



ENVIRONMENTAL EXPORT COUNCIL

LATIN AMERICA INITIATIVE FOR ENVIRONMENTAL TECHNOLOGY

Final Program Activity Report

20 September 2000

(Revised 20 November 2000)

Grantee: Environmental Export Council/
Concurrent Technologies Corporation

Cooperative Agreement No.: LAG-A-00-93-00041-00
(originally LAG-5743-A-00-3041-00)

Prepared For: U.S. Agency for International Development
Global Center for Environment
Office of Energy, Environment and Technology

Reporting Period: 17 September 1993 to 30 June 2000



1300 Pennsylvania Avenue, N.W., Suite 200, Washington, D.C. 20004
Telephone: 202-312-2900 / Fax: 202-312-2925

TABLE OF CONTENTS

EXECUTIVE SUMMARY	i
BACKGROUND	1
OBJECTIVES	1
METHODOLOGY	2
PROGRAMS	3
BRAZIL	
<i>Overview</i>	3
<i>Key Activities/Deliverables</i>	4
<i>Results</i>	6
<i>Recommendations for Future</i>	9
MEXICO	
<i>Overview</i>	9
<i>Key Activities/Deliverables</i>	9
<i>Results</i>	10
CENTRAL AMERICA	
<i>Overview</i>	11
<i>Key Activities/Deliverables</i>	11
<i>Results</i>	16
<i>Recommendations for Future</i>	22
ANDEAN REGION	
<i>Overview</i>	23
<i>Key Activities/Deliverables</i>	23
<i>Results</i>	26
<i>Recommendations for Future</i>	28
DOMESTIC OUTREACH	
<i>Overview</i>	29
<i>Key Conferences/Workshops/Seminars</i>	30
<i>Results</i>	32
MATERIALS DEVELOPMENT	
<i>Overview</i>	33
ANNEX I – SUBCONTRACTORS	
NATIONAL ASSOCIATION OF STATE DEVELOPMENT AGENCIES	1
KENAN INSTITUTE OF PRIVATE ENTERPRISE	3

EXECUTIVE SUMMARY

The Latin America Initiative for Environmental Technology (LA-IET) began in September 1993 as an innovative public-private partnership program between the United States Agency for International Development (USAID) and the private sector in both the U.S. and Latin America. Though first designed as a modestly funded study tour program, USAID and EEC redesigned and evolved the program into a unique approach fostering sustainable business linkages and partnerships. The overall objective has been to increase the role of the private sector in addressing environmental priorities in target markets of Latin America.

Over the last 30 years, the U.S. environmental industry has helped to clean-up America. The environmental industry has invested billions of dollars in technology development and is the largest, most experienced group of environmental professionals in the world. The LA-IET sought to capture this industry expertise in clean-up and technology and help to transfer lessons and experience to the developing world. For its investment through the LA-IET, USAID has helped the Latin America region advance environmental consciousness and take measures to ensure a more sustainable future by improving the environmental performance of the productive sector and municipalities. In so doing, USAID has simultaneously bolstered companies and organizations to become more competitive, helping to assure national and regional economic growth and prosperity.

In the course of the LA-IET, EEC worked with USAID to create two new regional industry partnerships to reduce pollution. In Central America, EEC established the Comité Regional del Medio Ambiente para Centroamérica, CORAMA, by linking together environmental representatives from four chambers of industry and similar organizations in Costa Rica, El Salvador, Guatemala, and Panama. EEC also forged a parallel Andean region Comité del Medio Ambiente para la Región Andina, COMARA, to bring together environmental officers from five chambers of industry in Bolivia, Ecuador, and Peru.

CORAMA and COMARA represent pioneering efforts to establish public-private projects to reduce urban and industrial pollution. EEC worked with these chamber of industry representatives to create a work plan and initiate a dialogue that would challenge and engage them to develop workshops, conferences, working groups, business exchanges, and other activities to stimulate broad private sector participation regionally, together with U.S. environmental technology professionals. The committees have successfully promoted the pollution prevention message based on cost savings and improved performance, invited a broad cross-section of stakeholders not previously engaged, and used outreach opportunities to share information and lessons. In both cases, the partners continue to express strong interest in program continuation. Indeed, COMARA has received critical ongoing support from the USAID Missions and RUDO office, many of which have expressed an interest in continuing efforts with industry to address urban and industrial pollution concerns.

In Brazil, EEC helped redirect the dialogue about water and wastewater treatment concessions. EEC proved agile in responding to the varying attitudes in Brazil about privatizing water utility services, which began with talks and culminated with a nine-module graduate level course for water and sanitation services. EEC established the Latin America Water Task Force to work with broad interests to generate discussion about improving these municipal services in Brazil. The Water Task Force helped to further the dialogue among stakeholders regarding the future of Brazil's wastewater treatment services and respond to local interests. The desired results, including greater management efficiency and improved service delivery were and continue to be realized. Furthermore, the course modules, to be used at the Federal University of Rio de Janeiro and further disseminated by the Brazilian Association of Sanitary and Environmental Engineering, will help to provide a more solid underpinning for training programs to institutionalize best practices. Also, in Mexico, though programming was limited, EEC successfully led efforts to promote best practices in the electroplating sector through an environmental business exchange.

In sum, all programs achieved key participation by Latin American and U.S. professionals, and generated high levels of in-kind contributions--over \$900,000 from EEC activities alone. Industry has proved willing and interested to learn about better production and management methods, but needs additional support to internalize the importance of environmental performance, set realistic goals, and make greater strides. Working toward these objectives will ultimately not only reduce pollution, but in the process it will make companies more efficient and competitive, foster economic growth, and reduce health risks.

Finally, although environmental legislation in the region is gradually changing, enforcement capacity remains weak. Therefore, one should expect that short and medium-term industrial environmental improvements in LA-IET countries will more readily be achieved through public-private partnerships that promote awareness about environmental impacts and illustrate solutions and market-based incentives for preventing these impacts. In this sense, USAID has a special opportunity now to support in-country institutions and build on the LA-IET successes to consolidate the environmental achievements realized to date under this program.

SELECTED PROGRAM HIGHLIGHTS

- Improved the ability of Latin American organizations to source U.S. environmental equipment and expertise through LA-IET partnerships, publications, business exchanges, conferences, and other events.
- The focus on pollution prevention in the Andean program has enriched the understanding by EEC's in-country partners regarding improved environmental performance that is consistent with improved business competitiveness.
- Created two new regional committees in Latin America to address industrial and urban pollution priorities through stakeholder-driven initiatives.

- Improved ability of U.S. environmental technology companies to identify market opportunities in Latin America. For example, EEC published and distributed approximately 275 copies of the report *Environmental Markets in the Andean Region (Bolivia, Ecuador and Peru)* to companies and multiplier organizations as a guide to U.S. firms interested in this region.
- Through all program partners under the LA-IET (EEC, Kenan Institute, and NASDA) over \$2 million of in-kind contributions were leveraged from Latin American and U.S. program participants.
- Published the *Municipal Management and Operational Efficiency Training Module* for use by municipal water and wastewater utilities in Brazil. It is scheduled to be incorporated into a new master's degree program in Sanitary and Environmental Engineering at the Federal University of Rio de Janeiro.
- A Salvadoran participant of the Textiles Environmental Business Exchange began graduate studies in environmental engineering at North Carolina State University, one of the universities visited during the exchange. Based on the exchange, EEC provided one of the letters of recommendation for the application to the university.
- An environmental business exchange for 10 electroplating industry representatives from Mexico visited several sites in the U.S. EEC was subsequently invited to share the results at the 11th National Congress of the Electroplating Industry meeting in Mexico.

BACKGROUND

The Latin America Initiative for Environmental Technology (LA-IET) is a Cooperative Agreement between the USAID Global Environment Center and Concurrent Technologies Corporation (*CTC*). When created in September 1993, this Cooperative Agreement was held by the Environmental Technology Export Council, with support from the Environmental Business Council of the United States. The two firms spent time during 1994 working closely with USAID and polling the U.S. environmental technology industry to determine the most appropriate work plan to foster environmental technology exports. In late 1994, these two non-profit trade associations merged, thereby establishing the Environmental Export Council (EEC). Nearly five years later, in March 1999, EEC merged with *CTC*, though it retains its name as an international project of *CTC*.

In order to maximize the benefits from increasing globalization, economic growth, and heightened environmental awareness, the Environmental Export Council (EEC) is working in a collaborative effort with USAID on a program called the Latin America Initiative for Environmental Technology (LA-IET). The LA-IET acts as an umbrella program for activities in several different regions of Latin America. The primary objective of all programs falling under the LA-IET is to increase the role of the private sector in environmentally sustainable development. This is achieved through heightening private sector awareness about cleaner technology and processes, and encouraging private sector investment in these goods and services. The vehicle for achieving these goals is the formation of a series of innovative partnerships that leverage the resources of government, the private sector, industry associations, and non-governmental organizations. The result is a coordinated effort between the public and private sectors toward the mutually beneficial objective of environmentally sustainable economic development.

The focus of the program is on creating a mechanism for providing integrated solutions to Latin America's environmental problems, and on fostering long-term relationships between U.S. environmental technology and service providers and the potential client base in strategic Latin American countries. The role of EEC is to catalyze this process by leveraging the experience and technology resources available among its members and throughout the larger U.S. environmental industry in order to provide solutions to the Latin American needs identified through EEC's in-country partnerships.

OBJECTIVES

EEC has worked under the LA-IET to develop effective and specialized programs in all countries and regions of operation. These programs are based on relationships that strive to *create sustainable partnerships in order to develop the institutional capabilities of Latin American*

organizations to address environmental concerns. These partner organizations also serve as multipliers to expand programming reach and impact.

One of the most important elements of the programs under the LA-IET is sustainability. In order to create activities that will have a lasting impact, EEC has focused on institutional strengthening and the stimulation of Latin American markets for cleaner technologies. Now that the LA-IET has ended, partner organizations in each country are more readily able to continue to support:

- Reducing pollution caused by Latin American industries and municipalities
- Facilitating the transfer of U.S. environmental equipment and expertise
- Facilitating access to traditional and non-traditional sources of funding for environmental projects
- Developing and emphasizing incentives for Latin American and U.S. investment in environmental projects

METHODOLOGY

The cooperative agreement originally was conceived as a study tour program, to bring foreign delegations to the U.S. for meetings and site visits related to environmental topics. Under guidance from the USAID program officer, however, this was modified over time.

EEC generally followed a similar approach to develop programming in each country or region. The first task was to conduct a scoping mission to the country or countries involved to assess environmental market opportunities. The objective was to meet with environmental organizations, industry associations, government officials, and others to identify market drivers, best environmental opportunities, and to identify potential in-country partners. Information gleaned from the scoping missions was used to develop a strategy for programming, with guidance from USAID.

In the single-country programs, Brazil and Mexico, EEC collaborated with local institutions to facilitate program implementation. In the case of Central America and the Andean region, EEC signed Memoranda of Understanding (MOU) with industry associations or similar partners in each country, together establishing new regional committees. In Central America this was the Comité Regional del Medio Ambiente para Centroamérica (CORAMA), and in the Andean region this was the Comité del Medio Ambiente para la Región Andina (COMARA). The purpose of the MOU was to formalize the relationship as a commitment between EEC and the local partner to collaborate on environmental projects through information sharing and outreach to local industries. In this way, EEC relied on one key partner per country, enabling targeted institution building, and working with them to outreach to companies, government officials, and others nationwide to address the environmental priorities established by the committee.

Once formalized with the MOU, EEC hosted a participatory workshop with all committee partners from the region to determine priorities and goals. With guidance from EEC and USAID, the local committee partners determined their preferred course of action. Topics of discussion included items such as priority industrial pollution problems, environmental technologies and management systems, and ideas for technical assistance. This ensured stakeholder buy-in for all programs, generating enthusiasm and further commitment to support the activities. With the completed work plan approved by the committee and USAID, the committee then determined roles and responsibilities for each partner to achieve the desired objectives.

The types of programs supported by this initiative were designed to be flexible and responsive to the intended goals. This meant that a host of activities, from regional conferences, workshops, seminars, business exchanges, technical assessments, and the creation of working groups and task forces were all valuable mechanisms to address environmental priorities. Each contributed to the success of the LA-IET.

PROGRAMS

I. BRAZIL

A. Overview

The Brazil program was developed in response to a Concessions Law that opened the possibility to privatize municipal water and sanitation services. Initially, the focus of this program was on working to facilitate the implementation of municipal water and wastewater concessions in order to attract private sector investment and promote the transfer of U.S. environmental technology and expertise to the Brazilian market. However, due to economic instability in the late 1990s and erratic political support for privatization, EEC refocused the program after an assessment mission to Brazil in 1998. The new orientation sought to improve management efficiencies in both publicly and privately operated municipal water and waste water facilities in southern Brazil. The objectives of promoting private sector investment in environmental improvement and the transfer of U.S. environmental goods and services remained the same.

B. *Key Activities / Deliverables*

1. *Municipal Wastewater Treatment Privatizations and Concessions (September 1995)*

This study tour from Brazil brought private and public sector participants from the states of São Paulo and Rio de Janeiro in order to introduce U.S. expertise and equipment available to improve municipal water operations.

2. *Technical Support Mission to Brazil (February 1996)*

This mission served to introduce USAID to municipal officials in Brazil and discuss concessions goals, financing roadblocks, and technical needs for water and wastewater treatment. The mission concluded with a conference on Concessions and Partnerships for Water and Sewerage Projects.

3. *Creation of the Latin America Water Task Force (LAWTF) (May 1996)*

The LAWTF is composed of a select group of U.S. and Brazilian private and public sector experts in project finance, wastewater treatment technologies and federal and contract law. The LAWTF was created to work in an integrated fashion to facilitate the conditions necessary for long-term private investment in municipal water projects in Brazil.

4. *Inaugural Meeting of the Latin America Water Task Force, Miami, FL (May 1996)*

This meeting was held in conjunction with the "Financing Water and Wastewater Concessions in Brazil" conference. The objective of this first meeting was to begin work on the legal / regulatory elements involved to facilitate the privatization of municipal water operations.

5. *Second Meeting of the Latin America Water Task Force, Washington, DC (September 1996)*

The second meeting was hosted by the Office of the U.S. Executive Director of the Inter-American Development Bank, and focused on addressing financial and technical issues involved in structuring water and wastewater concessions projects in Brazil.

6. *Third Meeting of the Latin America Water Task Force, São Paulo, Brazil (February 1997)*

The third meeting provided a forum for representatives from several municipalities to discuss their plans for privatizing water and wastewater treatment services. In addition, the participants reported on LAWTF accomplishments to date, and presented case studies and papers written by LAWTF contributors. These documents

include matrices of wastewater treatment technologies, an IBAM/ICMA report on citizen participation and pricing policies, and a model request for proposal.

7. *Water and Wastewater Commercial Mission*
(October 1997)

In conjunction with the Department of Commerce and with support from USAID, public and private sector representatives from Brazil came to the U.S. to examine water and wastewater treatment technologies and methods of financing for equipment and services. This mission worked to leverage the work of the LAWTF in order to identify the most appropriate participants and address their needs using U.S. technologies and services.

8. *Water and Wastewater Commercial Mission*
(August 1998)

Based on information concerning the multiple barriers hindering the privatization of municipal water operations, EEC staff traveled to Brazil in order to evaluate the status of municipal water privatization efforts and to determine the most appropriate means of continuing Brazil programming under the LA-IET. The mission confirmed that municipal water privatization efforts in Brazil were generally stalled due to political, financial, and legislative issues. As a result, EEC redirected efforts in Brazil to focus on management efficiency for public and privately operated municipal water facilities. In addition to the barriers to privatization, the decision to focus on management efficiencies was determined to be an effective way to 1) assist U.S. companies to enter the Brazilian municipal water market; 2) strengthen a Brazilian partner organization in their capabilities to address and disseminate information about municipal management efficiency issues.

9. *Municipal Wastewater Treatment Technologies Matrices*
(November 1998)

LAWTF members identified the need for a tool that could be used by mayors and city managers to identify the most appropriate technologies for individual municipal systems. EEC published the "Municipal Wastewater Treatment Technologies Matrices" to provide descriptions and comparisons of available technologies based on performance, requirements and cost. The document is available in English, Spanish, and Portuguese.

10. *Improving Management Strategies in Brazil's Municipal Water and Wastewater Utilities, Rio de Janeiro, Brazil*
(August 1999)

EEC collaborated with local partner, the Brazilian Association of Sanitary and Environmental Engineering-Rio Chapter (ABES-Rio) and Professor Eduardo Jordão of the Federal University of Rio de Janeiro, to develop a two-day seminar that addressed management and operational efficiencies in public and privately operated municipal water utilities. Ninety participants attended this training seminar, primarily representing Brazilian municipal officials from four targeted southern states: Rio de Janeiro, Minas Gerais, Espirito Santo, and São Paulo. The objective of this seminar was to foster awareness of methods to improve efficiency, increase investments, and recover costs through managerial and operational changes. Other participants included representatives from state water and wastewater utilities, government officials (state and national), and individuals from the U.S. and Brazilian private sector. Linkages were established between U.S. environmental technology firms, Brazilian municipalities, ABES, and other associations.

11. *Municipal Management and Operational Efficiency Training Module*
(June 2000)

Following the conclusion of the Management Seminar, a training module was developed to integrate the information into a course that can be offered through universities and training organizations. Professor Eduardo Jordão and a team of authors completed the management efficiency improvement training manual intended for municipal water and waste water utilities in Brazil. The final training manual consists of nine sections focusing upon the following topics: Institutional Development; Planning and Tariff Systems; Environmental Management and Water Resource Management; Planning, Organization and Oversight; Quality, Productivity and Competitiveness; Human Resource Management; Commercial Systems; Accounting and Financial Systems; Managing Procurement. The Brazilian Association of Sanitary and Environmental Engineers, Rio Chapter (ABES-Rio) distributed the manual to a pre-selected audience of municipal officials nationwide. This included the participants of the August 1999 seminar in Rio de Janeiro, as well as 215 municipalities with populations greater than 30,000.

C. *Results*

1. *Sustainability / Capacity Building*

The Brazil component of the LA-IET will be sustainable through capacity building and institutional strengthening as follows:

- Improved local ability to source U.S. environmental equipment and expertise developed through study tours, management efficiency seminar, and the *Municipal Wastewater Treatment Technologies Matrices* publication.
- The Banco Nacional de Desenvolvimento Economico e Social (BNDES) is the largest source of private financing in Brazil for infrastructure. Several BNDES staff participated in the LAWTF. Following a period of slow activity, BNDES is beginning to approve loans for private investment in municipal water and sanitation systems.
- The *Municipal Management and Operational Efficiency Training Module* was developed for use by municipal water and wastewater utilities. They may use portions of the manual to develop internal training activities, either independently or with the assistance of a consultant, that will allow them to improve their operating efficiency across a number of technical areas related to the delivery of municipal water and wastewater services. As other municipalities and groups express an interest in receiving copies of the manual, ABES-Rio will continue to serve as a point of dissemination. Given Professor Eduardo Jordão's close working relationship with ABES-Rio, it is foreseen that there are excellent opportunities for on-going publicizing and dissemination of this training manual. In addition, Professor Jordão has indicated that the manual will eventually be incorporated into a new program of study being developed at the Faculty of Engineering, Federal University of Rio de Janeiro (UFRJ), where he is a professor. This course of study will lead to a Masters degree in the field of Sanitary and Environmental Engineering. This course will be offered under the Program of Environmental Engineering of the School of Engineering, and is expected to begin during the first semester of 2001. At the moment the outline and final curricula for the course are awaiting approval from the University committees in charge of graduate and extension courses. This program was developed to respond to the needs of professional engineers working either in municipal utilities or in consulting and private companies, in the area of Sanitary and Environmental Engineering. It differs slightly from the conventional Master Degree program in that in place of the presentation of a Master's thesis, the student presents a Master's project as a prerequisite to graduation. This should be a project on water supply, sewage disposal, pollution control, environmental impact assessment, or management of water and wastewater utilities. The manuals produced under this EEC/USAID effort will be used as a textbook guide for course lectures. With funding from the U.S. Environmental Protection Agency, EEC will continue follow-up work to support management efficiency in the water utility sector in Brazil. EEC will host one or two seminars targeting senior government officials and utility managers to discuss select topics from the training module such as management improvement and financing. These seminars will take place in early 2001.

2. *Business Development / Environmental Improvements*

- As a result of the 1995 study tour, a U.S. environmental non-profit was contracted to provide training for five SABESP engineers.
- Following participation in the October 1997 mission from Brazil, Wright Peirce and Key Global receive a \$200,000 U.S. Trade Development Agency grant for a feasibility study in Brazil. The TDA funding is matched by an additional \$260,000 from Wright Pierce, Key Global, Cathy Lee and CAERN (in-kind). Project totals approximately \$460,000. (Although the project was awarded, it was suspended temporarily due to Brazilian economic constraints).
- Two LAWTF members acquired Brazilian partners.
- The Colorado Environmental Business Alliance, a participant in the October 1997 mission received several thousand dollars in additional sponsorships from area companies interested in pursuing opportunities in Brazil.

3. *In-Kind Contribution*

- Brazil program activities generated \$256,519 of in-kind contributions, not including \$115,090 of in-kind leveraging the work of the LAWTF using Department of Commerce funds.

4. *Lessons Learned*

- While changing political winds alternately provided and removed support for water utility privatization, the reorientation of the program after August 1998 to focus on management efficiency successfully fit a niche in Brazil. EEC was able to retain the objectives of highlighting U.S. expertise and technology without the baggage associated with the politically and socially charged connotations of privatization. EEC's agility and innovation proved essential to achieve the desired results of increased efficiency and improved service delivery. In short, it is critical to consider where Brazilian and U.S. interests may overlap and where they may conflict and be aware of how this may affect project implementation.
- In a market such as Brazil, with significant domestic capacity and technological know-how, U.S. firms are best poised to fill niches where U.S. technology is truly superior, but also price competitive.
- Companies should carefully select in-country partners as they are the key to linking into very close-knit networks that are difficult for outsiders to access otherwise.

D. Recommendations for Future

While key Brazilian institutions, from the Cardoso administration to the National Development Bank (BNDES), are committed to privatization, public opinion and water utilities do not concur. Opportunities from privatization in the water and sanitation sector may come only after guidelines for privatization are standardized across the country. This will require political support that is not currently in place. Future programs should continue to look at compromise solutions that seek to address state management inefficiencies and ineffectiveness without strictly advocating privatization. The U.S., in fact, has more experience and a stronger comparative advantage in management and operational efficiency than in privatization of water services. In addition, more can be done to support these efforts in the northeast and south of Brazil.

II. MEXICO

A. Overview

The Mexico portion of the LA-IET was designed to build upon the work done by the Environmental Pollution Prevention Program (EP3) supported by USAID. This program was designed to use the findings of the EP3 pollution prevention and energy efficiency audits to construct a study tour that would provide solutions to these problems using U.S. technologies and experiences. The first exchange focused on the electroplating industry, and although it was successful in terms of business development and in-kind contributions generated, EEC and USAID subsequently decided that study tours alone were not the most efficient method of meeting the LA-IET objectives.

B. Key Activities / Deliverables

1. Clean Technology Options for the Electroplating Industry (June 1997)

This exchange brought 10 electroplating industry representatives from around Mexico City to the U.S. to meet with U.S. companies, federal and state government officials, research institutions, and NGOs in order to identify cleaner technology options for the electroplating industry.

2. XI Congreso Nacional de la Industria de la Galvanoplastia (November 1997)

Following the exchange, EEC was invited to the 11th National Congress of the Electroplating Industry meeting in Mexico to review the results of the electroplating exchange held in June.

3. *Evaluation Mission to Mexico*
(February 1998)

Following the USAID and EEC decision to diversify activities under the Mexico component of the LA-IET, EEC staff undertook an evaluation mission to Mexico in order to assess the status of environmental issues in Mexico and develop a new strategy for programming under the LA-IET.

4. *Comité Ambiental Mexicano (CAM)*

The result of the evaluation mission to Mexico was a draft work plan to develop a pilot project designed to reduce pollution by providing incentives for micro, small, and medium-sized companies to come into environmental compliance. The CAM would work through industry associations to provide companies with the tools and incentives necessary to comply with the environmental regulations put forth by the Government of Mexico.

Note: In the final quarter of 1998, EEC and the Global Bureau decided to close the Mexico program due to the short time remaining in the agreement to complete the proposed work plan (given the original end date of 9/30/99), and given the orientation of the USAID Mission's objectives.

C. *Results*

1. *Sustainability / Capacity Building*

The Mexico component of the LA-IET will be sustainable through:

- Transfer of U.S. technology and expertise through the exchange and as documented below.
- Improved ability to source U.S. environmental equipment and expertise developed through the exchange.

2. *Business Development / Environmental Improvements*

- Ferrari Engineering, a U.S. company that participated in the electroplating exchange, entered negotiations with several of the participating Mexican companies for a pilot study in Mexico City. The anticipated value of the work was \$40,000, excluding the potential for follow-up work and equipment sales.

3. *In-Kind Contribution*

- The exchange from Mexico City generated \$52,479 of in-kind contributions.

III. CENTRAL AMERICA

A. Overview

The Global Bureau requested that EEC target Costa Rica, El Salvador, Guatemala, and Panama for the Central America program. Following an initial scoping mission to these countries in 1997, EEC created the Comité Regional del Medio Ambiente para Centroamérica (CORAMA). EEC signed MOUs with the Cámara de Comercio e Industria de El Salvador, Cámara de Industria de Guatemala, Centro de Gestión Tecnológica (CEGESTI)-Costa Rica, and the Sindicato de Industriales de Panamá. In this way, the CORAMA committee includes EEC and the appointed environmental representatives from each chamber. The objective of CORAMA is to develop and conduct a series of regional initiatives aimed at increasing private sector environmental trade and investment in Central America by promoting environmentally sustainable development and economic growth as a means of addressing regional environmental priorities.

B. Key Activities / Deliverables

1. Scoping Mission to Guatemala, El Salvador, Costa Rica, and Panama (April 1997)

This mission was undertaken in order to assess the status of environmental issues in the four targeted Central American countries and to develop a strategy for programming under the LA-IET. The Global Bureau of USAID requested that EEC target these four countries for the initiative. EEC was later encouraged to incorporate a partner in Honduras. While this was in process in mid-1998, Hurricane Mitch struck the region in October and set efforts back as attention was directed toward more immediate needs. In subsequent programs, however, EEC invited Honduran participation, though without a formal partner.

2. Comité Regional de Medio Ambiente para Centroamérica (CORAMA) Inaugural Meeting and MOU Signing, Guatemala City, Guatemala (November 1997)

The first CORAMA meeting was held in a participatory workshop format. CORAMA members at that time included: EEC, USAID, the Cámara de Industria de Guatemala (CIG), CEGESTI-Costa Rica, and the Sindicato de Industriales de Panamá (SIP). At this initial meeting, CORAMA members were asked to identify priority industries of environmental concern for the region as a whole, and how these concerns could most appropriately be addressed. The result was a work plan developed to correspond with the activities identified by CORAMA members. The work plan targeted four industries of regional importance: food processing, textiles, fertilizers and pesticides, and tourism. Following the workshop, CORAMA was formalized by the signing of Memorandums of Understanding between each organization and EEC, as well as a press conference. Note: It was later decided to eliminate the fertilizers and pesticides activity for a number of reasons--other donors

are already working on the issue and it does not easily lend itself to incorporating the U.S. environmental technology community through market forces (i.e. obsolete stocks of pesticides being the primary concern).

3. *CORAMA Planning Meeting: Regional Food Processing Conference*
San Jose, Costa Rica
(April 1998)
CORAMA members met to develop the conference agenda and discuss the roles of each organization. CEGESTI took the lead to host this event in Costa Rica.
4. *Environmental Opportunities in Central America Seminar, Washington, DC*
(April 1998)
Together with the U.S. Export-Import Bank, EEC hosted this seminar for U.S. environmental technology companies. EEC introduced Central America as a viable marketplace for U.S. environmental goods and services. The agenda included information about market entry strategies, most promising sectoral opportunities, financing options, as well as successful case studies. Approximately fifty participants attended from across the U.S.
5. *CORAMA Planning Meeting: Textiles Environmental Business Exchange*
San Salvador, El Salvador
(July 1998)
CORAMA members met to identify environmental issues within the textiles industry that would be addressed during the exchange, and to discuss the roles of each organization.
6. *Integration of the Cámara de Comercio e Industria de El Salvador (CCIES) into CORAMA, San Salvador, El Salvador*
(July 1998)
During the textiles planning meeting, CORAMA formally welcomed the Cámara de Comercio e Industria de El Salvador. EEC signed an MOU with the Chamber and participated in a press conference to publicize the initiative.
7. *Environmental Opportunities for the Food Processing Industry: Central America Regional Conference, San Jose, Costa Rica*
(October 1998)
The food processing conference attracted over 135 attendees from across Central America and the U.S. The objectives of the event were to identify clean technologies for the food processing industry, present sources of financing for environmental projects, and discuss economic incentives for adopting cleaner technologies. This event was co-sponsored by the Foreign Commercial Service.

8. *Textiles Environmental Business Exchange, North Carolina, South Carolina (February 1999)*

This environmental business exchange brought participants from the textile manufacturing industry across Central America to learn about clean technology options for the textiles industry, voluntary business standards that may be applicable to the Central American textiles industry, and economic incentives for adopting clean technology. Participants met with representatives from research institutions, government agencies, industry associations, textile manufacturers, and environmental technology firms.
9. *CORAMA Planning Meeting: Tourism Industry Conference, Guatemala City, Guatemala (April 1999)*

CORAMA members met to develop the conference agenda and discuss the roles of each organization for this activity. While SIP had been scheduled to host the tourism activity according to the work plan, the inactivity of the SIP representative to CORAMA led the group to reassign this task. CIG welcomed the opportunity to host a conference.
10. *Textile Exchange Follow-Up Workshops, San José, Costa Rica, San Salvador, El Salvador (April and May 1999)*

Industry association representatives from Costa Rica, El Salvador, and Guatemala participated in the textiles exchange held in February 1999. Two industry association members worked with the CORAMA member in their respective country to host a workshop for representatives of the textiles industry to further disseminate information gathered during the exchange. These workshops took place in Costa Rica and El Salvador. In Guatemala, the CORAMA partner disseminated information from the exchange to local textile manufacturers.
11. *Cleaner Technology and Environmental Management for the Tourism Industry: Central America Regional Conference, Guatemala City, Guatemala (September 1999)*

EEC hosted this event with local support from Guatemalan CORAMA partner the Cámara de Industria de Guatemala (CIG). Key agenda topics included: competitiveness, incentives for adopting cleaner technology, environmental management and certification, and financing, among others. In addition, CIG arranged a few matchmaking meetings between the attendees, and, on the final day there was a site visit to Capeuleu, a certified organic coffee farm outside Antigua, Guatemala. Approximately 110 people from Costa Rica, El Salvador, Guatemala, Honduras, Jamaica, Panama, and the United States attended the conference. Also of significance, at least seven reporters covered the event in local television and radio

broadcasts and newspapers.

*12. Joint CORAMA-COMARA Meeting, Miami, Florida
(September 1999)*

This meeting brought together representatives of EEC's principal partner groups in Central America (CORAMA) and the Andean region (COMARA). The meeting served as a unique opportunity for these representatives to share experiences, discuss and evaluate their activities under the LA-IET, and consider ideas for improvements and future programming.

*13. Technical Assistance for Creating a Wetlands Program, Panama City, Panama
(November/December 1999)*

When a USAID Panama Mission staff member met a U.S. expert in constructed wetlands at the CORAMA Tourism conference in Guatemala City in September, the Mission immediately expressed an interest in this wastewater treatment solution. Though in this case EEC did not organize an activity through the CORAMA partners, the Global Bureau approved the task recognizing the clear linkages with EEC's objectives in the region. Just a few months later, EEC provided technical assistance to USAID/Panama to increase awareness about constructed wetlands technology. This included sharing information about economic and other incentives for adopting this wastewater treatment solution option, assessing current wastewater treatment systems, and providing recommendations for implementing wetlands solutions in the Panama Canal watershed.

*14. Safer, Stronger Cement for Reconstruction, Washington, D.C., Dallas, Los Angeles
(December 1999)*

EEC implemented this study tour at the request of the Global Environment Center to address global climate change and post-hurricane reconstruction issues. All Central American countries were invited to participate, as well as the Dominican Republic, considering destruction from both Hurricanes Mitch and Georges. EEC worked with its local CORAMA partners in the four countries to identify appropriate participants in these countries. EEC did not involve CORAMA more extensively in this effort since only one or two cement companies exist in each country, therefore the need for outreach through the chambers was not necessary. However, CORAMA partners were kept informed about the activity and its outcomes. Nine professionals representing the cement industries in Costa Rica, Dominican Republic, Guatemala, Honduras, and Panama visited with technical experts, research institutions, government officials, industry associations, and cement plants in Washington, DC, Dallas, Texas and Los Angeles, California. Technical sessions and interactive discussions related to cement manufacturing technology, environmental policy, and financing provided the opportunity to exchange ideas and experiences related to cleaner production and improved performance.

*15. CORAMA Planning Workshop 2000, Guatemala City, Guatemala
(January 2000)*

EEC conducted a planning meeting with CORAMA members and local Mission and RUDO staff to establish a work plan through June 2000. The group used the results of the Joint CORAMA-COMARA meeting in Miami as a departure point for discussions since lessons learned and possible next steps were key agenda items at this meeting. The group determined that it would be best to continue supporting one industry sector already targeted during the program. As a result, CORAMA created Work Plan 2000 to conduct two environmental audits at food processing facilities in each Central American member country.

*16. Environmental Audits in the Food Processing Sector, Costa Rica, El Salvador, Guatemala, Panama
(March-May 2000)*

Working with technical experts within CORAMA partner organization CEGESTI, CORAMA supported seven environmental audits within food processing plants. CEGESTI evaluated two plants in Costa Rica, El Salvador and Panama, and one in Guatemala in the following sub-sectors: meat, dairy, sugar, and fruit. The main objective was to identify specific opportunities to reduce pollution and provide recommendations for cleaner production and improved environmental management to food processing companies. The audits emphasized economic incentives for adopting sustainable environmental practices, including opportunities for production cost savings, improvements in resource use and energy efficiency, reuse of waste water and solid wastes, recycling, and environmental management.

*17. Opportunities for Using Blended Cement in Central America and the Caribbean, Guatemala City, Guatemala
(June 2000)*

EEC hosted a workshop to follow-up on the December 1999 Cement Environmental Business Exchange. This workshop involved 43 professionals representing technical experts, cement manufacturers and purchasers from Central America and the Dominican Republic, and Central American representatives from government agencies and chambers of construction and industry. The one-day program raised awareness about the impact cement manufacturing has on global climate change, and increasing understanding about the properties and benefits of using blended cements. The workshop afforded opportunities to share experiences among manufacturers and buyers, and develop action plans to apply these new understandings to business practices from supplier to vendor, with government support.

*18. Environmental Regulations and Norms for Cleaner Production, Panama
(June 2000)*

EEC enlisted the expertise of consultant Alan Gagnet, a clean production specialist, to work with the USAID Mission in Panama to provide technical assistance to the National Environmental Authority (ANAM). The goal was to first conduct quick-scan environmental audits at facilities in three key industries including tanneries, cement, and electroplating, and make recommendations for improvements. The results were then used to present ANAM recommendations for promoting cleaner technologies, taking into account the associated economic benefits as well as indicators and general content of technical mechanisms included in new environmental standards. As additional tools to support environmental audits and capacity building exercises taking place in Panama under LAC Bureau and USAID Mission guidance, EEC purchased several water test kits, and a membership with the National Metal Finishing Resource Center to access more extensive technical information.

19. CORAMA Final Meeting and Food Processing Environmental Audit Results, Panama City, Panama (June 2000)

EEC convened a final meeting of the CORAMA partners to evaluate and discuss the results of the Food Processing Environmental Audits and discuss lessons learned from CORAMA programs since 1997. CEGESTI presented an overview of the results of the environmental audits, and the group considered the results of all activities to date.

C. Results

1. Sustainability / Capacity Building

The Central America component of the LA-IET will be sustainable through capacity building and institutional strengthening as follows:

a) REGIONAL

- CORAMA has created an effective regional information network to share experiences and collaborate on industrial environmental issues. Members have worked closely together and developed a shared perspective of regional and industry-specific priorities. In the course of undertaking regional activities, member organizations have played a significant role in establishing new contacts with private companies, public environmental officials, USAID missions, Foreign Commercial Service offices, American Chambers of Commerce, and others. As such, CORAMA partners have been strengthened in their ability to source U.S. environmental goods and services, outreach to the private sector regarding environmental issues, and identify solutions to environmental problems affecting key industries. Participation in CORAMA has also served to introduce organizations that had not previously collaborated, and facilitated information

exchange on a regional basis as well as between Central America and the U.S. Industry is becoming increasingly proactive regarding environmental impacts due to greater awareness about environmental issues, as well as new legislation.

b) COSTA RICA

- CORAMA significantly bolstered CEGESTI's outreach throughout the Central America region to provide technical expertise and assistance. Their participation in CORAMA has enabled them to disseminate information about lessons learned in Costa Rica, as well as gain new exposure to the environmental challenges in other countries of the region. CEGESTI's participation has been critical because so many of the successful environmental case studies in Central America have been achieved in Costa Rica, leading the other neighboring countries to look to these achievements as models. This has led to an important, mutually beneficial relationship among CEGESTI and the other CORAMA partners. CEGESTI has also increased its knowledge about U.S. environmental technologies.

c) EL SALVADOR

- CORAMA provided the first funded assistance to the Cámara de Comercio e Industria de El Salvador (CCIES) to strengthen environmental outreach to the private sector. As such, the program provided CCIES with a unique opportunity to serve member firms, establish new contacts, and learn how to support cleaner industry practices. CCIES has enthusiastically supported CORAMA initiatives and is now in a better position to facilitate technology transfer and broker partnerships to provide solutions to key environmental challenges in El Salvador.
- On its own initiative in 2000, CCIES established a committee for recycling, with the objective to reduce solid waste generation, pollution caused by waste, and realize economic benefits by recycling. Members include firms with solid waste issues, and waste management and recycling companies.
- José Alfaro, a Salvadoran participant of the Textiles Environmental Business Exchange, began graduate studies in environmental engineering at North Carolina State University, one of the universities visited during the exchange. Based on the exchange, EEC was able to provide Mr. Alfaro a letter of recommendation for his

application to the university to pursue this advanced degree. When he returns to El Salvador, he plans to work more specifically on environmental issues.

d) GUATEMALA

- The environment officer at the Cámara de Industria de Guatemala (CIG) has become significantly more visible within CIG as a result of CORAMA programs. The Executive Director and President of CIG have taken notice of CORAMA programs and have strongly supported the initiatives, viewing them as means to make Guatemalan industries more efficient and competitive regionally and globally, while reducing environmental impacts. CIG has strengthened their environmental outreach to member companies in industries targeted by CORAMA, notably food processing, cement manufacturing, and tourism. After hosting the Tourism conference and blended cement workshop in Guatemala City, the leadership was sufficiently impressed with the results to participate in the final CORAMA meeting in Panama. CIG has actively guided CORAMA programs, seeking U.S. involvement in providing technology options. In doing so, they have continued a dialogue through each industry-specific group within CIG, as well as with the USAID Mission and RUDO, the Ministry of Environment, NGOs, and other key local institutions.
- Over 25 Guatemalan university students in tourism degree programs were exposed to environmental issues at the tourism conference. These students will be the leaders of tomorrow's tourism industry in Guatemala, taking with them the environmental lessons from this event.

e) PANAMA

- Over the life of the program, the Sindicato de Industriales de Panamá came to understand the concepts regarding improved environmental performance and increasingly was able to reach out to companies to participate in CORAMA programs. Given that industry represents a relatively low share of GDP in Panama, SIP's persistence with member companies should have a lasting impact as it further brokers a relationship with the Ministry of Environment, USAID Mission, and other local environmental actors. SIP found significant private sector demand and interest in the environmental audits program, as well as interest within the chamber. SIP established very strong new contacts and strengthened existing relationships. SIP proudly hosted the final CORAMA meeting in Panama.

2. *Business Development / Environmental Improvements*

- At least four food processing companies that participated in the environmental audits have already made several low-cost modifications within their facilities since the

- audits were performed. Environmental technology transfer should result once they all develop strategies for additional improvements based on the recommendations.
- A U.S. environmental firm identified Tebag Internacional to be a local distributor of environmental equipment in Costa Rica.
 - Productos del Mar Tico, a food processor in Costa Rica, identified and purchased an odor control system through contacts established at the food processing conference.¹
 - Local Costa Rican distributor Trisan entered into discussions with several U.S. companies for possible business transactions and agreements.
 - The US-Costa Rican venture capital fund of Environmental Enterprises Assistance Fund entered negotiations to finance an environmental equipment purchase by Costa Rican food processing company Bendig.
 - Largely because of pending legislation and the appropriate timing of the Textiles Environmental Business Exchange, all four Guatemalan participants from the exchange indicated that they plan to purchase wastewater treatment equipment in the medium-term, and plan to select from one of the providers visited during the exchange.
 - McGill Environmental Systems has continued a dialogue with INSINCA of El Salvador, a participant of the Textiles Environmental Business Exchange, regarding wastewater treatment solutions.
 - Two months after the Tourism conference at the Guatemala City Marriott, the host hotel initiated a program to wash towels and bed linens every two days, saving water, energy, and detergent.
 - Contacts established during the Tourism conference led to a technical assistance assignment by conference speaker Eric Ellman to assist USAID/Panama to assess the feasibility of a constructed wetlands/microenterprise project. This may open the way for new initiatives to treat domestic effluents.
 - While not exclusively attributable to the LA-IET, Cementos Bayano in Panama is installing new monitoring equipment for emissions of solid particulate matter. They are also in the process of seeking ISO 14000 certification. Both of these topics were among those presented during the cement activities.

3. *In-Kind Contribution*

- CORAMA activities generated \$183,804 of in-kind contributions and sponsorships.

¹ A previous report indicated that this system was purchased from Hydrocal of California. EEC recently learned that this was not, in fact, the vendor. Productos del Mar purchased the equipment locally from a supplier in Mexico because the Hydrocal equipment was not cost competitive.

4. *Lessons Learned*

a) GENERAL

- To greater and lesser degrees in each country, the challenge remains to engage the active participation of the private sector to address their environmental impacts. In many cases, CORAMA member organizations still strive to overcome misperceptions industrialists have about pollution prevention and environmental accounting. CORAMA's focus has been on promoting efficiency gains and marketing advantages through environmental and process improvements. One barrier to this is environmental legislation that tends to emphasize control technologies, and provides few incentives for companies to change practices. One country with a more notable desire to establish cleaner production incentives within legislation is Panama.
- Travel represents a significant cost barrier for companies and, therefore, regional conferences have generated lower than desired levels of participation from the non-host countries.

b) FOOD PROCESSING

- The group noted that there seemed to be little environmental awareness among companies before the conference in Costa Rica. Also, more large companies participated in the event simply because they tend to have more financial and human resources available to do so. The results of this event were successfully shared with other industries in the region.
- The committee has observed that regional conferences are effective fora for disseminating the cleaner technology message, but it is difficult to analyze achievements after these events.
- For the environmental audits effort, CORAMA generally had little time to select candidate firms and perform the audits. This meant that the evaluations were more like “quick scan” diagnostic studies. Even so, CORAMA found strong demand for the audits in each country, and the participating firms viewed them as particularly “eye-opening.” The key obstacle was that small and medium sized firms lack capital to implement many of the recommendations, and local banks do not view these as profitable investments.

c) TEXTILES

- The textile exchange successfully brought many environmental issues to the attention of participating firms. CORAMA had hoped for greater participation, but the key barrier for textiles firms was the cost of participation (international airfare and, more importantly, staff labor time). In addition, this sector is not uniformly important in each country. To the extent that most countries have a textiles industry, they tend to focus on diverse parts of the production process. For example, some manufacture fabric, others do dyeing and finishing, others do

apparel assembly. Guatemala has perhaps the most complete textiles sector, while El Salvador performs more assembly, and it is a diminishing industry in Costa Rica.

- The exchange proved especially valuable for the firms participating from Guatemala since textile plants are facing scrutiny from environmental authorities for pollution concerns. Some plants have been forced to make environmental performance improvements or face closure by authorities.
- All CORAMA members felt that the technical exchange with U.S. companies was extremely beneficial and would like to continue to support this interaction.

d) TOURISM

- In the tourism conference, CORAMA noted lower than expected participation of representatives from the local hotel sector, although there was a strong turn-out by other tourism professionals and students enrolled in local university tourism degree programs. Costa Rica tends to orient public perception of the region as an eco-tourism destination. Therefore, larger capital city hotels seemed to think the program was oriented toward eco-tourism when in fact it sought to emphasize environmental management and efficiency for all facilities. Also, as has been mentioned, attracting small and medium sized lodging and other tourism representatives from outside the host country was difficult due to high regional travel costs. Overall, the CORAMA members feel that the various objectives of the conference, including building awareness about the incentives for adopting cleaner practices and environmental management systems, as well as sharing information about financing alternatives, were indeed met.

e) CEMENT

- The cement exchange successfully brought climate change and other environmental concerns to the attention of cement manufacturers in the region. The participants and their firms are actively seeking solutions to environmental challenges and are enthusiastic to work with U.S. companies and experts. A key success was not only information sharing with experts in the U.S., but also providing an opportunity for them to extensively interact and share ideas with colleagues in the region—the first time they had ever done so. Another primary success was encouraging them to plan strategically and apply the information gleaned from the site visits and meetings, as well as developing contacts capable of assisting them to accomplish their environmental performance goals.
- The blended cement workshop was very well received as it provided more in-depth follow-up to a specific issue raised during the business exchange. It also brought cement manufacturers together with purchasers, government representatives, and others to consider new strategies to harmonize standards and apply improved environmental practices. This illustrated effective stakeholder buy-in, as well as the critical role of the organizers to continue the momentum of

these activities. It has become apparent that, as interested as they are in the issues, on their own, the private sector representatives do not have the time to dedicate and sustain this kind of initiative. To do this effectively requires dedicated multiplier organizations with credibility and outreach within the sector targeted.

D. Recommendations for Future

The four Central American CORAMA partner organizations have established strong linkages that have fostered new business development and information sharing regionally. These associations have expressed a strong interest to continue programs with USAID support. USAID may wish to consider a number of follow-on activities leveraging the resources already brought together under CORAMA. The committee has expressed interest in the following types of future activities:

1. As a group, CORAMA considers food processing as the most important sector for follow-up activities. The plastics industry would also be an important new target. However, Costa Rica noted that their priority sector remains tourism.
2. CORAMA's main goal in the future is to establish a Web site to exchange regional information such as publications, seminar information, contacts, and cleaner production resources. They would like to develop and publish resources such as a pre-audit guide to give to companies before an audit. This would include a pollution prevention checklist that would ask companies to examine certain plant operations and equipment for certain signs of energy or water loss. It would also include tips on creative practices and information on recycling programs.
3. CORAMA would like to investigate the possibility to conduct formal environmental audits, training seminars on environmental management systems, in-plant technical assistance and training, and financing opportunities in the region for investment in cleaner technologies and services.
4. CORAMA would like to invite Nicaragua and Honduras to join the committee.
5. CORAMA would like to support more national level activities to stimulate greater participation, while continuing CORAMA coordination regionally to share ideas, experiences, and results.

6. Suggested new sectors for future programs: metal working, chemicals, plastics, rubber, coffee, others. Alternatively, programs could be oriented by waste media rather than by industry. As an example, focus on a regional issue such as climate change, tied to air emissions.

IV. ANDEAN REGION

A. *Overview*

Following an initial scoping mission to Bolivia, Ecuador, and Peru, EEC created the Comité del Medio Ambiente para la Región Andina (COMARA). The objective of COMARA is to strengthen the environmental outreach capabilities of member industry associations, increase member company awareness of environmental issues, and further develop the private sector's ability to source and finance environmental equipment and services. Given the lack of credit available for industrial environmental improvements, the emphasis of the program turned to establishing a revolving loan fund for cleaner production.

B. *Key Activities / Deliverables*

1. *Scoping Mission to Bolivia, Ecuador, and Peru (November 1998)*

This mission was undertaken in order to assess the status of environmental issues in the three targeted Andean countries and to develop a strategy for programming under the LA-IET.

2. *Comité de Medio Ambiente para la Región Andina (COMARA) Inaugural Meeting and MOU Signing, Lima, Peru (February 1999)*

The first COMARA meeting was held in a participatory workshop format. COMARA members include: EEC, USAID, the Cámara de Industriales de Pichincha, Ecuador, the Cámara de Industria y Comercio de Santa Cruz, Bolivia², the Cámara de Industria de La Paz, Bolivia, and the Sociedad Nacional de Industrias, Peru. At the initial meeting, COMARA members were asked to identify activities of regional impact that would assist them in continuing to develop and expand their environmental programming and outreach capabilities. The result was a workplan developed to reflect the outcome of the workshop. COMARA participants determined that the most important activity to stimulate interest and involvement in environmental issues by member companies would be assistance in the design of a regional financing mechanism for environmental projects. Following the workshop,

² In January 2000, the Cámara de Industria y Comercio de Santa Cruz eliminated its environmental committee, and withdrew participation in COMARA.

COMARA was formalized by signing Memorandums of Understanding, and a press conference.

3. *First Meeting of the COMARA Regional Financial Working Group, La Paz, Bolivia (May 1999)*

EEC convened the first meeting of the Financial Working Group together with a representative from Hagler Bailly Services. (Hagler Bailly was working on a separate but related initiative under contract to USAID). The Working Group has been assembled to address the issue of identifying and designing an appropriate financing mechanism for environmental projects. Working Group members include not only the COMARA representatives, but also experts from second-tier banks and Ministries of Environment from the three countries. The objective of this meeting was to identify the financing mechanism and administrative structure of the proposed fund.

4. *Second Meeting of the Financial Working Group, Quito, Ecuador (June 1999)*

The second meeting of the Working Group brought together participants from the previous meeting, with the addition of technical experts from each Andean country. Industry association representatives from each country presented their national fund structures, and discussed how they will be integrated into the overall regional fund. The group developed the structure of the regional fund, the responsibilities of the regional and national boards, and discussed the technical and financial evaluation and support components of the fund.

5. *Incorporation of Cámara de Industriales de Guayaquil into COMARA (June 1999)*

The Cámara de Industrias de Guayaquil, of Ecuador was present at the Second Financial Working Group meeting and signed a Memorandum of Understanding with EEC to formally become a part of COMARA.

6. *Environmental Markets in the Andean Region (August 1999)*

Under subcontract to EEC, Hagler Bailly developed the publication *Environmental Markets in the Andean Region (Bolivia, Ecuador and Peru)*. This document became a part of the USAID Business Focus Series.

7. *Third Meeting of the Financial Working Group, Lima, Peru (August 1999)*

This meeting was a collaborative effort between EEC, Hagler Bailly, the Environmental Law Institute (ELI) and the North-South Center. Only EEC's portion of this activity was funded by the LA-IET; the other organizations were supported by separate funding sources. EEC was responsible for leading the financial sessions,

while Hagler Bailly was responsible for presenting USAID's technical assistance capabilities, as well as coordinating with ELI and the North South Center to present the policy component of the strategy. The Financial Working Group discussed remaining details for the loan fund proposal and incorporated various political and technical assistance components into the final proposal. Following the meeting, the U.S. financial expert incorporated the results into a final draft proposal. This document is an impressive summary of COMARA's work over the past six months. A more concise version of the proposal for the Andean Revolving Loan Fund was prepared for circulation to donor agencies.

8. *Joint CORAMA-COMARA Meeting, Miami, Florida
(September 1999)*

This meeting brought together representatives of EEC's principal partner groups in Central America and the Andean region. The meeting served as a unique opportunity for these representatives to share experiences, discuss and evaluate their activities under the Latin America Initiative for Environmental Technology (LA-IET), and consider ideas for improvements and future programming.

9. *Presentation of the Andean Revolving Loan Fund for Cleaner Production
Washington, DC
(October 1999)*

COMARA representatives, including industry association Presidents and second-tier bank officials, presented the proposal for the *Andean Revolving Loan Fund for Cleaner Production* to several international donor agencies, US government institutions, and non-profit organizations in Washington, D.C. A meeting was held at the Public Information Center of USAID to present the Fund to international donors who could potentially capitalize the Fund. On the following day, COMARA presented the Fund concept to USAID, other US government agencies, and several NGOs during a brown-bag luncheon in the offices of CTC. After the meetings, COMARA representatives met privately with interested donor organizations including the Multilateral Investment Fund (MIF) of the Inter-American Development Bank and others.

10. *Follow-Up Visit to Bolivia and Peru with LAC Bureau
(February 2000)*

EEC staff traveled with Gil Jackson of the LAC Bureau to meet with COMARA members, USAID Missions, and others in Bolivia and Peru to discuss recent developments regarding the Andean Revolving Loan Fund for Cleaner Production. This also entailed working with the Mission in Bolivia on their IR2 Strategy for 2000-2004, meeting with in-country contacts to update them about COMARA developments, and searching for future funding options for the revolving loan fund.

*11. Final COMARA Meeting, Quito, Ecuador
(June 2000)*

EEC hosted a final COMARA meeting in Quito to discuss next steps, achievements, and lessons learned. After many negotiations with the Multilateral Investment Fund and other potential donors, there was a group consensus that donors are generally not interested to support a Regional Fund. Therefore, each country is refocusing attention toward drafting national Fund proposals. The Chamber members also indicated that funding for the Centers for Cleaner Production is a priority. Therefore, COMARA would like to pursue the Fund objective after the centers for cleaner production are sustainable and fully operational. The members also discussed achievements and lessons learned from COMARA since its creation and produced a list of activities for the future, redefining goals for the short, medium and long term.

C. Results

1. Sustainability / Capacity Building

The Andean Region component of the LA-IET will be sustainable through capacity building and institutional strengthening as follows:

- In the course of undertaking regional activities, COMARA member organizations have played a significant role in establishing new contacts with private companies, public environmental officials, USAID missions, Foreign Commercial Service offices, American Chambers of Commerce, multilateral development banks, local finance officials, and others. Perhaps more importantly, the COMARA partners have begun a dialogue amongst themselves that previously did not exist. They now readily share information about all aspects of industry and environmental issues including local and national experiences regarding environmental legislative developments, the creation of centers for cleaner production, environmental project implementation, among other topics. In this way, they have developed a shared perspective of regional environmental priorities and active information exchange.
- The COMARA representatives from the three countries have worked closely together to raise environmental consciousness among the private sector. This effort has been a challenging and motivating task, particularly in light of the economic and political instability in the region during this time. Indeed, most of the representatives have successfully strengthened environmental outreach with their association's member companies.
- COMARA representatives have contributed proactively to consider environmental approaches not based only on command and control, but preventing pollution. The focus on pollution prevention has enriched the understanding of the chamber members regarding competitiveness and cost savings simultaneous to environmental performance improvements.

- Through their effort to capitalize the Fund, the members have acquired experience in formulating a complex proposal, considering nuanced approaches to respond to donor requirements. If the environmental loan fund is successful, the ability of the private sector and government to promote the adoption of cleaner production will be greatly enhanced.
- The members of COMARA are actively engaged in their national projects to create and strengthen the Centers for Cleaner Production, ongoing priorities in each country.
- The members gained knowledge about the functioning and outreach role of EEC as an organization promoting business and environmental services.

2. *Business Development / Environmental Improvements*

- Financing remains a significant obstacle for prospective U.S. environmental firms to enter the Andean market. In response to feedback from potential donors, the COMARA program now seeks to create three national-level revolving loan funds for cleaner production rather than a single regional fund. To date, COMARA continues negotiating with banks and multilateral institutions to capitalize such national funds. Once in place, the fund is expected to facilitate environmental technology transfer.
- Approximately 275 copies of the *Environmental Markets Report* have been distributed to U.S. environmental technology firms, USAID Missions, trade associations, state development agencies, and to others at conferences and workshops. This document will help guide U.S. environmental technology companies toward the most promising market opportunities in this region.

3. *In-Kind Contribution*

- COMARA activities generated \$43,857 of in-kind contributions.

4. *Lessons Learned*

- The COMARA group had hoped to create a regional fund to not only provide financing for environmental projects, but also share ideas, experiences, and successes. However, it became apparent after the proposal was completed that donor agencies and banks were not enthusiastic to support a regional fund, but rather more interested in single-country approaches to mitigate political and economic risk, among other reasons. Though this appears true of donors, COMARA continues planning to maintain communication and dialogue for collaboration even if funds are managed separately in each country.
- COMARA continues to face some key challenges in establishing a viable fund, national or regional. First, key institutions must be established, and clearly support the fund initiative. This primarily includes centers for cleaner production to provide technical evaluations of proposals, and local financial institutions to administer funds.

Second, COMARA needs to look for successful models or innovative approaches for financing cleaner production to thoughtfully consider sustainable options. Whereas multilateral funding may still be one avenue, they should explore other sources and concepts. This is especially true in light of the challenging economic circumstances the region has faced during this program (a banking and financial crisis in Ecuador, severe recession and political uncertainty in Peru, and intermittent socio-political instability in Bolivia). Banks view any kind of proposed fund through a prism of country risk.

- Private banks simply lack knowledge regarding the environmental sector and do not view cleaner production investments as profitable. This deserves attention in the form of training with case studies and financial models.
- Despite their enthusiasm and high degree of interest in collaborating on the fund and other projects, the in-country COMARA members have extremely limited funding within their respective chambers. This reality became most apparent when the Chamber of Industry and Commerce of Santa Cruz, Bolivia eliminated funding for the environmental committee, effectively removing one of the affiliates from the COMARA initiative. Their limited internal funding should not impact continued information exchange and collaboration efforts among the partners for specific opportunities. However, for the fund concept in particular, Ecuador and Peru will need additional assistance to develop national fund proposals; Bolivia has already done so. Future efforts might consider strengthening contact and technology exchange between companies from the four countries. To this end, such efforts could rely more heavily on EEC links and contacts to facilitate access to services and products for technology transfer.

D. Recommendations for Future

USAID may wish to consider a number of follow-on activities leveraging the resources already brought together under COMARA. Some of the possible follow-on activities as determined by the committee could include:

1. Strengthen and provide institutional support for the centers for cleaner production in the region through a series of training seminars. Also, facilitate regional collaboration of the centers.
2. Build on the CORAMA (Central America) regional-level industry events to conduct a series of national-level workshops to strengthen local industry participation in pollution prevention efforts.

3. Offer technical assistance to companies to conduct environmental audits, formulate and apply recommendations for cleaner production, and consider ISO certification and other options for environmental management.
4. Work with industry and environmental auditors to develop a self-auditing process for companies interested to invest in cleaner production technologies and equipment.
5. Provide training for government regulators in pollution prevention.
6. Provide technical assistance training to laboratories and universities.
7. Support climate change initiatives in the region.
8. Strengthen the environmental outreach of industry associations with their members. This may be through: capacity building to provide technical assistance, the dissemination of information, partnering with U.S. industry associations, and developing resource materials for use by in-country manufacturers and environmental legislators.
9. Create a COMARA information network via Internet to exchange contacts and resources related to pollution prevention information.

V. DOMESTIC OUTREACH

A. *Overview*

EEC staff presented at or attended over 54 workshops, conferences, seminars, brown bag luncheons, and other events in the United States to promote the LA-IET. Some of these were hosted and organized by EEC, while others were hosted by other organizations. These activities afforded opportunities for U.S. environmental technology companies to analyze business prospects in LA-IET countries. EEC staff shared information about the program and achievements as well as market insights. In addition, EEC promoted LA-IET programs during individual meetings with private companies, government officials, NGOs, and others on an ongoing basis. EEC also promoted LA-IET programs in its monthly member newsletter, and subsequently via its web site. Finally, additional outreach was conducted through the dissemination of publications and materials.

B. *Key Conferences, Workshops, and Seminars*

- Denotes an activity hosted or co-hosted by EEC
- Denotes an activity hosted by another organization

Quarters refer to government fiscal quarters, October through September

Through Second Quarter 1996

- EEC had program promotional materials designed and printed. These were distributed at more than 30 environmental industry conferences, workshops and other events in the U.S. and abroad through the second fiscal quarter of 1996.

First Quarter 1998

- EEC Annual Member Conference.

Second Quarter 1998

- Environmental Protection Agency conference in Dallas, Texas.
- Asociación Interamericana de Ingeniería Sanitaria y Ambiental (AIDIS) meeting in New York, New York.

Third Quarter 1998

- *Environmental Opportunities in Central America*, EEC workshop in Washington, D.C.
- National Pollution Prevention Roundtable Conference, Cincinnati, Ohio.
- *Environmental Opportunities in Chile*, EEC Luncheon Seminar Series co-hosted by Global Technology Network-America's, Washington, D.C.
- *Technology, Operations, and Economics of Providing Safe Drinking Water in Small Systems*, National Science Foundation, World Health Organization, and the Pan American Health Organization.
- *The Key Role of Non Profit Organizations in the Development of Small and Medium Enterprise*, International Executive Services Corps.

Fourth Quarter 1998

- *Using the Export-Import Bank to Expand Overseas Business*, EEC Luncheon Seminar Series, Washington, D.C.
- *Environmental Risk and the Banking Industry*, Forum for Environmental Law, Science, Engineering, and Finance, Washington, D.C.

First Quarter 1999

- *WTO 2000 Seminar*, U.S. Department of Commerce.
- *Clean Air Initiative for Latin America*, World Bank.

Second Quarter 1999

- *Water and Wastewater Development in Brazil*, EEC Luncheon Seminar Series co-sponsored by Chadbourne and Parke, Washington, D.C.
- *Water and Wastewater Infrastructure Investment and Pre-Qualification Working Session*, Water Industry Council and Chemonics International.

- *After the Hurricane: A Roundtable on the Economic Reconstruction of Central America*, U.S. Chamber of Commerce, Washington, D.C.
- *Society of Mining and Metallurgical Engineers Annual Meeting*, Society of Mining and Metallurgical Engineers.
- *USAID Roundtable Breakfast*, a dialogue with U.S. environmental associations and their role in sustainable development.

Third Quarter 1999

- *USAID Environmental Partnership Programs meeting*, Washington, D.C.

Fourth Quarter 1999

- *Moving Beyond Environmental Clean Up – The Growing Need for Clean Technology Products and Services in the Andean Region*, National Association of State Development Agencies, Washington, D.C. and San Diego, California.

First Quarter 2000

- *Forbes Environmental Industry Superconference*, Washington, D.C.
- *EEC Member Conference: Outlook 2000*, Washington, D.C.

Second Quarter 2000

- *Environmental Opportunities in Latin America*, World Trade Center Institute, U.S.-Mexico Chamber of Commerce, EEC, Maryland Environmental Business Alliance, the Solid Waste Association of North America, and Virginia Environmental Business Council, Baltimore, Maryland.
- *National Manufacturing Week*, National Association of Manufacturers Annual Conference, Chicago, Illinois.
- *Inter-American Development Bank Annual Board of Governors Meeting*, New Orleans, Louisiana.

Third Quarter 2000

- *Climate Change, Innovation, and Trade: Global Opportunities for U.S. Business*, EEC, PADCO, and CELI, Washington, D.C.
- *The U.S.-Mexico Border: Challenges & Collaboration, Fourth Annual Border Issues Conference on Capitol Hill*, U.S.-Mexico Chamber of Commerce, Washington, D.C.
- *U.S. Export-Import Bank Annual Conference*, Washington, D.C.
- *Bilateral Agenda 2000: Successes, Strategies & Challenges in the U.S.-Mexico Market*, US-Mexico Chamber of Commerce, Washington, D.C.
- *Sustainable Economic Development along the Southwestern Border of the United States*, U.S.-Mexico Chamber of Commerce, El Paso, Texas

C. Results

1. Sustainability / Awareness Promotion

The Domestic Outreach component of the LA-IET will be sustainable through business development and information dissemination:

- U.S. environmental technology and service providers are more aware about market opportunities in LA-IET countries and have participated in many in-country events as previously noted.
- Materials and publications from the LA-IET such as *Environmental Markets in the Andean Region (Bolivia, Ecuador and Peru)* are tools for U.S. environmental companies to rely upon as they consider market entry strategies.
- EEC staff brokered linkages between U.S. environmental firms and in-country firms and organizations for business development.
- The methodology and model developed by EEC for Latin America is being adapted to serve a similar purpose under the EcoLinks project of the Europe and Eurasia Bureau of USAID.
- Through EEC's subcontract with the National Association of State Development Agencies (NASDA), many U.S. environmental technology companies pursued market opportunities in the region with matching grant support from USAID. Many of these firms have established ongoing relationships with partners in the region and will continue to seek new business and partnerships.

2. Business Development / Environmental Improvements

- These speaking and publicity opportunities added significant value to the LA-IET objectives as it engaged companies interested in these markets and encouraged them to participate more fully in LA-IET activities. More importantly, it brought companies new to the region into the program to consider market opportunities and establish a dialogue with in-country companies and LA-IET partner organizations.

3. *In-Kind Contribution*

- Through salaries, fringe benefits, and overhead expenses, EEC contributed \$366,194 in-kind.

4. *Lessons Learned*

- Future efforts should consider expanding the domestic outreach component. The U.S. has significant expertise to provide viable solutions to environmental problems in Latin America. However, encouraging technical cooperation and technology transfer requires facilitating linkages between U.S. companies and the local client base in Latin America. By the same token, these U.S. companies must be committed to the market as partnerships take time to develop into contracts. If a grants program such as the one administered by NASDA is replicated, greater collaboration between the programs can help to achieve maximum cost-effective outreach.

VI. MATERIALS DEVELOPMENT

A. *Overview*

In the course of the LA-IET, various publications including briefing books for conferences and business exchanges, market reports, environmental technology guides, a training course, and other materials were developed for program activities. EEC and its subcontractors developed the following materials under the LA-IET.

1. *Environmental Opportunities in Central America*, April 1998 (EEC, Workshop briefing book, English)
2. *Municipal Wastewater Treatment Technology Matrices*, October 1998 (EEC, English, Portuguese, and Spanish)
3. *Intercambio Comercial Ambiental – Sector de Textiles*, February 1999 (EEC, Business exchange briefing book, Spanish)
4. *Environmental Markets in the Andean Region (Bolivia, Ecuador and Peru)*, August 1999, Hagler Bailly Services, English

5. *Environmental Technologies for the Nonferrous Metals Mining Industry: A Sourcebook of U.S. Suppliers of Pollution Prevention and Control Technologies for the Mining Industry*, August 1999 (Kenan Institute, English/Spanish)
6. *Environmental Technologies for the Food Processing Industry: Central America Regional Conference*, October 1998 (EEC, Conference briefing book, English/Spanish)
7. *Cleaner Technology and Environmental Management for the Tourism Industry: Central America Regional Conference*, September 1999 (EEC, Conference briefing book, English/Spanish)
8. *Cleaner, Safer Cement for Reconstruction*, December 1999 (EEC, Business exchange briefing book, English/Spanish)
9. *Market Opportunities for Climate Change Technologies and Services in Developing Countries*, May 2000 (Hagler Bailly Services, English)
10. *Manuais de Gestão dos Serviços de Saneamento*, June 2000 (Dr. Eduardo Jordão, et. al., Course modules, Portuguese)
11. *Oportunidades para el Uso de Cementos Mezclados en Centroamérica y el Caribe*, June 2000 (EEC, Workshop briefing book, English/Spanish)
12. *Guías y Documentos Sobre la Prevención de la Contaminación Industrial*, June 2000 (Hagler Bailly Services, CD ROM, English/Spanish)

ANNEX I

SUBCONTRACTORS

I. NATIONAL ASSOCIATION OF STATE DEVELOPMENT AGENCIES (NASDA)

A. Overview

The National Association of State Development Agencies (NASDA) administers the Latin America Fund for the Environment (LAFE) under subcontract to EEC/CTC. The program provides matching grants of \$10,000 or \$15,000 to small and medium-sized U.S. environmental service and technology firms in order to facilitate the transfer of environmentally responsible technologies from the U.S. to Latin America. For detailed information, please refer to NASDA's final report.

B. Key Activities / Deliverables

1. Grants Awarded (1996 - 1997)

During this time, 17 matching grants of \$10,000 each were awarded to U.S. companies.

2. Grants Awarded (1998)

During this time, 20 matching grants of \$10,000 each were awarded to U.S. companies.

3. Grants Awarded (1999)

During this time, six matching grants of \$10,000 each were awarded to U.S. companies. This left one \$10,000 grant unobligated. In addition, six matching grants of \$15,000 were approved, and three conditionally approved. This left three \$15,000 grants unobligated.

4. Andean Market Seminars (1999)

With funding remaining from unallocated grants, NASDA hosted two seminars, one in Washington, D.C., and another in San Diego, California, to introduce environmental market opportunities in the Andean region to U.S. firms. A key component of the seminars was the dissemination of the report *Environmental*

Markets in the Andean Region: Bolivia, Ecuador, Peru, prepared for USAID through EEC.

C. *Results*

1. *Sustainability*

The LAFE component of the LA-IET will be sustainable through business development and technology transfer in the following manner:

- The matching grants administered by NASDA have facilitated the transfer of U.S. environmental technology and expertise to Latin America as documented below. Latin American firms will likely turn to these U.S. suppliers for additional new technology, technical support, or other services. In this way, many U.S. firms will continue building business relationships with existing and new clients as a result of the program.

2. *Business Development / Environmental Improvements*

- As of June 2000, NASDA tracked a total of \$20,322,231 in sales resulting from grant awards. Mexico represented the largest sales market with total sales of \$8,629,267. Costa Rica and Panama followed with \$4,459,794 and \$3,229,672 in sales respectively.

3. *In-Kind Contribution*

- NASDA grants generated \$1,159,450 of in-kind/grant match contributions.

4. *Lessons Learned*

- Given the experience of the program overall, it could be argued that this type of grant program may be best suited to medium-income countries such as Argentina, Brazil, Chile, Colombia, Costa Rica, Mexico, etc. While the poorer countries of the region such as Bolivia, Ecuador, Honduras, Nicaragua and others want to prioritize environmental concerns, they are often times less able to rely on private sector solutions and generally lack financing for technology transfer. In this sense, the higher per capita income countries offer more promising trade opportunities.
- The timing of new funding for the LAFE-Andean grants program in 1999 presented a special challenge for several reasons. First, Ecuador experienced a major financial collapse and Peru's economy was stagnant. Second, it takes up to a full year to market a new program and begin disbursing grants; therefore, the one-year timeframe of the extended subcontract was not sufficient to generate the anticipated results.

- Third, there were challenges in reorienting the program to focus solely on pollution prevention. In part because of all of these factors, NASDA returned approximately \$207,000 of what was originally allocated to the program.
- In future efforts, all cooperating institutions should seek greater collaboration. Upon review, EEC's extensive experience in the region, as well as that of other agencies, would have been a valuable asset to more fully incorporate into the grant program. Specifically, NASDA could have dedicated all of their efforts at domestic outreach and quick program implementation, relying on other institutions for regional and cleaner production expertise. Likewise, EEC could have benefited more by formally engaging successful and unsuccessful grant applicants to participate in other LA-IET activities since these firms had already expressed interest in pursuing the LA-IET markets. EEC could have also introduced applicants to CORAMA, COMARA, and other in-country partners to facilitate additional meetings and linkages to foster more sustainable relationships.
 - The requirement for pollution prevention technologies for the LAFE-Andean program presented a challenge to NASDA staff, the grants review panel, as well as industry professionals. Many environmental firms might label their technology as "preventive," though experts might disagree. Future programs should seek to clearly define such terms from the start in all marketing materials in order to make transparent which kinds of technologies qualify.
 - The review panel for the grants program included a representative cross-section of expertise. The panel thoughtfully considered the merits of each proposal and evaluated them fairly and competitively. Any future programs should seek to assemble another well-rounded panel of professionals.

II. KENAN INSTITUTE OF PRIVATE ENTERPRISE

A. Overview

The Kenan Institute, under subcontract to EEC, developed and implemented two activities. First, a report providing recommendations for establishing a Hemispheric Environmental Partnership, with the objective to recommend partnership solutions for Latin America to address urban pollution challenges. Second, Kenan initiated the Peruvian Mining Partnership to implement a series of activities to reduce pollution associated with the mining industry in Peru by introducing U.S. environmental experiences, technologies and practices. The goals of this initiative were to: 1) strengthen the environmental programs of Peruvian mining associations and their ability to assist companies seeking environmentally sustainable solutions; 2) increase collaboration between U.S. and Peruvian mining industry institutions and the private sector; 3) promote the transfer of U.S. environmental goods and services. For detailed information, please refer to Kenan's final reports.

B. *Key Activities / Deliverables*

1. *Scoping Mission to Peru
(December 1998)*

The objective of the scoping mission to Peru was to identify appropriate Peruvian mines and organizations for participation in the Peruvian Mining Partnership. Kenan staff also gathered information about environmental issues affecting the mining industry in Peru.

2. *U.S. Mining Task Force Mission to Peru
(January 1999)*

Kenan staff traveled with several U.S. technical experts to small and medium-sized mines in Peru in order to make observations and provide recommendations for improvement of surface facilities at the selected sites.

3. *Peruvian Mining Task Force Mission to the U.S.
(February 1999)*

As a follow-up to the technical mission to Peru, Kenan staff conducted a study tour to the U.S. for representatives from the Peruvian mining industry. Participants included representatives from the mines visited in January and delegates from Peruvian engineering companies working in the mining sector. The study tour took place in Colorado and coincided with the annual meeting of the Society of Mining Engineers.

4. *Environmental Technology Source Book for the Mining Industry
(August/September 1999)*

Kenan staff developed a source book to be used by the mining industry that identifies providers of U.S. environmental goods and services for the mining industry. Kenan staff distributed 500 copies of the Source Book at the 23rd Annual Convention of Peruvian Mining Engineers in Arequipa, Peru in September. Kenan also distributed an equal number of copies of *Best Practices in Non-Ferrous Mining*, a report developed under the Environmental Pollution Prevention Project (EP3).

C. *Results*

1. *Sustainability / Capacity Building*

The Peruvian Mining Partnership component of the LA-IET will be sustainable through business development and institutional strengthening in the following manner:

- The mining industry in Peru has been in recession, and accessing financing for environmental projects is extremely difficult. However, the Partnership has provided several small and medium-sized mines with a technical assessment of environmental

conditions and improvements at their sites. This assessment, in combination with the Environmental Mining Technology Source Book, should enable the mines to identify and access the appropriate technologies when the economic situation improves.

- The Partnership has worked with the Peruvian mining industry association to assist with the identification of solutions to environmental problems faced by the mining industry. This should have a lasting multiplier effect for information sharing and future initiatives.
- The Partnership worked with the Vice Minister of Mines and the Ministry of Energy and Mines in Peru throughout the program to share results and consider solutions. This linkage with government officials provided some technical assistance that can be applied to future government programs.

2. *Business Development / Environmental Improvements*

- During the Mining Partnership program, several U.S. firms participated in exchanges designed to encourage technical cooperation with partners in Peru. In addition, the Source Book should provide an important resource for Peruvian mining companies exploring clean technology options.

3. *In-Kind Contribution*

- Kenan Institute activities generated \$26,818 of in-kind contributions.

4. *Lessons Learned*

- Again, the timing of the Peruvian Mining Partnership proved somewhat of a challenge due to economic stagnation and socio-political instability in Peru. Small and medium-sized mines focused attention on remaining in business and were not as able to consider environmental issues. However, large mines able to attract international investors to upgrade facilities and remain competitive found that investors required them to assume many new environmental responsibilities.
- Future efforts should strive to integrate efforts by the Kenan Institute and EEC in Peru, particularly to consider involving EEC's local industry association partner with the mining industry association. This linkage could expand capacity building and enable greater outreach for environmental awareness among the private sector.