the lessons learned and contacts gained through this relationship.

Currently no one on the CA staff has management authority, therefore approvals for invoices and other items must be sought from other WEC staff. At the same time, since Will Knowland's promotion, there has been minimal contact between WEC's senior management and members of the US-AEP Secretariat.

2) EBE Grant Application and Funding

The two page grant agreement (plus annexes) used for the US-AEP CA is the same as that used for all of WEC's volunteer specialists. As such, it specifically references WEC's IEDS program. Prior to executing an IEDS agreement, candidates must first be approved by the USAID Project Officer and the USAID Mission, as appropriate (see page 9).

In a few instances, most notably with Indian exchanges, WEC's process for distributing travel advances has caused difficulties for participants.

Given that their participation is generally under a "fully-funded" exchange, Indian participants are not permitted (by Indian law) to take foreign exchange with them on leaving the country. Typically WEC staff or consultants have met the exchangees on arrival in the U.S. and transferred an 80% cash advance to them directly. On one notable exchange, however, no monies were provided to the participants for two days.

File correspondence indicated that even when money was provided to Indian EBEs in a timely fashion, the fact that it was only 80% of the total funds necessary to pay for expenses placed an undue hardship on those individuals who had no independent source of dollars. This partial payment is required by the U.S. government regulations, given WEC's use of a letter of credit (L/C) with USAID as a part of its cash accrual accounting system.

3) Problem Identification and Resolution

Early communication and project implementation problems occurred in late 1992 due to a significant clash in philosophical approaches to implementing the CA. These differences reached crisis proportions in March/April 1993, at which point they were settled by WEC's agreement to accommodate to the US-AEP's demands.

The Secretariat's top-down management approach to problem identification and resolution may have hurt the program as a whole. Interviews with WEC personnel suggested that the wealth of skills and approaches which WEC could potentially bring to the program are not being effectively tapped due to an adversarial attitude which developed during the initial implementation of this effort.

Larry Lai, with a background in the consulting industry, rapidly established a type of client/contractor relationship with the US-AEP following his promotion to Principal Investigator for the CA. Significant praise by the staff of US-AEP / TR&D and Asian-based intermediaries regarding Lai's performance centers in large

measure on his professionalism and his responsiveness to their requests.

The April 15, 1993 Work Plan shifted WEC's focus away from directly responding to end-user clients toward responding to the needs of intermediary clients (who individually determine end-users' needs). This reactive (or responsive) approach elevated the importance of certain organizations, especially TR&D, in identifying and resolving problems on WEC's behalf. It also reduced WEC's position as a major player in the US-AEP program and weakened its ability to contribute organizationally to the resolution of problems which might arise within the US-AEP related to business exchanges.

b. Partners and Customers

1) Partners

Partnership is a term that has yet to be fully defined under the US-AEP. The findings below, however, attempt to describe the term as it affects the relationship between WEC and the US-AEP (primarily the Secretariat) and between WEC and the EBEs and Hosts participating in this program.

WEC and the US-AEP Secretariat:

The US-AEP had been first conceived by Henrietta Holsman Fore, USAID's Assistant Administrator for Asia and Chairperson of the US-AEP. It was Holsman that lined up USAID and White House support behind the program, and who first contacted key potential implementing partners, including WEC.

As a political appointee, Holsman Fore left USAID following the November 1992 elections. At the same time, Lew Reade, the US-AEP Director General, was defining his vision of what the program could become, and how best to implement it. Part of this definition included the refinement of the role of individual implementing organizations. Interviews with members of the Secretariat, TR&D, and WEC personnel, as well as a review of program documentation, suggests that "Partner" was defined as follows:

During Holsman: WEC and USAID perceived the objectives under this ambitious initiative as directly compatible with WEC's mandate. USAID's strategy for achieving these goals was in the nascent stages, yet as it was discussed with WEC, both parties felt that they could contribute as Partners to achieving a common objective, namely, bringing industry, government, and NGOs together to solve Asia's environmental problems. WEC assumed that the US-AEP was buying into its IEDS program and were prepared to focus and tailor the program accordingly. This view was supported by the USAID Project Manager for this CA, Molly Kux, who was also supervising WEC's CA with the Asia Bureau.

Under Reade: Faced with a very large and complicated program with significant overlap in programmatic functions and responsibilities, Reade sought to redefine elements of the Partnership in ways which would focus on the strength of each Implementing Organization, i.e. WEC's experience with the business community. Control over this agreement was also consolidated by Reade's assumption of the USAID Project Manager role, and delegating day-to-day oversight responsibilities to Melissa Dann of TR&D. The resulting focusing of WEC's effort effectively undermined WEC's perception of itself as a collaborator or full partner within the US-AEP program, and instead relegated them to the position of implementor of strategies conceived within the Secretariat.¹²

WEC - EBEs / Hosts:

With the exception of WEC IEDS volunteers, most of the individuals contacted indicated that they did not feel engaged as partners of WEC or the US-AEP in terms of a lasting relationship. Some of the Hosts contacted were not familiar with the US-AEP and a few did not initially recognize the WEC (having had a consultant or third party as their primary contact). Those that were familiar with the programs, expressed a strong desire to have feedback regarding the value of their contributions.

While very complimentary regarding the actual exchanges, many EBEs felt abandoned in its aftermath. There appears to be a strong desire among EBEs to continue their relationship with WEC / US-AEP. Many also expressed the desire to know more about other program participants, particularly those from similar industries and those facing similar environmental problems. The development of a network among EBEs was mentioned by one participant.

2) Customers

Under the original CA, the program appeared to focus on the end-user customer: the participating Asian or U.S. industry, governments, and NGOs with WEC taking the lead in designing a program to meet their needs. Over the last year, however, WEC's responsibilities have focused on executing exchanges designed by multiple intermediate customers, namely: the US-AEP Secretariat, TR&D, USAID Missions, and the Tech Reps.

The shift in who constitutes the program's primary customer(s) limits WEC's and others' ability to estimate program effectiveness or impact since the numerous customers do not represent a uniform agenda or set of objectives.

In some instances, the real value-added content of WEC's assistance to this program was its staff's ability to recognize areas where the end-users' needs were not being fully addressed. The willingness of these individuals to take responsibility and to redesign or tailor the

¹² USAID's attitude toward cooperative agreements in general has undergone a change in recent years, with the agency increasing its oversight and micro-management of agreements. According to individuals interviewed for this evaluation, USAID is increasingly implementing CAs as if they were contracts — the involvement of the US-AEP Secretariat in the day-to-day operations of WEC's exchange program, according to interviewees, further illustrates the trend.

exchange in real-time, after the arrival of the Asian participant(s), significantly contributed to the overall success of some exchanges.

c. Working Relationships / Communications

Given the large number of individuals and organizations participating in this effort, working relationship and communications are discussed as they relate to specific participants. These include: WEC's relationships with the US-AEP Secretariat and TR&D, internal WEC relationships, WEC's relationships with other US-AEP Implementing Organizations, and its relationships with EBEs and Hosts.

1) WEC and US-AEP Secretariat / TR&D

The working relationships between principle staff supporting this CA (Larry Lai of WEC and Melissa Dann and Joyce Coffey of TR&D) have been very close and cooperative. Memos from TR&D note WEC's timeliness in submitting reports. Interviews with these staff and others at the Secretariat indicate a high regard for WEC's responsiveness both to contractually required reports and ad-hoc requests for information and assistance.

Working relationships between senior WEC officials and members of the Secretariat remain strained.

2) Internal WEC

The autonomy with which WEC project staff are vested is one reason for WEC's ability to attract and retain quality, dedicated personnel. However, comments from field personnel and the evaluation team's experience in requesting and reviewing data suggests that this independence, particularly in those cases where staff are geographically dispersed (i.e. in New York, Bangkok, or Jakarta), complicates the ability of project managers to provide quality assurance on specific efforts.

Programmatic information, including exchange-level financial records and contact information, are not consolidated, thus limiting CA staff's oversight and control. The lack of consolidated information on EBEs and Host Organizations also limits WEC's ability to institutionalize this valuable information, and to effectively expand their future outreach efforts. (It also limited the evaluation team's ability to contact participants of past exchanges to gain feedback on the results of the exchanges.) The ability of this type of working style to succeed is also very dependent on the personal rapport among individuals, and may be increasingly difficult to maintain as WEC continues to grow.¹³

WEC's EBE exchanges tend to have relatively short lead times and require participation from a broad strata of U.S. industry. WEC's International Environment Forum (IEF)¹⁴ corporate membership, on the other hand, is dominated by the oil industry and large manufacturing firms, with access through WEC's NY Corporate Program Office requiring 1-2 weeks turnaround. In addition, many of the corporate members have set a quota for exchanges available to WEC during the year. As such, there is a desire within WEC to leverage this support across programs with similar objectives. The uniqueness of the US-AEP CA (in terms of its focus on business transactions and breadth of environmental interests) means that it frequently does not permit WEC staff to leverage it with other programs utilizing IEF members. As a result of these factors, use of WEC's IEF members under this CA is more limited for than in some of WEC's other cooperative agreements.

¹³ Many organizations faced with similar challenges utilize technology to augment internal communications and expand staffs' access to critical data. Currently, WEC staff do not have e-mail or on-line database access, and rely on fax and telephone communications. Recently four Internet accounts were provided to WEC through VITA. While these accounts have yet to be utilized in expanding communications internally, one project assistant is communicating with USAID/India via Internet, per the Mission's request.

¹⁴ The IEF was established in 1977 to promote ongoing and off-the-record dialogue between government and industry on environmental and resource management issues. Today, 60 multinational corporations, based in eight countries, and engaged in nine industrial sectors, participate in the IEF.

The decision to minimize the leveraging of the US-AEP CA's resources with those of other WEC cooperative agreements has limited the role of WEC's Asian offices. Currently, WEC's Bangkok and Jakarta office assist in communications with local USAID Mission personnel and in coordination of some Thai and Indonesian business exchanges.

3) With Other US-AEP Implementing Organizations

WEC's coordination with other US-AEP Implementing Organizations (IOs) was recognized as important in both the CA and the subsequent Work Plans. With the exception of the Technology Representatives, however, actual contact between WEC and other IOs tends to be ad-hoc and personalized, for example, one staff member communicates regularly with TAF as a result of their shared Asia Bureau cooperative agreements. While there is evidence of overtures by WEC to better coordinate WEC's US-AEP efforts with those of other organizations, particularly with the National Association of State Development Agencies (NASDA), there appears to have been little response. The perceived desire of the Secretariat to have each IO focus on its narrowly defined responsibilities may have adversely affected IOs' willingness (or ability) to directly collaborate amongst themselves.

According to staff from WEC and TR&D, with the exception of the QA Workshop last December 1993, there have been few attempts to bring US-AEP IOs together to discuss their programs or share ideas regarding implementation of the US-AEP. Virtually all interviewees described the US-AEP as a program with all control and direction radiating outward from the Secretariat. This approach would tend to negate the effectiveness of increased communications between Implementing Organizations.

One individual from TR&D expressed concern over a potential overlap between WEC's exchanges and NASDA's market-driven program. Overall, these two programs are similar in their industry-to-industry focus, and in the past, WEC

has actually funded exchanges rejected by NASDA. The market-driven component of NASDA's effort allots \$100,000 to each of the US-AEP Tech Reps to use on NASDA efforts, including potential reverse missions or business exchanges to the U.S. Given some Tech Reps' perception of USAID Missions as a hindrance to their use of WEC's exchange program, NASDA's program could be increasingly used to implement WEC-like environmental business exchanges.

4) With EBEs and Hosts

As the US-AEP program has matured, an increasing number of organizations are participating. For WEC, this has meant that the groups it relates to as "customers" has expanded to include TR&D, as well as the USAID Missions and Tech Reps — each with their own agendas and priorities. The involvement of multiple organizations in the design and execution of exchanges has increased the opportunities for miscommunication with EBEs, as occurred in the recent Clean Coal exchange from India. In this instance, confusion surrounded the various responsibilities of WEC vs. TR&D staff. While confusions of this sort have been rare in the program, the potential for future problems is growing commensurately with the increasing number of players.

In certain industries and environmental sectors, WEC has utilized the services of consultants to design exchanges and accompany EBEs. The use of these consultants and third party organizations effectively distances participants from direct contact with WEC or the US-AEP. While the practice appears to enhance EBEs' and Hosts' perception of the exchanges as directly relevant to their needs, there is little emphasis on enfranchising these participants or making them aware of WEC's or US-AEP's broader institutional mandates.

d. Evaluation Monitoring and Feedback

The process of monitoring and feedback was not addressed in the CA or in the final work plan.

In effect, these areas have been addressed through: (1) WEC's introduction of a feedback questionnaire in mid-1993 for EBEs and November 1993 for Hosts; and (2) this final evaluation, initiated in the final five months of the program.

The EBE feedback questionnaire, as designed, may result in skewed positive responses from participants, particularly Asian respondents who tend to respond to the Guttman scale questions at the highest point on the scale, i.e., as very good or excellent. The Host questionnaire, on the other hand, is very open-ended and may not provide sufficient structure for many participants to respond adequately. In both instances, the surveys are used as a one-shot follow-up to the exchange.

In the initial discussions with the US-AEP QA Team in 1993 and at the QA Workshop that December, WEC and other IOs noted the difficulty in monitoring progress given a perceived lack of specific program objectives or baseline against which to work. According to the Workshop Report, participants commented that ongoing monitoring of program results is not budgeted for or prioritized by the Secretariat. Since that time, WEC has not received further instructions from the Secretariat on how to proceed in this area, nor has WEC been a part of any forum to discuss how to improve US-AEP follow-up. WEC, as an institution, has also not seized the initiative to start its own follow-up with individuals or organizations participating in this program.

e. Resources

1) Resource Availability

WEC's staff are both knowledgeable in the environmental sector, and committed to the successful execution of exchanges and related training. Their dedication to the goal of improving environmental conditions in Asia has enabled them to endure working on what many staff perceive as a very difficult CA.

While WEC's internal equipment resources

(computers, copies, and faxes) are adequate, it has not developed the level of support systems and internal communications technology necessary to continue its growth while maintaining high quality programs. Weaknesses in two areas are particularly notable:

- (1) WEC does not have a means of systematically documenting the participation of volunteers and Hosts in its programs — the Volunteer Database is not being effectively maintained or utilized.
- (2) Knowledge and use of electronic communications, such as Internet, is minimal to non-existent among WEC staff; however, it could potentially significantly enhance communications between WEC and its offices globally, as well as with USAID Missions and with program participants throughout the world.

2) Staffing and Training

The two key individuals on the CA have been with the program since near its inception. Another project implementer in Arlington and one in New York have also been active on the CA on a part-time basis since early 1993.

While there has been a significant turn-over related to project assistants over the last 1-1/2 years, the changes have not affected the quality of individual exchanges. The absence of these individuals, however, may adversely affect WEC, given WEC's strong reliance on staff for its institutional memory.

WEC's training of new project assistants for this CA revolves around on-the-job support by Ganguli and Lai. In general, project assistants are encouraged to use their own initiative in designing and implementing exchanges, and to seek advice and assistance from a broad, knowledgeable, network of senior WEC technical personnel in Arlington and New York.

While there was recent US-AEP supported training for the use of US-AEP e-mail, the relevance or need for e-mail with TR&D was not

fully communicated, and to date no e-mail communications have occurred between WEC and TR&D.

f. Administration

1) Support Systems

The two travel agencies used by WEC for this CA, in particular the Here Today There Tomorrow agency in Washington, D.C., provide excellent support to the program. Forms and procedures have been developed by CA staff to communicate all relevant travel information, as well as the associated exchange-specific tracking codes to facilitate invoicing.

As an NGO, WEC uses a cash accrual accounting system. This system utilizes a letter of credit (L/C) with USAID. WEC personnel notify the financial office each month concerning anticipated invoices or requirements for funds. WEC accordingly will draw against the L/C.

Use of this L/C means that WEC must comply with USAID regulations specifying that only 80% of anticipated expenses can be advanced to EBEs. For some participants, this restriction has constituted a financial hardship (see page 38).

In accordance with this system, specific financial records are retained by the offices making payments, i.e. the Thai office keeps records for expenses related to exchanges it manages. While from an accounting perspective this system works well, it may not be fully responsive to the needs of project staff.

USAID is increasing the level of finance-specific oversight applied to cooperative agreements. Historically, USAID project staff's involvement in CA financial issues was minimal. Now increasing demands are being made to supply project- and task-specific financial information, including: distribution of funds by country, level and type of pro bono contributions for individual exchanges, ratio of program costs to staff/overhead expenditures, etc.

In light of these growing demands for financial data, WEC's current procedures merit further examination. While most of this information is available within the accounting office, it is not readily accessible to WEC project staff. In addition, it is provided to project personnel in an aggregate form which limits their ability to estimate outstanding expenses. Significant time is also required by CA staff to reconcile NY financial accounts according to US-AEP budget categories and to obtain financial records from other WEC offices in order to complete requisite reports for the US-AEP.

2) Files

Once a project is assigned to a project assistant or coordinator by Larry Lai, the project assistant is responsible for maintaining his/her own files (as is the practice throughout WEC). While it is assumed that all key correspondence and documents are maintained in the files, there is no internal quality control of this process nor are files centralized after completion of the exchange. The evaluation team's review of the files found that certain individual's files were in exemplary condition. For other project staff's files, however, key faxes and communications, and even approvals from the Secretariat and Missions, were often missing.

Of greatest concern to evaluators, however, was the notable absence in the files of contact information for the EBEs and Hosts. Even when contact information was found in the Trip Report's business card section, it generally was not comprehensive, nor did it provide insights as to the relative importance of individual Hosts.

3) Reports and Deliverables

WEC's responsiveness in complying with the reporting requirements of this CA is well documented. The notable exception related to the annual Work Plan. In this case, however, WEC submitted three drafts prior to coming to closure with the Secretariat on the fourth, and final, Work Plan.

Trip Reports are the major deliverable emerging from each exchange. They range in quality from very technically detailed with specific next steps delineated, to perfunctory, somewhat vacuous, compliance with the terms of the EBE agreement.

The Trip Reports are used internally within WEC to document the exchange and to provide insights during the design of subsequent exchanges. Because of WEC's perception of these documents as company-sensitive, the reports are not routinely distributed beyond the file copies which are sent to TR&D and the Secretariat.

On occasion, a copy of the Trip Report may be sent to the sponsoring USAID Mission, or relevant sections shared with a Host. It is rare, however, for the "lessons learned" through these exchanges to be shared with other organizations who possess needs or objectives similar to those examined during the exchange. As a result, the exchange experience is confined to individuals directly participating, with no attempt by WEC or the US-AEP to broaden its impact through circulation of the Trip Report or a more selective summary document.

g. Environmental/Economic Impacts

Overall the comments of program participants regarding the environmental and economic impacts of this program have been very positive. Survey responses and individuals interviewed during the evaluation indicated that the effort is resulting in relatively near-term, tangible, environmental and economic benefits. According to EBEs, Hosts, and intermediate customers (e.g., USAID Missions and Tech Reps), numerous business transactions have already taken place. These range from the \$100+ million joint venture between Advanced Electric Car Technology (AECT) of the U.S. and Thailand's Pholasith Tuk-Tuk Co., which will have an immediate, beneficial effect on urban air pollution, to numerous equipment sales and ventures established in support of USAID/India's TEST initiative.

Asian and U.S. respondents alike indicated

that they anticipate significant environmental improvements and business transactions over the next three years. More importantly, relationships have been initiated between U.S. and Asian industry, government agencies, and NGOs which potentially will enhance these groups' ability to cooperatively work together to further sustainable development in Asia.

Examples of these relationships include the near-term membership and participation of three Thai utilities in the research and corporate programs of the U.S.'s Electric Power Research Institute (EPRI) and the budding relationship between Thai agencies and the U.S. Federal Emergency Management Agency and the Chemical Manufacturers' Association. Opportunities have also increased for Asian government officials, academics, NGOs, and businessmen to join together to address environmental problems, as in the factory assessment of Sri Lanka's paint industry and the various waste minimization assessments and workshops conducted throughout the region. Further examples of current and/or anticipated business activities resulting from WEC's environmental business exchange program are discussed in section II.5. and Appendix B of this report.

While there is significant anecdotal evidence of this program's success, there are no measures or processes in place at WEC to regularly monitor actual environmental or economic impacts resulting from the exchanges. Such quantitative data are difficult to obtain due to:

- (a) the lead-time required for business contacts in Asia to result in tangible economic pay-backs to U.S. businesses is often longer than the two-year duration of this cooperative agreement;
- (b) the lack of organized follow-up monitoring or support by WEC following individual exchanges, limits WEC's ability to track results; and
- (c) lack of baseline criteria or specific objectives related to the desired outcomes of

this program (due in part to its demand- and field-driven character) complicates the measurement of impacts.

h. Total Quality Management (TQM)

TQM was not included as part of the cooperative agreement between WEC and the US-AEP. It was first introduced as an US-AEP initiative during meetings between WEC and the MSI Quality Assurance Team in October 1993 and at the US-AEP's Quality Assurance (QA) Workshop held December 15, 1993. Subsequent contact with the US-AEP's QA initiative was ad-hoc and included a request to WEC for financial data through September 1993; coordination with

the QA Officer regarding this evaluation's scope and schedule; and participation in a TR&D-sponsored e-mail workshop.

While all individuals interviewed were aware of the presence of the US-AEP's QA Officer, none of the staff at WEC were able to articulate what the QA effort consisted of or how it related to WEC's CA. In general, WEC staff expressed a strong sense of skepticism regarding the commitment of the US-AEP to TQM or to a continuous quality improvement process which might empower IOs as players in the definition or execution of the US-AEP. To date, WEC's contact with the US-AEP QA initiative has not resulted in any new processes or procedures being introduced to or implemented by WEC.

III. Evaluation Conclusions

Overall, the WEC business exchange program has met with considerable success, despite the difficulties encountered during its early implementation. Summary conclusions related to WEC's performance under this cooperative agreement are grouped below according to the categories specified by the US-AEP interim evaluation team.

1. Management

a. Program Management

- ① The CA was staffed and initially implemented in a very structured and timely manner.
- ② The significant success of this activity is largely attributable to the leadership of the Principal Investigator, Larry Lai, and to the involvement of very capable and dedicated staff.
- ③ WEC's senior managers have distanced themselves from the day-to-day operations of the program.

b. Grant Application and Funding

- ① The grant process (an outgrowth of WEC's IEDS program) has effectively been adapted to meet the needs of this exchange program.
- ② In most instances, WEC's funding of grants (payment of travel, per diem, meals, and incidental expenses) has been timely. In a few instances, however, WEC's cash accrual accounting system and EBES' foreign exchange laws have posed difficulties for exchanges during travel.

c. Problem Identification and Resolution

- ① The problems encountered during the first six months of this CA led to an estrangement between senior managers at WEC and the Secretariat.
- ② WEC's business exchange program is now geared toward satisfying intermediate customers (e.g., Secretariat, TR&D, USAID Missions, Tech Reps); these organizations (especially TR&D) often identifies and solves problems on WEC's behalf, distancing WEC from direct contact with some US-AEP participants.

2. Partners and Customers

a. Partners

WEC and the US-AEP Secretariat:

- ① The concept of the WEC - US-AEP "Partnership" was, in effect, redefined following Henrietta Holsman Fore's departure from USAID, resulting in WEC's assumption of a more narrowly focused role in the US-AEP program.
- ② A functional client-contractor relationship has been developed between WEC and the Secretariat, resulting in numerous successful business exchanges.

WEC - EBES / Hosts:

- ① EBES and Hosts alike tend to view the exchanges as isolated events and do not perceived themselves as partners of a larger US-AEP or WEC effort.
- ② The CA is not achieving its full potential for establishing long-term relationships

between WEC and American and Asian participants.

- ③ On those occasions where intermediate customers, third parties (such as TEST), and/or consultants play a primary role in communicating with EBEs and Hosts, WEC's involvement the exchange is often obscured.

b. Customers

- ① The definition of WEC's "Customer" under this CA has evolved over time, complicating WEC's ability to implement quality exchanges.
- ② WEC's Intermediate Customers view the exchange program as one of the more successful US-AEP activities, and see it as representing real and tangible benefits in the area of business-to-business exchanges.

3. Working Relationships / Communications

a. WEC and US-AEP Secretariat / TR&D

- ① Following its rough beginning, the working relationship between staff of WEC's CA and personnel at TR&D and the Secretariat has become very collegial.
- ② WEC is viewed by TR&D and the Secretariat as among the most responsive of the US-AEP Implementing Organizations.

b. Internal WEC

- ① WEC staff members and offices exercise significant independence and discretion in implementing their exchanges — this is both an institutional strength and weakness.

- ② Lai and other senior WEC personnel are viewed as valuable technical resources, providing inputs to the design of exchanges and identification of volunteers.

- ③ WEC's IEF Corporate Members do not contribute significantly to the execution of the CA.

- ④ WEC's Asian offices are not being utilized as originally intended under the CA.

c. With Other US-AEP Implementing Organizations

- ① Coordination with most US-AEP Implementing Organizations (except the Tech Reps) tends to be ad-hoc, and lacks the backing of the Secretariat.
- ② With the Tech Reps' emergence as an intermediate customer of WEC, is likely to lead to issues related to the linkage of WEC's business exchanges with Tech Rep objectives and WEC's interface with USAID Missions.
- ③ Opportunities may be being missed related to linking participants in WEC's business exchange program with activities of other IOs.

d. With EBEs and Hosts

- ① While the level of support provided by WEC varied across exchanges, there is general agreement concerning the high quality of logistical arrangements.
- ② In the instances where WEC's responsibilities are not clearly defined and may overlap those of others, problems can arise related to miscommunications.
- ③ In areas where intermediate organizations or consultants were the primary contact

with EBEs and Hosts, participants frequently did not recognize the US-AEP or WEC as the service provider.

4. Evaluation Monitoring and Feedback

- ① Monitoring / feedback was not addressed in the Work Plan and is not perceived by WEC as a significant feature of this program.
- ② Under the current Work Plan, it is difficult to estimate potential programmatic effectiveness or impacts due in part to a lack of follow-up with program participants.

5. Resources

a. Resource Availability

- ① The greatest resource offered by WEC is its people.
- ② WEC's internal corporate information resources (systems, databases, contact information) are deficient.
- ③ The field-directed, short turn-around nature of the EBE program significantly constrains WEC's ability or willingness to utilize its IEF Corporate Members or Asian Offices.

b. Staffing and Training

- ① While staff turn-over has occurred on the CA, it has not adversely affected the program.
- ② Training tends to be one-on-one in the initial stages of a new hire, with a significant emphasis on personal initiative.
- ③ Training in other areas, i.e., Internet, tends to be ad hoc.

6. Administration

a. Support Systems

- ① Very competent travel-related support is provided by local travel agencies.
- ② The accounting procedures and system used by WEC may not adequately support WEC project staff's ability to respond to the evolving financial information requirements of USAID's project personnel.

b. Files

- ① WEC's exchange files are occasionally incomplete, lacking key communications or approvals, and contact information for EBEs or Hosts is seldom readily accessible.

c. Reports and Deliverables

- ① WEC has been timely in meeting its contractual reporting and deliverable requirements.
- ② Trip Reports are not being effectively utilized under this effort.

7. Environmental/Economic Impacts

- ① WEC's business exchange effort has had a positive effect on applying U.S. environmental experience, technology, and practices to solve Asia's environmental problems.
- ② Information is not readily available or consistently monitored concerning the environmental and economic impacts of this program.

8. Total Quality Management (TQM)

- ① The US-AEP's TQM initiatives are not clearly articulated to or understood by WEC.
- ② A strong degree of skepticism exists within WEC concerning the Secretariat's commitment to TQM which is customer-focused and entails a participatory approach to project management and implementation.

9. Program Strengths and Weaknesses

a. Strengths:

- ① Of the individuals contacted for this evaluation, the vast majority saw the program's major strength as its ability to promote tangible business relationships between business executives in the U.S. and Asia.
- ② The high quality support provided by WEC staff, particularly that related to logistical arrangements, was cited frequently as directly contributing to the success of this exchange program.
- ③ The Principal Investigator's, Larry Lai's strong technical background, professionalism, and rapport with the US-AEP Secretariat and various participating organizations, has had a beneficial effect on this effort.

- ④ The involvement of key business-oriented individuals and organizations, such as R.J. Gurley (Thailand) and USAID/India's TEST program, has enhanced the program's ability to target EBE's whose participation in the program can result in near-term (2-5 years) application of U.S. environmental experience, technology, and practices in Asia.

b. Weaknesses:

- ① The program uses exchanges as isolated activities and lacks a strategy for follow-up or engagement of participants (EBEs and Hosts) as partners of WEC or the US-AEP.
- ② The US-AEP's TQM concept has not been effectively defined or applied within the WEC environmental business exchange program.
- ③ The effort, as it is currently being implemented, does not lend itself to quantification of the program's effectiveness or impact (beyond anecdotal evidence).
- ④ The lack of an institutionalized approach or system within WEC for documenting and tracking volunteers (both EBEs and Hosts) undermines WEC's ability to fully capitalize on the wealth of talent and expertise participating in this and other WEC exchange efforts.

IV. Recommendations

Currently the US-AEP and WEC are finalizing an agreement to extend this effort through February 1995. At that time, it is likely that the US-AEP's environmental business exchange program will be part of a more comprehensive contract covering environmental fellowships, exchanges, and training. In advance of this transition or prior to similar business exchange efforts by WEC, the evaluation team recommends that WEC consider changes in the areas discussed below.

1. Follow-Up with EBEs and Hosts - As the primary weakness of this program, mechanisms and procedures to ensure appropriate follow-up should be given high priority by WEC. Specifically, the exchange program's follow-up should be designed to enfranchise participants. Internal to the exchange itself, efforts should be made to maintain contact with relevant parties and track the progress of business relationships. From a broader institutional perspective, all participants should be incorporated into a WEC participant database. Communications should be maintained with all participants. Ideally, a systematic approach to follow-up should include:

- Communication with all involved parties — USAID Missions, Tech Reps, Hosts, Sponsors — regarding the value of the exchange and the next steps; these parties should then be kept apprised regarding the progress and results of the exchange over time.
- Engagement of EBEs and Hosts as partners in the WEC business exchange program. This would require efforts to broaden EBEs' and Hosts' understanding of the objectives and programs available through WEC. It might also entail the development of new criteria and programs allowing subsequent participation by EBEs in additional US-AEP/WEC efforts — versus the one-shot approach that is currently the norm.

The "client" relationships cultivated under the TEST program might be explored as a possible model for cultivating and nurturing long-term relationships with businesses; R.J. Gurley's approach to partner relationship-building is also worthy of examination. Programs which require periodic reporting on results as part of their follow-up efforts include USETI's EPA funded efforts (requiring participants to set goals and periodically report on their progress), and NASDA's requirement for periodic reports on transactions related to its grants.

2. Trip Reports - As the primary "deliverable" from the exchanges, consideration should be given to redesigning the Trip Report to broaden its usefulness. If follow-up is to be expanded under this effort, then the trip report, in particular, should set forth the next steps for the EBE. This list of near-term and long-term goals could provide WEC with actual measures against which to assess the effectiveness or impact of the exchange. To assist EBEs in development of this report, a sample trip report should be provided as an attachment to the grant agreement.

In addition, WEC should consider ways to utilize and communicate aspects of the exchanges which might benefit other Asian and U.S. organizations. One model to consider is the U.S. government's Small Business Innovation Research (SBIR) program which requires short non-proprietary summaries of the objectives/results of federally support research, separate from the final report. A compilation of EBE summaries could be cross-indexed by country, technology, industry, etc. and be made available regularly to firms in the U.S. and Asia. These reports would likely be of value to industry, and might also serve as a source of potential business partners.

3. **Contact Information** - Contact information, related to both EBEs and Hosts, is sorely deficient on this CA. The lack of information on many participants and the absence of a workable database to track these individuals adversely affects the ability of WEC to fully utilize the expertise and contacts associated with these exchanges. While maintaining this type of information is not costly, it does require the direct attention and support of WEC management and the designation of specific responsibilities among WEC staff.

4. **Exchange Design/Implementation** - The number of players utilizing the business exchange program has expanded, and WEC is increasingly working through what we have termed "intermediate customers", e.g. the USAID Missions, Tech Reps, and TR&D, as well as sponsoring organizations and consultants. As such, the opportunities for misunderstandings and miscommunications are continuing to grow. WEC should consider instituting a process whereby it delineates the overall responsibilities of participating parties related to project design, execution, and follow-up. If these responsibilities are changed to fit the unique requirements of a specific exchange project, then the resulting responsibilities should be specified in writing in advance of the exchange.

5. **Evaluation and Monitoring** - Mechanisms for tracking project progress and results should be addressed in all Work Plans (including one for this CA covering the September 1994 - February 1995 extension period). Given the current importance that USAID is placing on effective evaluation and monitoring of its projects, WEC should conduct an internal review of its USAID CAs to determine the extent to which progress against objectives is being monitored.

6. **Economic / Environmental Impacts** - Currently, WEC does not systematically track the economic or environmental impacts of this program. Assuming that knowledge of these impacts is desired by WEC, several actions need to be taken:
 - (1) WEC needs to pursue an explicit mandate (and budget) related to continuation of its relationship with EBEs and Hosts after an exchange has taken place. In the three examples cited in "1." above, TEST, USETI, and NASDA all address follow-up and tracking of impacts in their work plans and have budgets for these purposes.
 - (2) The responsibilities of the EBEs and Hosts in terms of their long-term involvement with the WEC business exchange program and post-exchange reporting should be delineated in the EBE grant agreement.
 - (3) The responsibilities of WEC in terms of continuing its relationship with these individuals must be further defined and coordinated, as appropriate, with the various Implementing Organizations (particularly Tech Reps), as well as TR&D/ Secretariat.

**Appendix A:
Table Comparing Work Plans**

| WORK PLANS | Pre - April 1993 Work Plans | April 1993 Work Plan (Final) |
|-----------------------|---|--|
| Outputs: | 1) Short-Term Technical Assistance (STTA) - 50/yr 2) Short-Term Professional Develop. (STPD) - 50/yr 3) Supporting Information and Instrumentation | 1) Asia to US EBEs - 50/yr 2) US to Asia EBEs - 50/yr |
| Participation: | Candidates who "have institutional affiliation with government, industry, or other non-governmental organizations" per CA. | Candidates from business. |
| Strategy: | <p>WEC responsible for business development / project identification.</p> <p>The strategy targets Priority Problem Areas (see below) and target countries (see below) to "maximize the effectiveness of US-AEP resources, and to address priority environmental concerns in Asia, and to promote business, industry and utility partnerships in the region."</p> <p>In addition, 6 criteria were to be applied to each exchange (see below).</p> | <p>Primary consideration will be given to USAID Mission-driven environmental programs, particularly programs within five priority countries (75 EBEs).</p> <p>65 EBEs will be allocated to Group B countries (see below), which because of their strong economies have great potential for environmental business exchanges.</p> <p>The remaining 60 EBEs will be available to support a set of generic environmental information and technology transfer programs available to all US-AEP countries and territories and to support targets of opportunity which may arise during the course of this CA.</p> |
| Priorities: | <p>Priority Problem Areas:</p> <ol style="list-style-type: none"> 1) Urban and industrial environmental infrastructure; 2) Energy conservation and cleaner energy technology; 3) Development of standards and compliance; and 4) Monitoring systems and analysis of environmental information. <p>US-AEP Strategic Initiative Areas:</p> <ol style="list-style-type: none"> 1) Electric utilities, focussing on Demand Side Management and Clean Coal Technologies; 2) Urban and Industrial Waste Water Treatment; and 3) Responsible Care Programs. | <p>Specific Mission priorities under these four areas include:</p> <ol style="list-style-type: none"> 1) Support for development of Thailand's Eastern Seaboard Initiative; 2) Exchanges for U.S. and Indian industry executives for discussion of environmental issues and opportunities. 3) Exchanges to support and augment TEST program environmental activities. 4) Support of pollution prevention facility audits and training, in concert with the Sri Lanka Mission's TIPS and NAREPP program activities, and programs initiated by the World Bank. 5) Support of the RHUDO water and waste water projects in the Philippines and Indonesia. |

| | | |
|------------------------------------|---|--|
| High Impact Activities: | <p>11 project areas (80% of EBEs):</p> <ol style="list-style-type: none"> 1) National/Local Responsible Care and Corporate Environmental Initiative Program; 2) Industrial Environmental Auditing; 3) Industrial Disaster Preparedness Strategies; 4) Electric Power Demand Side Mgmt. Strategies; 5) National Environmental Action Plans/National Environmental Funds; 6) Mgmt. and Implementation of Environmental Assessments; 7) Offices of Technical Assistance (states); 8) Constructed Wetland Wastewater Treatment Technologies; 9) Certified Laboratory Systems; 10) Regional Environmental Forum: Mega-Cities on the Pacific Rim and the Burden of Air Pollution: and 11) Regional Env. Forum: Mega-Cities on the Pacific Rim and the Problems of Water Supply and Wastewater Treatment. | <p>N/A - Mission Driven; emphasis on business opportunities.</p> |
| Project Selection Criteria: | <p>Selection Criteria:</p> <ol style="list-style-type: none"> 1) Activities should address problems of high national and regional priority, so that their value is enhanced by potential for transfer, adaptation, or commercialization on a broader scale; 2) The activities should link business, government and NGOs from both the U.S. and Asia to address specific problems; 3) The activities should address problems in which the U.S. has strong experience and capability, and/or in which there is a clear mutual interest between the U.S. and Asian partners; 4) The activities should have good potential for long-term benefits, but should also have potential for measurable accomplishments within the first 12 months. 5) The activities should extend or leverage the initiatives of other agencies and organizations working with the US-AEP, especially those of EPA and the other Implementing Organizations of the FET component. 6) The activities should either establish a replicable model program for addressing a particular problem, or should create or strengthen forums for ongoing collaborative exchange and transfer of information, experience, expertise, and technology between the U.S. and Asian partners. | <p>Mission Projects - utilize criteria of individual Mission.</p> <p>Secretariat/TR&D Criteria - opportunity-driven.</p> <p>Criteria for the 3 Generic Program Areas were developed in mid-1993. They specify that the proposed EBE should:</p> <ol style="list-style-type: none"> 1) Address problems of high priority so that the value of the exchange is enhanced by potential for transfer, adaption, or commercialization of technologies; 2) Complement environmental priorities that have been identified by the U.S. Embassy and /or USAID Mission in each country. 3) Address problems in which the U.S. has strong experience and capability and/or in which there is a clear mutual interest between the U.S. and Asian partners. 4) Have potential for a measurable achievement within the first 12 months as well as potential for longer-term benefits. |

| | | |
|--|---|--|
| Target Countries: | <ol style="list-style-type: none"> 1) Countries with WEC Offices (Thailand & Indonesia) 2) Countries with ongoing WEC activities (India, Philippines, Taiwan, Malaysia & Singapore) 3) Priority new WEC countries (Hong Kong, Korea, Sri Lanka) 4) Secondary priority countries - less than 10% of EBEs (Bangladesh, Cambodia, China, Fiji, Laos, Micronesia, Mongolia, Nepal, Papua New Guinea, and Vanuata) | <p>38% of EBEs (75 of 200) are programmed for identification by Missions from Group A countries. 33% are expected to come from Group B countries. The remaining 29% could come from Groups A, B, or C, based on the value of the proposed exchange (per 3 generic program areas).</p> <p>Group A: Countries with Strong USAID Environmental Programs: India, Indonesia, Thailand, Philippines, and Sri Lanka.</p> <p>Group B: Countries and territories with great potential for environmental business exchange: Hong Kong, Malaysia, Taiwan, Singapore, South Korea.</p> <p>Group C: Other US-AEP countries and territories (23 listed).</p> |
| Long-Term Impact / Sustainability | <p>Practical Program Handbooks or case studies to be developed for 9 of the 11 proposed program areas, allowing application/ adaptation of experience elsewhere.</p> <p>Immediate and longer-term anticipated outputs identified for each program area.</p> <p>Autonomous, self-sustaining WEC-like offices to be established in 4-6 countries.</p> | <p>Not Addressed.</p> |

Appendix B: Results from the Review of 17 Targeted Projects

*TEST: Air Filter Technology Evaluation -
October 5-21, 1993*

Description: WEC sponsored a technology evaluation visit by INALSA, an Indian manufacturer of air filters, to the U.S. INALSA sought to identify cost-effective options which could be introduced in India. WEC provided tickets and per diem, as this exchange was part of the 30 EBEs allocated to India.

Result: Of the three firms interviewed, the EBE had prior relationships with two, including the sale of equipment and initial negotiations. The primary result of the exchange was the continuing negotiation with one firm regarding a short-term agreement for licensing cylindrical cartridges. At the time of the phone interview, an additional visit by the EBE and his boss was about to occur to finalize this agreement.

*TEST: Demonstration of "Linductor" Oil
Recovery System - November 8 - 23, 1993*

Description: An individual from Yankee Environmental Services and his marketing agent met with a number of firms to introduce their new technology for vacuuming spilled oil to the Indian market. This is a method developed by a captain working to salvage Prince William Sound after the Exxon Valdez disaster. WEC provided tickets and per diem for the EBEs.

Result: While the two principals could not be reached, the file contained a letter dated 1/10/94 informing WEC that Yankee had received three orders for the technology; two from the Indian Coast Guard and one from their sales representative in India.

*TEST: Oil Absorbent Demonstration -
November 8 - 22, 1993*

Description: Ab-Sorb is a manufacturer of low-cost material for cleaning, especially for absorbing oil and other substances. Potential applications range from shop floor use to major oil spill response activities. The company believes that there is considerable potential for recovery and reuse of spilled petroleum products using this product and used the exchange to explore possible joint ventures in India. WEC provided tickets and per diem for the CEO of Ab-Sorb to travel to India to meet with prospective partners.

Result: At the time of the phone interview, a consultant for Ab-Sorb was in India (at the firm's expense) to discuss a partnership with a company in Delhi. The EBE prepared an extremely detailed trip report, which included a possible implementation plan for obtaining contracts in India.

*TEST: Corporate Environmental Mission -
January 15 - 31, 1994*

Description: Two representatives of IT Corp. met with Indian chemical, fertilizer, and tannery industries, as well as with government personnel to discuss IT Corp's understanding and experience with pollution prevention and waste minimization. This included a review of several Indian corporate environmental programs. IT Corp. also met with Pure Tech Corp. to discuss incinerator technology and the purchase of a turn-key system for Madras. WEC provided logistical support.

Result: The company has invested approximately \$85,000 in preparing presentations, proposals, and other staff time in pursuing business opportunities, but has not yet closed any deals.

Textile Industry - April 23 - May 7, 1994

Description: This exchange involved nine individuals from India's textile and dye/printing industries to the U.S. to review pollution prevention/control technologies. The groundwork for this exchange was begun in February 1993 through discussions with Appropriate Technology International (ATI), followed by a business development trip by WEC to India in October 1993. Two WEC staff and WEC's textile consultant accompanied the delegation.

Result: The participation of strong partner organizations, the Small Industries Development Bank of India and ATI (USA) played a significant role in the success of this effort. Universally, the responses by EBEs and Hosts were positive. In particular, the EBEs noted the appropriateness of the institutions visited and the quality of the advance work and implementation of the visit by WEC and the consultant. Hosts were impressed by the open, frank discussions which took place. Specifically, the Hosts commented on the technical competence of the delegation, and indicated that they learned a great deal from the EBEs concerning both India's textile market and potential competitors. Hosts expressed the belief that business would eventually emerge from the exchange and the hope that WEC would actively follow-up on these visits. All the Hosts contacted indicated that they would be very interested in participating in similar business exchanges in the future.

Clean Coal Technology - May 1-9, 1994

Description: Five principals of India's coal industry visited the U.S., attending Coal Prep '94 and participated in meetings with experts at the Center for Applied Energy Research, Pennsylvania Electric's Keystone coal preparation facility, and various U.S. coal technology firms. The focus of the exchange was on exploring the benefits of coal washing, specifically with respect to reducing the amount of stone transported from mines and raising the subsequent BTU content of the coal.

Result: This project encountered significant difficulties during implementation. While it is an anomaly from WEC's perspective, the US-AEP as a whole should take note of the potential for communication and implementation problems once multiple parties become active in an exchange.

Project identification and EBE selection was negotiated directly between the USAID Mission in India and the US-AEP's EEI Component. WEC was notified of the upcoming exchange by TR&D on March 30th. Communications with DOE and with U.S. Hosts was by the US-AEP's EEI personnel. Confusion regarding who had responsibility for what activities under the exchange (TR&D as project sponsor versus WEC as exchange implementor) resulted in this high level delegation of Indian officials:

- being stranded with no money (per diem) for two days, having arrived in the U.S. without foreign exchange since this was a fully-funded exchange; and
- contacting the designated hotel and finding that no reservations existed (the reservation had been switched given the fact that the rates of the initial hotel were above government per diem levels).

In addition, the delegation had been scheduled to travel 30 hours without a layover, and had not been notified of the need to keep expense receipts for their exchange.

Problems faced by the exchangees were documented in a memo from the Director of India's Central Mine Planning & Design Institute of India to WEC dated May 9, 1994. The memo had been prepared by TR&D staff, and was forwarded to WEC approximately two weeks later. Apologies for the problems and inconvenience was conveyed in a letter to the Director from Larry Lai, dated June 2, 1994.

One Host was contacted concerning this project. The Host spoke highly of the two exchangees he met with, and fully anticipates continuing a dialogue with the Indians concerning

conventional coal cleaning technologies. The meeting focused on the economic benefits associated with coal cleaning and the need for further site-specific studies in India, as well as the need to involve the various players in the process, e.g. government regulators, transportation firms, coal mining companies, utilities, etc. The Host indicated that all communications on this exchange were through the consultant accompanying the EBEs or through TR&D, and that he had not had direct communications with WEC. Currently, the Host is waiting for TR&D to contact him concerning follow-up, including possible USAID funding for site-specific studies.

Technology Assessment Mission: Pulp and Paper Industry - October 24 - November 5, 1993

Description: This exchange consisted of six Indonesians visiting U.S. pulp and paper industries. The purpose of the study tour was to evaluate state-of-the-art techniques and technology for pollution prevention and waste water treatment, and chemical recovery related to manufacturing.

WEC combined funds from its USAID/Indonesia CA (to cover the costs of the two government officials) and its US-AEP CA (covering the expenses of the four industry representatives). This U.S. study tour was a follow-up to training workshops and factory assessments sponsored under WEC's USAID/Indonesia CA.

Result: According to the Hosts, WEC did an excellent job of setting up the exchange, including providing useful packets of information ahead of time and providing an escort for the group. One firm demonstrated recently developed processes for waste paper recycling, while another discussed its new bleaching technology. A representative from a national paper association indicated that the visit was important because it afforded the opportunity to highlight environmental concerns to members of the overseas paper industry in a forum that was likely to lead eventually to sales of U.S. services and equipment.

WEC followed-up with two of the Hosts regarding a possible technology transfer trip to Indonesia. Plans have not been finalized, and the firms suggested that they were not sure of the utility of such a trip until a true dialogue can begin. Cultural and language problems were cited by Hosts as a significant barrier to a "two-way" dialogue with the EBEs. In order to make future exchanges more productive, one interviewee suggested that Hosts should be provided with more detailed information on the situation in the country, size of facilities, nature of the problems, areas of greatest interests, etc. Another person suggested that had the WEC environmental expert who accompanied the team assisted with its design, the exchange might have been even more focused and appropriate to EBEs'/Hosts' needs.

Waste Minimization Technology Transfer: Textile Industry - November 10 -18, 1993

Description: The visit to Indonesia had four specific purposes: (1) for the EBE to re-visit plants originally audited by himself and one other expert as part of a USAID/WEC team in December 1992 in order to establish to what extent the waste minimization recommendations had been implemented; (2) to visit and audit additional textile plants in the Bandung area to provide them with information on how to reduce industrial wastes; (3) to observe existing waste treatment facilities at the plants and make recommendations for improvements; and (4) to observe and comment on safety-related conditions and practices.

The earlier team had found most plants visited used the same primary waste treatment philosophy, namely that of sedimentation lagoons. Most did not properly monitor pH, determine optimum levels of ferrous sulfate needed to achieve purification and only infrequently used laboratory analyses to measure other ingredients. All faced the problem of mounting solid waste, and many faced safety-related problems.

Result: The most frequently implemented recommendations involved the adoption of measures to reduce or avoid spillage and isolate

spilled materials. Recommendations related to process modifications and/or alternate chemical usage, however, had generally not been implemented due to lack of resources (outside help or in-house research facilities). Most safety measures recommended following the 1992 trip had not been implemented.

The EBE made numerous suggestions about pending recommendations and made additional recommendations. As a follow-up to this assessment, WEC plans to sponsor a U.S. study tour of four representatives of Indonesia's textile industry to the U.S. under the joint sponsorship of this CA and USAID/Indonesia later in 1994. Having participated on previous WEC IEDS exchanges, the EBE spoke highly of this trip's organization. He further indicated that WEC's Indonesia staff accompanied him throughout the tour and "contributed to the success of the trip by their valuable observations and comments."

Review of Mercury Recovery and Hazardous Waste Treatment Technology - November 30 - December 11, 1993

Description: The Korea Environmental Management Corp. (KEMC) is in the process of planning to build six hazardous waste treatment facilities in Korea, and a mercury recovery facility. The Executive Director of KEMC visited the U.S. in order to investigate the newest technology for mercury recovery, hazardous waste management, waste water treatment, as well as public outreach efforts and environmental education. U.S. Hosts included several U.S. environmental technology firms, the U.S. EPA, and one state municipality office.

Result: Information in the files and from interviews indicated that WEC staff did a good job of setting up and executing this exchange on very short notice. Two of the Hosts were asked to show the EBE state-of-the-art technology. The US EPA provided an overview of its field activities and its technical and educational materials. The EPA Host did indicate, however, that the EBE did not have a clear understanding as to what he expected from this meeting.

Subsequently, another EPA representative visited KEMC in Korea and agreed to provide relevant technical and educational materials.

Three of the Hosts visited were serious candidates for the possible provision of services and/or equipment. Of these firms, one was interviewed, and indicated that it followed-up independently with the EBE after the visit, including a trip to Korea. As yet, KEMC has not expressed interest in actual business transactions with the firm. The Host also indicated, that while his firm was very pleased to participate in the exchange, they had previously categorized KEMC as a competitor, rather than a potential buyer of their technology. The EBE was accompanied by WEC staff throughout the exchange.

Environmental Impact Assessment Technology Transfer - October 23 - November 2, 1993

Description: Continental Shelf Associates (CSA) sought to communicate its expertise in performing impact assessments and developing monitoring programs of offshore oil drilling projects to Petroliam National Berhad (Petronas), in anticipation of several large-scale assessments to be initiated by Petronas later this year.

Result: This visit by the President of CSA was a follow-up to a trip financed by the Florida Dept. of Commerce. He added Indonesia and the Philippines to his itinerary (at his own expense), and is in the process of trying to establish a partnership with a company in Indonesia. CSA provides services, not products, and views the trips as the first steps in a long term process.

One unusual feature of this exchange was the use of "Gold Key Services" supplied by Malaysia's US-AEP Tech Rep. CSA had already enlisted the assistance of the Malaysian Tech Rep prior to WEC being asked by the US-AEP to cover travel and per diem costs. WEC's role was therefore purely logistical. A fee of \$200 was charged by the Malaysian Tech Rep to cover costs associated with meetings; meetings in Indonesia were also supported by the local US-AEP Tech Rep, but at no charge.

Philippine Business for the Environment (PBE) Conference, Manila - March 19 - 27, 1993

Description: WEC provided two speakers for the PBE conference entitled, "Corporate Environmental Policies and Programs", one of whom was a WEC board member from AT&T. A waste minimization workshop for government inspectors and a waste minimization opportunity assessment at a Manila department store were also held.

Result: The evaluation team was unable to contact the EBEs; however, one Host responded indicating that he felt the exchange was very appropriate to his company's interests. He also suggested that a future exchange be developed to include companies engaged in environmental business (systems, equipment, and management). Letters in the file from other participants were very favorable, noting their new appreciation and capabilities related to identifying waste minimization needs and solutions facing their institutions. These positive responses led to one of the EBEs being asked to participate in a similar seminar in Cebu Philippines later that year.

Another interesting feature of this exchange was the wide distribution of the trip report. One EBE directly forwarded a copy of his report to the Philippine Business for the Environment (PBE), the Dept. of Environment and Natural Resources (DENR), USAID's Environmental Improvement Project, USAID's Asia Bureau, and USAID/Philippines. WEC staff also sent a copy to the Philippines' Environment Management Bureau for their review.

Technology Assessment Mission: Cement and Pulp & Paper Industries - September 20 - November 11, 1993

Description: USAID/Philippines referred the EBE to WEC in March 1993. The subsequent visit emphasized plant site visits, demonstrating U.S. technology and visits to U.S. manufacturers of environmental control products relevant to the cement and pulp & paper industry.

Result: A very elaborate Trip Report was prepared concerning the visit, and the EBE has spoken extensively in the Philippines concerning insights gained on the exchange. The two Hosts contacted, however, indicated that there had been no follow-up by the EBE since the visit. They found this surprising given that the visits themselves seemed to have been very good. Comments were also made about the high quality of the front-end arrangements by WEC staff, but lack of contact from WEC following the visit.¹⁵ Specific recommendations were made regarding WEC follow-up to provide Hosts with a letter outlining:

- what value the exchange received from the meetings, and
- next steps, including the Host's potential role (if any) in follow-up.

Factory Assessment: Paint Industry - November 7 - 19, 1993

Description: The President of Frost Paint & Oil Corp. visited Sri Lanka to evaluate opportunities for waste minimization within the local paint industry. The EBE provided environmental audits of four manufacturing plants and a half-day workshop on waste minimization and pollution prevention in the paint and coatings industry. He also participated in a day-long, government-sponsored, symposium. The factory audits and industry workshop included participation by a local audit team, comprised of representatives from academia and industry.

Result: The linkage of industry with Sri Lanka's academia was viewed as a critical element to the

¹⁵ Note: contact information was only available for two of the Hosts — both of which were participants in WEC's IEDS program. One Host originally contacted WEC in response to a WEC solicitation for volunteers placed in a trade magazine (1991). He signed up for the IEDS program in 1992, then was contacted in June 1993 regarding this visit. The other Host had been involved in this exchange and three WEC field assignments, however, lack of recent contact from WEC was leading him to search for other pro bono avenues. He also expressed confusion regarding who has responsibility for WEC Asian efforts: Will Knowland, as Director for Asia Programs versus Lisa Raudelunas who heads the Indonesia and Thai CAs.

success of this exchange by the EBE. Following the trip, he published an article in the University of Moratu's Chemical Engineering Department Journal on the necessity of close ties between industry and academia for achieving Sri Lanka's environmental protection goals. The EBE also followed up his visit by initiating a discussion between a U.S. manufacturer of waste water treatment supplies and equipment and a potential Sri Lankan distributor.

CHEMTREC Training - October 21 - November 4, 1993

Description: Following a request from USAID/Thailand in May 1993, WEC worked with the Chemical Manufacturer's Association (CMA) to provide an expert to evaluate Thai needs related to emergency response. The EBE also examined the feasibility of installing a system, entitled Chemtrec, at the Ministry of Science Technology and the Environment (MOSTE). This visit followed an earlier seminar presentation in Thailand by a representative of CMA (from OxyChem) who spoke about the CMA's Chemtrec system.

Result: The EBE recommended that several steps be taken (including introducing standardized code for hazardous substances and training) prior to implementing the Chemtrec model. The Thai government established a task force to implement the recommendations. Since then a Hazardous Materials Emergency Response (HMER) plan has been developed and actively endorsed by a committee involving 38 agencies; and the Thais initiated a relationship with the U.S. Federal Emergency Management Agency. In addition, the HEMP Committee has secured a facility and budget and developed a plan for establishing an Emergency Response Center of Thailand (ERCT) based on the Chemtrec system.

These strongly favorable results have led R.J. Gurley (US-AEP/USAID) to request a follow-up visit by CMA. At the end of July 1994, the original OxyChem representative will extend his business trip to Thailand in order to hold discussions with Thai officials related to the

implementation of Chemtrec.

One interesting finding from this exchange involved the fact that the EBE's recommendations were shared at a debriefing with representatives of the chemical industry and Thai government. This meeting elicited a subsequent dialogue within the business community and industry with government. Chemtrans, for example, was asked to comment by Occidental Chemical Far East Ltd. on suggestions involving the feasibility of night delivery of hazardous chemicals. This type of communication is critical in that it directly relates to the viability of new institutions and regulations. It is seldom, however, that the findings, recommendations, or trip reports developed by US-AEP/WEC exchanges have been formally used to encourage industry-industry or industry-government dialogue.

Technology Evaluation of Electric Tuk-Tuks - October 1993 and November 1993

Description: Two sets of exchanges (4 people each) have taken place to further the relationships between the Electric Power Research Institute (EPRI) and Advanced Electric Car Technology (AECT) of the U.S. and Pholasith Tuk-Tuk Co., the Provincial Electric Authority, and National Electronics and Computer Technology Center of Thailand. The goal of the exchanges has been to support the joint venture between AECT and Pholasith aimed at retrofitting all Bangkok 2-cycle tuk-tuks with U.S. components to allow them to run on batteries. The environmental implications for improving Bangkok's air quality and AECT's revenues are immense. USAID's Energy and Infrastructure Office has become actively involved in this effort and has financed the initial tuk-tuk retrofits. The Thai government is committed now to the electrification of all tuk-tuks in the country, and the eventual electrification of all 2-cycle scooters, as well as extending the range of bicycles through the use of batteries. This electric vehicle (EV) project is generally hailed as one of the US-AEP's most unqualified successes. It is in part an outgrowth of the MOU signed by Vice President Gore and Thai officials in 1993 to pursue cooperation in areas associated with

Thailand's environment.

Result: The potential economic, environmental and political significance of this budding relationship is tremendous for both the U.S. and Asia. The effort is well documented within the press, therefore, we will not elaborate except to say that a \$100 million (+) joint venture company should be established soon and that production from this manufacturing facility should have a dramatic affect on the environmental quality (air and noise) of Thailand, and that exports should similarly benefit urban areas in Indonesia, India, Vietnam, and South Africa.

Two individuals stand out as the spark behind this effort's success: R.J. Gurley, USAID/US-AEP's Private Sector consultant in Bangkok, and David Porter of the Electric Power Research Institute (EPRI).¹⁶ Gurley was the individual who first identified the need for EV technology for Bangkok's tuk-tuks and who enlisted Porter's help in developing an appropriate match. Together, Gurley and Porter have nurtured the various Thai and U.S. parties through the relationship-building stage, and through initial demonstration of retro-fitted tuk-tuks. An effective coalition of private industry, government agencies, utilities, and NGOs has been developed, and has been instrumental to securing the financing and the government regulatory changes necessary to make the venture a success. According to both Gurley and Porter, the responsiveness and quality logistical support provided by WEC staff directly contributed to this effort's success.

COPEC Mission to Design Carbon Offset Projects - November 30 - December 12, 1993

Description: An EBE from a Los Angeles-based firm specializing in brokering carbon offsets between electric utilities in industrialized nations and developing countries visited Thailand at the request of the USAID Mission. The EBE's visit was designed to introduce a wide range of Thai policy makers to the concept of forestry-based carbon offsets while also assessing an ongoing USAID reforestation project for additional financing. The EBE met with nine private and public sector organizations, as well as NGO representatives and USAID staff.

Result: The EBE commended the arrangements made for his visit by WEC and indicated that he views the exchange as successful. Since returning to the U.S., he has had detailed discussions with several parties regarding implementing an offset project in Thailand. He reports that several Thai officials and one industry leader showed particularly strong interest in using this financing mechanism to aid in an ongoing national reforestation effort. The EBE suggested, however, that a number of issues need resolution prior to U.S. industry's viewing Thailand as an attractive provider of forestry offsets — the ambiguous state of land tenure being the largest. It is expected, nonetheless, that a continuing dialogue will result, at the very least, in a pilot project in the next several years.

For its part, WEC has offered to further support COPEC's efforts in Thailand by looking elsewhere for opportunities for offset programs. COPEC is also sending its Managing Director to Thailand in July, in conjunction with his visit to Malaysia, where COPEC is engaged in a pioneering offset program.

Development of Sustainable Linkages Between Thai Utilities and the U.S. Power Industry - February 19 - 25, 1994

Description: The U.S.'s Electric Power Research Institute (EPRI) is actively seeking to expand its relationships with Asian utilities. Conversely,

¹⁶ Funding of the initial business exchanges was provided by the US-AEP. Continued financial support related to demonstration and facility start-up is being provided by USAID's Office of Energy and Infrastructure.

Thai utilities stand to directly benefit from transfer of U.S. expertise and technology related to demand side management, energy efficiency, and emissions control. This exchange involved the travel of five senior executives of the Electrical Authority of Thailand (EGAT) and the Metropolitan Electric Authority (MEA) to the U.S. to learn more about EPRI and the types of benefits they might receive through membership in EPRI.

Result: The potential immediate and long-term benefits of Thai membership in EPRI, has led the US-AEP to intervene aggressively in promoting this relationship. To make membership more attainable, EPRI is allowing the three Thai utilities to join as a single member (\$350,000/year). The US-AEP has agreed to underwrite one-fourth of this membership for the first three years. To date, EPRI estimates that it has contributed more than \$150,000 toward establishing its relationship with Thai utilities and promoting the EV joint venture discussed above.

It is important to note that EPRI believes that WEC's contribution to this project was both direct (through excellent logistical support) and indirect (by reputation). The presence of a WEC Office in Thailand and the Thai utilities' and government's perception of WEC as a global (rather than U.S.) environmental organization lent a degree of impartiality and credibility to this exchange that would have been difficult to achieve under sponsorship by another group. EPRI further commented that WEC's presence has assisted R.J. Gurley's efforts to re-establish a collegial relationship between USAID and Thai utilities.

Other:

In March 1994, USAID changed its regulations concerning use of business class air travel using USAID funds. In one recent exchange, the Asian EBE cancelled the exchange after three weeks of work by WEC over a six-month period. In a letter to WEC, the EBE from Vam Organic Chemicals Ltd. (the largest alcohol producer in India), wrote:

I appreciate the efforts put in by you in arranging the meetings with various companies in U.S.A. I understand your limitations due to the regulations of U.S. government regarding the class of travel. ...I deeply regret that we have to cancel this visit at this stage after having spent a number of hours on both sides.

At this time, the implications of this regulatory change by USAID cannot be fully assessed. Inquiries of past EBEs made during the course of interviews did indicate that the change will influence their willingness to volunteer time. In the instances where the establishment of business relationships are sought by U.S. firms, the firm may choose to upgrade the tickets. In at least one recent case, however, the EBE expressed frustration at the fact that the bargain airfare obtained by WEC did not permit upgrading.

In those instances where U.S. executives volunteer their technical assistance, with no expectation of future business with the Hosts, the regulatory change may detrimentally affect WEC's ability to secure pro bono experts.

**Appendix C:
List of Documents Reviewed**

1993 - A Year of Achievement, Annual Report for World Environment Center's Cooperative Agreement with the U.S.-Asia Environmental Partnership, CA No. AEP-0015-A-00-2055-00.

Budget and Explanation of Line Items for A Cooperative Agreement with the U.S. Agency for International Development in Support of the U.S.-Asia Environmental Partnership, submitted by WEC, dated 9/3/92 and 9/17/92.

Cooperative Agreement (CA) AEP-0015-A-00-2055-00 between U.S. AID and WEC, dated 9/24/92.

Letter to Dan Waterman, NASDA, from Larry Lai, WEC, re: areas for collaboration and cooperation between WEC and NASDA under the US-AEP, dated August 18, 1993.

Letter to Melissa Dann, TR&D, from Larry Lai, WEC, re: Quarterly Budget Projections for the US-AEP/WEC Cooperative Agreement, dated April 27, 1993.

Letter to Tony Marcil, WEC, from L.P. Reade, US-AEP, specifying EBE targets for 1993, dated July 6, 1993.

Management Strategy for Implementation of our US-AEP Agreement, internal WEC memo; December 12, 1992.

Proposal for a Cooperative Agreement with the U.S. Agency for International Development in Support of the U.S.-Asia Environmental Partnership, submitted by WEC, June 1, 1992.

QA Workshop Report, submitted by MSI, Inc., January 1994.

Quarterly Progress Reports: September 23 - December 31, 1992; March 31 - June 30, 1993; and October 1 - December 31, 1993.

Six Month Progress Reports: September 23-March 31, 1993; April 1 - September 30, 1993; October 1 - March 31, 1994.

WEC IEDS Volunteer Service Agreement, draft form..

Work Plan for the AID/WEC Cooperative Agreement in Support of the U.S.-Asia Environmental Partnership, dated April 15, 1993.

Work Plans (draft) for the AID/WEC Cooperative Agreement in Support of the U.S.-Asia Environmental Partnership, submitted by WEC: November 5, 1992; December 17, 1992; and January 6, 1993.

Appendix D: Individuals Contacted During Evaluation

Individuals Interviewed

| | |
|---------------------|--|
| MSI: | Norman Endlich, US-AEP QA Officer |
| MTL Group, Inc.: | Larry Lai, Principal Investigator |
| Sanders Int'l: | Jeff Hallet, Program Manager (TEST) |
| TR&D: | Joyce Coffee, POD Component Melissa Dann, Manager POD Component Peter Gourley, Manager TC Component Kenneth Langer, Manager EEI Component Margaret Sullivan, Public Outreach |
| US-AEP Secretariat: | Owen Cylke, Director, Technical Coordination Lewis P. Reade, Director General Cindy Sayers, Director, Technical Cooperation Richard Sheppard, Director Operations |
| WEC (Arlington): | Swarupa Ganguli, Deputy Program Manager William Knowland, Director, Asia Natalie Kraft, Project Coordinator Joseph Rearden, Project Assistant |
| WEC (New York): | Antony Marcil, President Lisa Raudelunas, Program Manager Cecilia Ho, Vice President, Finance |

US-AEP Technology Representatives (responding to Fax)¹⁷

| | |
|------------------|------------------|
| US-AEP/India | Vinay Gadkari |
| US-AEP/Indonesia | James M. Whittle |
| US-AEP/Malaysia | Cathy Fuselier |

USAID Missions (responded to Internet e-mail)¹⁸

| | |
|-----------------|-----------|
| USAID/Indonesia | Adiwiyana |
|-----------------|-----------|

¹⁷ US-AEP Offices in the following countries were sent faxes inquiring about the WEC program: India, Indonesia, Korea, Malaysia, Philippines, Taiwan, and Thailand.

¹⁸ One or more individuals at the following USAID Missions were sent e-mail inquiries via Internet: Chile (T. Nicastro), India (A. Ray & D. Hess), Indonesia (Jerry Bisson & Adiwiyana), Nepal (J. Gingerich), Philippines (J. Grayzel), Sri Lanka (A. Ray & G. Whaley), and Thailand (R.J. Gurley).

USAID/Nepal
USAID/Philippines
USAID/Santiago
USAID/Thailand

Roger A. Bloom
John A. Grayzel
Thomas Nicastro
R.J. Gurley

Asian EBEs (responding to Survey)¹⁹

Arkonin Engineering (Indonesia)
Bhavin Textiles/Colourtex (India)
Consolidated Engineering (Nepal)
Cyno Clean Co. Pvt.Ltd.
Electricity Gen. Authority of Thailand

H. Diding Muchidin
Bapu Deshpande
Sushil K. Amatya
B. Ravi
Duandas Srisomwong
Semvonk Poshyananda
Lee Shin-Bom
V.N.G. Rao
D. Chatterjee
D.B. Baldawala
M.W. Goklany
Girish Luthra
Wilyadi Adinoto

Environmental Management Corp. (Korea)
Ignifluid Boilers India, Ltd.
INALSA (India)
Indian Boiler Manufacturers
India Power Partners
Luthra Dyeing & Printing Mills (India)
P.T. Bumi Serpong Damai (Indonesia)
P.T. Superex Raya Aluminum Extrusions
(Indonesia)
P.T. Waseco Tirta (Indonesia)
P.T. YKK Zipper Co. Ltd. (Indonesia)
Paradise Prints (India)
Philippine Investment and Mgmt. Consultants
Pure Tech Engineering (India)
R-II Builders (Philippines)
Small Industries Development Bank
of India
Thermax Ltd.

Dadang Sudrajat
Budi Sutjahjo
Jaya Agung Prastowo
Chittaranjan Desai
Lauro D. Guevara
B. Ravi
Reghis Romero
Vikram R. Singh

Girish Trivedi

Asian Hosts (responding to Survey)²⁰

Chemtrans (Thailand)
DOW Philippines

Frank Carter
Jun P. Salipsip

U.S. EBEs (interviewed by telephone)

Ab-Sorb
Advanced Electric Car Technology (AECT)
Anceptive Packaging Council

Jack Wallace
Chaz Haba (*also Host*)
Jules Homans

¹⁹ 42 Asian EBEs from 26 organizations were sent survey forms; 18 individuals (17 organizations) responded by July 25, 1994. Four additional responses from four companies were received in August; their responses are not included in the body of the report.

²⁰ 17 Asian Hosts from 17 organizations were sent survey forms; 2 responded.

Consultant (formerly DuPont)
Continental Shelf Associates
COPEC
Electric Power Research Institute (EPRI)
IT Corp.

Andrew Foldi
David Gettleson
Marc Stuart
David Porter (*also Host*)
Alan Baker
Prakesh Acharya

U.S. Hosts (interviewed by telephone)

CQ, Inc.
Gaston County Dyeing and Finishing Co.
Filter Specialists
HIAC/Royalco
National Council of Paper Industry
Pneumafil Corp.
Scott Paper
Shelyn, Inc.
Sonoco Paper Products
Tubular Textile Machinery
U.S. EPA
Union Camp Paper
WMX Technologies
Waste Management Disposal Services of MD

Dave Kehoc
Don Spurrier
Douglas Fitzgerald
Frank Carpenter
Dr. Isaiah Gelman
Ugo Bertolami
Wes Argo (retired)
Anne Laidlaw
Phillip Whichard
Jim Rodgers
Jentai Yang
Wes Foy
William Brown
Roy Nicholson