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AGENCY FOR INTERNATIONAL DEVELOPMENT  
WASHINGTON, D.C. 20523

PROJECT IN DEVELOPMENT

&

THE ENVIRONMENT (PRIDE)

POLLUTION PREVENTION

DEMONSTRATION COMPONENT

398-0365

AMENDMENT

DATED SIGNED: 6/16/93

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<b>AGENCY FOR INTERNATIONAL DEVELOPMENT</b> <b>PROJECT DATA SHEET</b>	<b>1. TRANSACTION CODE</b> <input type="checkbox"/> A = Add <input type="checkbox"/> C = Change <input type="checkbox"/> D = Delete <span style="float: right;">Amendment Number <u>1</u></span>	<b>DOCUMENT CODE</b> <u>3</u>
<b>2. COUNTRY/ENTITY</b> Near East Regional	<b>3. PROJECT NUMBER</b> <u>398-0365</u>	
<b>4. BUREAU/OFFICE</b> NE/DR/ENR	<b>5. PROJECT TITLE (maximum 40 characters)</b> Project in Development and the Environment	
<b>6. PROJECT ASSISTANCE COMPLETION DATE (PACD)</b> MM DD YY <u>09 30 96</u>	<b>7. ESTIMATED DATE OF OBLIGATION</b> (Under 'B.' below, enter 1, 2, 3, or 4) A. Initial FY <u>91</u> B. Quarter <u>4</u> C. Final FY <u>95</u>	

8. COSTS (\$000 OR EQUIVALENT \$1 = )						
A. FUNDING SOURCE	FIRST FY			LIFE OF PROJECT		
	B. FX	C. L/C	D. Total	E. FX	F. L/C	G. Total
AID Appropriated Total						
(Grant)	( )	( )	( )	( 21,700 )	( )	( 21,700 )
(Loan)	( )	( )	( )	( )	( )	( )
Other U.S.	1.					
	2.					
Host Country						
Other Donor(s)						
<b>TOTALS</b>						

9. SCHEDULE OF AID FUNDING (\$000)									
A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE		D. OBLIGATIONS TO DATE		E. AMOUNT APPROVED THIS ACTION		F. LIFE OF PROJECT	
		1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan
(1)	EVUP			6344		2025		21,700	
(2)									
(3)	PEBD					675			
(4)									
<b>TOTALS</b>				6344		2,700		21,700	

<b>10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each)</b>	<b>11. SECONDARY PURPOSE CODE</b>
<b>12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)</b> A. Code      CIT      EEF      PSD      TWN      TIC B. Amount      80      100      100      20      50	

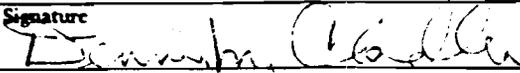
**13. PROJECT PURPOSE (maximum 480 characters)**

To assist ENE field Missions and host country institutions to: 1) identify and address critical environmental issues that threaten economic growth, public health, and ecological sustainability; 2) mobilize the private sector and NGOs to provide cost effective solutions to these problems; and 3) promote regional information exchange.

<b>14. SCHEDULED EVALUATIONS</b> Interim MM YY <u>03 95</u> Final MM YY <u>08 95</u>	<b>15. SOURCE/ORIGIN OF GOODS AND SERVICES</b> <input type="checkbox"/> 000 <input type="checkbox"/> 941 <input type="checkbox"/> Local <input type="checkbox"/> Other (Specify)
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**16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of a \_\_\_\_\_ page PP Amendment.)**

This amendment is for the Pollution Prevention Demonstration Component of PRIDE and increases the Life of Project authorization by \$2.7 million to \$21.7 million.

<b>17. APPROVED BY</b>	Signature  Title Dennis Chandler, A-AA/NE	Date Signed MM DD YY <u>06 / 16 / 93</u>	<b>18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION</b> MM DD YY
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U.S. AGENCY FOR  
INTERNATIONAL  
DEVELOPMENT

JUN 16 1993

**ACTION MEMORANDUM FOR THE ACTING ASSISTANT ADMINISTRATOR, BUREAU FOR THE NEAR EAST**

**FROM:** Satish Shah, NE/DR *M. L. Lantieri*  
**SUBJECT:** Pollution Prevention Demonstration Component of the Project in Development and the Environment (398-0365)

**ACTION:** Your approval is needed: 1) for the authorization of the Project Paper Supplement to the Project in Development and the Environment (PRIDE), 398-0365, to add a Pollution Prevention Demonstration Component for \$2.7 million, thereby increasing the LOP to \$21.7 million with no change to the PACD of September 30, 1996; and 2) for a waiver of full and open competition to implement the Morocco element of the Pollution Prevention Component.

**BACKGROUND:** The Project in Development and the Environment, PRIDE, provides technical assistance in environmental and natural resource management to the Near East and Europe Bureaus, to AID missions, and to host-country institutions. PRIDE works to prevent and mitigate pollution, improve management of wastewater and water resources, enhance efficient, environmentally sound energy use, and strengthen sustainable agricultural practices. PRIDE originally had four closely-linked project components, as follows: Strategic Planning, Policy Analysis, Private Sector Approaches, and Public Awareness/Environmental Education. PRIDE, also, has opened a legislative dialogue with countries in the NE which seeks to encourage and strengthen the development of host country environmental institutions. Implementation of activities is via U.S.-based contractors (World Environment Center (WEC), Chemonics, Hagler-Bailly and other sub-contractors) who provide short-term technical assistance and training to the Near East and Europe Regions.

After one and a half years of implementation, it has become evident that carefully targeted long-term, in-country activities could best further the Bureau's pollution prevention objectives. A wealth of information about NE industries, governmental policies and strategies, and non-governmental organizations has been collected. Over twenty pollution prevention audits for NE private sector industries as well as four regional workshops for pollution prevention have been conducted. These experiences pointed to the need and demand for a permanent in-country presence which can respond quickly to industry needs and provide expertise and guidance after a site visit. Additionally, a more

responsive mechanism for facilitating training and the transfer of U.S. technology is needed. PRIDE-supported activities in the Near East have created an interest in pollution prevention. However, follow-up activities are currently limited and can be done only sporadically.

Consequently, the NE Bureau approved the Regional Clean Technologies PID on February 5, 1993 and embarked on Project Paper design. A feasibility study team, the NE Bureau Environmental Workshop, a Morocco Pollution Prevention Workshop, Mission cables, and other field visits evaluated the demand and need for pollution prevention technology training and equipment in Egypt, Jordan, Tunisia, and Morocco. Visits to over 50 industrial plant sites and industrial and government organizations were made. Once the difference between traditional end-of-pipe pollution control methods and pollution prevention technologies was explained, both government officials and private businessmen expressed a high level of interest in a pollution prevention demonstration activity.

Nevertheless, A.I.D. Missions in the region expressed doubts about the need for a new project with PRIDE already existing and the Environmental Pollution Prevention Project (EP3) of the Research and Development Bureau about to begin implementation. Limited OYB resources in most Missions would preclude high levels of buy-ins to a new project. Missions also indicated that they would like to see better demonstration of the pollution prevention approach in the region before setting up a new project. Based on Mission feedback, the design committee considered alternative approaches for this activity. Ultimately, it was decided to amend the authorization to the PRIDE Project to add the Pollution Prevention Demonstration (PPD) Component (the new title for the Clean Technologies PID) described in the attached PP Supplement. The Project Paper Supplement was reviewed and approved by the NEDAC on April 19, 1993.

**DISCUSSION:** Funding for the Pollution Prevention Demonstration Component of PRIDE is \$2.7 million to be authorized in FY 93 which will raise the overall project Life of Project (LOP) funding level to \$21.7 million. The PRIDE goal and purpose remain unchanged. The goal of PRIDE is "to promote sound environmental and natural resource policies and programs in support of long-term sustainable economic growth in ENE countries". The project purpose is "to assist ENE field Missions and host country institutions to: 1) identify and address critical environmental issues that threaten economic growth, public health, and ecological sustainability; 2) mobilize the private sector and NGOs to provide cost effective solutions to these problems; and 3) promote regional information exchange." The Pollution Prevention Demonstration (PPD) component will specifically contribute to the latter two sections of the project purpose through on-the-ground activities in Morocco, Tunisia, and elsewhere in the NE Region (See annexes D,E,F, and G of the Project Paper Supplement for a detailed description of activities

to be supported).

The PPD component, through pollution prevention audits and assessments, will focus on no-cost (housekeeping), low-cost (under \$50,000), and medium-cost (under \$500,000) U.S. pollution prevention methodologies that can be retrofitted into existing Near East industrial facilities without jeopardizing current production volume or quality, or introduced into the design of new industrial plants. There are very inexpensive (i.e. about \$5,000) technologies which have broad application potential in NE industries. In this way, this project component will be able to present a series of financially feasible recommendations to participating firms. PPD representatives will assist Near East firms in using AID Mission programs (e.g. Commodity Import Program) when available, American Embassy commercial service programs, and any other programs which can assist in financing purchases of equipment and overcoming other obstacles to using imported U.S. products.

As indicated, this Project Paper Supplement increases the PRIDE Life of Project (LOP) authorization by \$2.7 million to \$21.7 million. In FY 93, \$2.7 million will be obligated using four obligation mechanisms. In Morocco, the RCG/Hagler, Bailly Inc. contract for the Energy Demand Management Project will be amended to carry out PPD activities (\$1.2 million). The Tunisian activities will be obligated by executing: 1) a buy-in to the Requirements Q Contract EP3; and 2) awarding a \$100,000 grant to the Institut Regional des Sciences Informatiques (IRSIT) via a OYB transfer to USAID/Tunisia. An OYB transfer (\$300,000) to the EP3 core contract will be executed to cover PPD regional activities.

**BUREAU PP REVIEW:** Below is a summary of issues raised during design and discussed at the NEDAC review which recommended approving the project. The NEDAC meeting was held on April 19, 1993, and suggestions from that meeting are incorporated into the attached Project Paper Supplement.

**Strategic Objectives:** The PPD component, in essence straddles two strategic objectives: 1) a private sector objective and 2) an environmental objective. A review of the strategic objectives of Missions in the NE Bureau reveals that the PPD supports current Mission strategies. Private sector objectives exist for Tunisia, Morocco, Egypt, and Jordan, which also, to varying degrees have environmental activities in their portfolios. Oman and Yemen are less likely to be involved, but could participate if they desire. West Bank/Gaza is also not precluded from participating in regional activities or copying one of the models through a direct buy-in to EP3. Thus, the PPD Component is supportive of Mission and Bureau strategic objectives.

**Staffing Requirements:** The PPD component will have major activities in both Tunisia and Morocco. Utilizing the implementation mechanisms proposed will enable the activities to

take place with due consideration for differing staffing availabilities in both countries. The management workload is decreased in Morocco by using an already existing contractor there where management procedures have already been established. In Tunisia, where USDH staffing levels are decreasing, working through an EP3 buy-in decreases the workload at the Mission. Utilizing IRSIT, an organization familiar with AID procedures also helps streamline the operation. Since the PPD activities are to take place over two years, Morocco and Tunisia should be able to handle the management burden with current staffing levels. Regional activities will largely be handled by the two Bureaus here in AID/W where there is sufficient staff. If needed over time, the Bureaus have agreed to assume more of the Tunisian management load.

Project Implementation and Management: The following implementation mechanism will be used. Funds will be transferred to Morocco to obligate through an amendment to their contract with RCG/Hagler, Bailly, Inc., the contractor for the Energy Demand Management Project. A buy-in to the EP3 Project will obligate most of the funds for the Tunisian program. A small grant to IRSIT will obligate the remainder. For regional activities, an OYB-transfer will obligate the funds. In order to ensure that the PPD component of PRIDE is implemented efficiently, the specific roles and responsibilities of the different parties are elaborated in a Memo of Understanding (MOU) between the Near East and R&D Bureaus.

Project Sustainability: Project sustainability will be designed into the implementation plans in each country. The PPD component supplement to PRIDE currently focuses on measuring plant level economic impact, benefits and transferability. When evaluations are done of PRIDE, efforts should be made to measure longer term environmental impacts where possible.

These and additional clarifications, raised in the review have been incorporated into the Project Paper.

**ELIGIBLE SOURCE/ORIGIN/NATIONALITY:** It is anticipated that technical assistance and training resources will be procured primarily from the U.S., from countries benefiting from the project activities or other eligible developing countries. Limited amounts of office supplies and equipment (computers), monitoring kits, audio-visual equipment in support of IEC and training activities, books and publications, or pollution prevention equipment will be procured under this project. Geographic code 000 (U.S.) and host countries participating in the project will be eligible sources for all commodities procured under this project unless specific source/origin waivers are approved by the delegated authority or already have been obtained by a central project. Local procurement of eligible items from geographic code 935 will be allowed up to \$5,000 per transaction in accordance with A.I.D. Handbook 1, Supplement B, Chapter 18. The Agency's updated guidelines on "Buy America" will prevail for

this project.

**WAIVER REQUEST:** Morocco is currently implementing an Energy Demand Management Project (EDM). The methods used to accomplish Pollution Prevention Component objectives in Morocco will be the same as those used for EDM. Making use of the existing procedure and capability of the current EDM contractor, RCG/Hagler, Bailly Inc., is efficient and will make it possible to accomplish component objectives within a two year time frame. The full waiver request and justification is included as Annex H of the Project Paper Supplement.

**CONGRESSIONAL NOTIFICATION:** The Congressional Notification (CN) which will permit initial obligation of FY 93 DA funds was forwarded to the Hill on May 18 and expired on June 1, 1993. If ESF funds or funds deobligated by the Yemen Mission are added to the project at a later date, another CN will be submitted as required.

**INITIAL ENVIRONMENTAL EXAMINATION:** A negative determination of significant environmental impact for the project under 22 CFR Section 216.3 (a) (2) (iii) has been granted by the Acting Assistant Administrator for the Near East (see Annex C of the Project Paper Supplement).

**PROJECT EVALUATION:** Two evaluations of PRIDE are planned: one at mid-point, and the other at the end of the project. These will be organized and managed by NE/DR/ENR and will be funded by the project. The PPD Component will be separately evaluated after eighteen months.

**RECOMMENDATIONS:** 1) That, by signing below, and the attached PP face sheet, and the project authorization amendment, you approve the Project Paper and authorize an amendment to the Project in Development and the Environment to add \$ 2.7 million and increase the life of project (LOP) funding to \$ 21.7 million. 2) That, by signing the waiver included as Annex H, you approve a waiver of full and open competition to implement the Morocco element of the Pollution Prevention Component.

Approved: 

Disapproved: \_\_\_\_\_

Date: 6/16/93

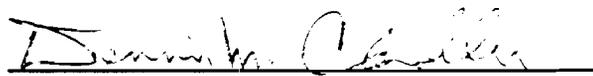
**Attachments:**

- A. Project Authorization Amendment
- B. Project Paper Supplement

**PROJECT AUTHORIZATION AMENDMENT No. 1**

Name of Country/Entity: **Europe and NE Regional**  
Name of Project: **Project in Development and the Environment**  
Number of Project: **398-0365**

1. Pursuant to Part I, Chapter 1, Sections 103 and 106 of the Foreign Assistance Act of 1961, as amended, or in the alternative pursuant to Part II, Chapter 4 of the same Act, I hereby authorize an amendment to the Project in Development and Environment ("the Project"). The life-of-project (LOP) funding is hereby increased from \$ 19 million to \$ 21.7 million, subject to availability of funds in accordance with the A.I.D. OYB/allotment process, to help in financing foreign exchange and local currency costs of the Project. All other conditions remain the same.

  
Dennis M. Chandler  
Acting Assistant Administrator  
Bureau for the Near East

Date 6/16/62

Project in Development and Environment (PRIDE) Project Paper  
Supplement and Authorization

Clearances:

NE/DR	Marcus Winter	<u>draft</u>	date	<u>5/3/93</u>
NE/DR/MENA	Ron Redman	<u>draft</u>	date	<u>4/30/93</u>
NE/DR/ENR	Gilbert Jackson	<u>draft</u>	date	<u>5/3/93</u>
	Dwight Walker	<u>draft</u>	date	<u>4/28/93</u>
NE/DP	Vivikka Molldrem	<u>draft</u>	date	<u>6/08/93</u>
GC/NE	Kevin O'Donnell	<u>CFM</u>	date	<u>6/14/93</u>
NE/ENA	Frank Miller	<u>draft</u>	date	<u>6/09/93</u>
NE/ME	Frederick Machmer	<u>draft</u>	date	<u>6/09/93</u>
R&D/ENR	James Gallup	<u>draft</u>	date	<u>6/3/93</u>

**PROJECT PAPER SUPPLEMENT**

**for**

**THE PROJECT IN DEVELOPMENT AND THE ENVIRONMENT**

**POLLUTION PREVENTION DEMONSTRATION COMPONENT**

Project Number 398-0365

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## I. EXECUTIVE SUMMARY

The Pollution Prevention Demonstration (PPD) project supplement is being added as a fifth component to the Project in Development and the Environment (PRIDE). The PRIDE project provides for technical assistance in environmental and natural resources management to the Near East and Europe Bureaus, to AID Missions, and to host-country institutions. PRIDE's work to reduce urban and industrial pollution through the use of pollution prevention techniques has created an interest and demand which can best be met with carefully targeted, in-country activities. The PPD component supplement is necessary in order to provide the PRIDE project with sufficient means for follow-up activities to the pollution prevention short-term technical assistance (ST TA) work currently underway.

The PPD component contributes to the unchanged PRIDE goal and purpose and will support the NE Bureau's goal of promoting sustainable economic growth in the NE region. The component will focus on two NE Bureau subgoals of common concern to the countries in the region: increased efficiency, productivity, and competitiveness of selected economies in the private sector, and sustainable development of the region's natural resources. More specifically, the component will increase efficiencies of selected firms through the adoption of pollution prevention technologies, increase awareness in the private sector of the advantages of pollution prevention over pollution control, and increase knowledge of NE firms about appropriate sources for U.S. pollution prevention products.

The PPD component through pollution prevention audits and assessments, will focus on no-cost (housekeeping), low-cost (under \$50,000), and medium-cost (under \$500,000) U.S. pollution prevention methodologies that can be retrofitted into existing Near East industrial facilities without jeopardizing current production volume or quality, or introduced into the design of new industrial plants. There are very inexpensive (i.e. about \$5,000) technologies which have broad application potential in NE industries. In this way this project component will be able to present a series of financially feasible recommendations to participating firms. PPD representatives will assist Near East firms in using AID Mission programs (e.g. Commodity Import Program) when available, American Embassy commercial service programs, and any other programs which can assist in financing purchases of equipment and overcoming other obstacles to using imported U.S. products.

This Project Paper Supplement increases the PRIDE Life of Project (LOP) authorization by \$2.7 million to \$21.7 million. In FY93, up to \$2.7 million will be obligated by the following mechanisms: in Morocco, the Mission will amend their contract with RCG/Haigler, Bailly, Inc. under the Energy Demand Management Project (EDM) to implement PPD activities; for Tunisian activities, a buy-in to the Requirements Q Contract of the Environmental Pollution Prevention Project (EP3) and a small OYB transfer to the USAID/Tunisia will be

executed. An OYB transfer to the EP3 core contract will be executed to cover PPD regional activities. Some PPD component activities will be implemented via EP3 because the EP3 project is uniquely suited to implement the goals of this project component. EP3 is designed for the implementation of industrial pollution prevention and reduction and management of wastes through a broad range of technical assistance, training, and information services. The EP3 project draws on U.S. public and private expertise for conducting pollution prevention audits, creating trade linkages, and identifying financing sources for participating NE firms.

## **1.1 Pollution Prevention Component Subcomponents**

There are four closely linked subcomponents, as follows:

### **1.1.A Establishment of Country Offices**

To address a shortcoming in current pollution prevention activities, in-country pollution prevention demonstration offices (PPD Offices) will be established in Morocco and Tunisia. In Morocco, it is expected that the PPD activities will be managed at the already established EDM Project Office. For purposes of simplicity, however, this document will treat the Tunisian and Morocco offices in the same way since the functions remain the same. The role of the PPD Offices will be to promote interest and demand for the pollution prevention approach in NE firms through:

- pollution prevention assessments and audits;
- pollution prevention workshops and training;
- pollution prevention public awareness programs; and
- purchase by NE firms of U.S. pollution prevention equipment.

The PPD Offices will be located in institutions which can provide access and introductions to private business managers and the professional engineering and technical communities. Ideal staffing for each office will consist of 1 senior private sector/marketing specialist, 1 pollution prevention engineer, 1 information analyst and support staff. In addition an American engineer will be located in the Morocco office and serve as Office Director.

### **1.1.B Creation of linkages between NE users and U.S. suppliers;**

One of the roles of the PPD Offices will be to identify specific companies in the region which can make use of U.S. pollution prevention technologies. This targeted, in-country role is supportive of PRIDE's private sector component. Then, in-country staff will assist NE companies to understand, evaluate, and select specific technologies. All U.S. vendors supplying

information to the program on their products will be given information on companies in the region which are potential customers. Participating U.S. companies can choose to contact Near East companies directly, hire agents in host countries, or use the linkage services of the PPD Offices. It is expected that U.S. firms will provide equipment directly to NE firms.

**1.1.C      A pollution prevention Information,  
Education, and Communication (IEC) program;**

In support of PRIDE's Public Awareness/Environment Education component, the PPD subcomponent will deliver the pollution prevention message by developing an Information, Education, and Communication (IEC) program. The information aspect of this subcomponent will consist of a Pollution Prevention database designed for use in the field, currently under development through PRIDE. Additionally, the component will tap into the EP3 Pollution Prevention Clearinghouse for information. The PPD component will seek to educate NE firms about the benefits of pollution prevention through a series of short-term technical assistance experts, who will conduct pollution prevention audits and assessments as well as in-country workshops and seminars for engineers, government officials, and private associations which are interested in pollution prevention techniques. The pollution prevention audits will be closely coordinated with the World Environment Center (WEC) activities through the PRIDE project. The results of the component as well as information on the use and philosophy of the pollution prevention approach will be communicated through a series of workshops, newsletters, publications in trade journals, and training seminars. If funds permit, use of other media will be considered.

**1.1.D      U.S.-Based Component Support**

The EP3 institutional contractor will allocate time of staff based in the United States to provide support and overall management for component implementation. This staff will have primary responsibility for gathering information essential for the operation of the program. Staff must remain fully informed about sources of U.S. export assistance such as the A.I.D. Private Sector Revolving Fund, the Department of Commerce International Trade Administration, the trade and development program of the International Development and Cooperation Agency, the Export/Import Bank, the Overseas Private Insurance Corporation, the Overseas Private Investment Program, the Foreign Commercial Service, and the Small Business Administration, as well as new forms of assistance. This office will maintain liaison and linkage with other pollution prevention technology programs, information exchanges, and databases currently operated by EPA, EP3, and PRIDE. Additionally, the office will be responsible for recruiting short-term technical experts and for providing logistical support as required. Linkages between the

EDM office in Morocco and EP3 will be very important, but the specifics remain to be determined. Mission interest and industry demand will determine the Level of Effort (LOE) allocated to servicing Egypt, Yemen, Lebanon, West Bank/Gaza, Oman and Jordan.

## **1.2 Component Inputs**

All PPD activities and subcomponents such as technical assistance, training, and pollution prevention audits/assessments will be provided through the following mechanisms:

- Delivery Order for a buy-in to the Environmental Pollution Prevention Project (EP3). The terms of reference will include 10 person-years for long-term staff: 2 person-years for PPD Private Sector & Marketing Specialists, 2 person-years for an Engineer, 2 person-years for an Information Analyst, 4 person-years for support staff, and short-term experts.
- An OYB transfer of NE Bureau funds to USAID/Morocco for an amendment of the Energy Demand Management Project currently under contract with RCG/Haigler, Bailly, Inc.
- An OYB transfer of NE Bureau funds to USAID/Tunisia for a small grant for communications assistance to IRSIT.
- An OYB transfer of NE Bureau funds to EP3 for regional activities.

## **1.3 Component Sustainability and Expected Results**

It is anticipated that the NE Bureau will execute a buy-in to the EP3 project one time only to establish the program in Tunisian. By adding the PPD component on to the EDM contractor in Morocco, the Mission can take advantage of an on-going successful implementation mechanism. Regional activities will be provided through core funds of PRIDE and EP3 or a separate buy-in. Should there be an interest in continuing the component's activities after Bureau funds are expended, Missions will need to establish alternative mechanisms for funding. Missions, of course, can buy-in to EP3 for other activities appropriate to the project. However, after the functions of the regional offices become established, fee-for-services can be implemented which would leave behind a mechanism to continue facilitating linkages between NE and US firms. In the absence of Mission funding, a private trade or business association or other private sector organization such as a university or consulting firm could assume the function of the regional offices on a fully commercialized basis.

The PPD component's most important expected results will be the increased adoption of pollution prevention measures in the region. Selected firms will be able to demonstrate the economic advantages of a pollution prevention approach. In turn, the component will have a direct impact on long term environmental quality through reduced pollution discharges. The PPD is an experimental activity designed to provide a model for demonstrating pollution prevention which may be applicable elsewhere in the region or the world. Using two separate implementation modes provides the chance to test alternative approaches to PPD.

In addition to the EOPs identified in the PRIDE Project Paper, two additional end of project achievements have been added:

- 1) 40 more competitive firms using pollution prevention approaches; and
- 2) Linkages between NE pollution prevention equipment users and U.S. suppliers strengthened.

#### **1.4 Recommendations**

The Project in Development and the Environment Paper Supplement was reviewed and approved at a Near East Development Advisory Committee meeting on April 19, 1993. Issues raised in the meeting were subsequently addressed in this supplement to the Project Paper. It is recommended that AID approve the Pollution Prevention Demonstration component by adding \$2.7 million to the PRIDE LOP for a new total of \$21.7 million. The PPD component design committee has determined that the component is technically, financially, economically, socially, and environmentally sound.

## II. BACKGROUND AND RATIONALE

### 2.1 Background

The Project in Development and the Environment, PRIDE, provides technical assistance in environmental and natural resources management to the Near East and Europe Bureaus, to AID missions, and to host-country institutions. PRIDE works to prevent and mitigate pollution, improve management of wastewater and water resources, enhance efficient, environmentally sound energy use, and strengthen sustainable agricultural practices. PRIDE, also, has opened a policy and legislative dialogue with countries in the NE which seeks to encourage and strengthen host country institutional development. Through the Policy Analysis component, PRIDE helps to develop the necessary policy environment where pollution prevention approaches can succeed. The Private Sector Component of PRIDE will be expanded by this new component with experimental in-country representatives tackling specific pollution prevention tasks. The Private Sector component, in a general way with TA provided by Chemonics and its subcontractors, focuses on:

- 1) no cost/low cost actions capable of reducing urban and industrial pollution;
- 2) mechanisms for improving indigenous private sector access to information on sources of finance for environmental measures and on available technologies;
- 3) market surveys, feasibility studies, and financial analyses in the industrial and urban sectors giving preference to the identification of investments which promote the commercial transfer of US environmental technology, services, and equipment;
- 4) training and technical assistance in financial instruments such as municipal bonds, commercial credit sources, and donor-assisted funds which can be used to overcome capital constraints hindering environmental management investments.

Additionally, the NE Bureau signed a 5 year cooperative agreement with the World Environment Center (WEC) to promote the exchange of expertise and information in the areas of health, safety and the environment. Through its International Environment and Development Service (IEDS), WEC provides pro bono technical assistance to target countries using volunteer and other experts, contributed services and materials from industry, government, academia, and non-governmental organizations. WEC:

- provides short-term technical assistance and training on industrial measures to improve health, safety, and pollution prevention in inefficiently operated and polluting NE firms;

- assists in establishing and supporting host country pollution prevention assistance programs through local industry and professional associations, or independent WEC-type organizations;

- trains host-country professionals in pollution prevention who can, in turn, serve as trainers through joint in-country assessment exercises, hands-on short-term training, and internships for NE nationals in U.S. industries.

The Public Awareness/Environmental Education component of PRIDE promotes public awareness and accountability of both government and private sector decision-makers through environmental and natural resource education activities coupled with selective training programs. This component provides very broad environmental education whereas the new PPD component will actively promote a pollution prevention approach to a more limited NE audience.

## **2.2 Problem and Rationale**

PRIDE is a regional project with U.S.-based contractors and cooperating agencies (Chemonics and its subcontractors) providing short-term technical assistance and training to the Near East and Europe Regions. After approximately one and a half years of implementation, it is becoming evident that carefully targeted long-term, in-country activities could best further the project's pollution prevention objectives.

Many governments in the Near East are beginning to focus on environmental issues at the same time that they are also trying to stimulate the private sector through policy, fiscal reform, and the privatization of state owned companies. However, in poorer developing nations, there rarely has been a need to invest in expensive advanced pollution control equipment. With increased environmental regulation being legislated, private sector and parastatal firms are finding it costly to finance pollution control (end-of-pipe) equipment. Private investors typically assess the added costs of bringing facilities up to acceptable environmental performance by using cost estimates for pollution control equipment.

These environmental factors often make public sector companies poor investments which hinders the rate and success of privatization efforts. It is not uncommon to find that investors in newly privatized companies seek exemptions from environmental regulations in order to become competitive more quickly. Additionally, governments may be tempted to allow key and influential privately owned industries to escape their environmental responsibilities. To do so, however, undermines national attempts to control pollution and increases the eventual future cleanup liabilities.

The scenario is further complicated by the fact that many countries know very little about pollution prevention technologies but instead are forced to rely on expensive pollution control techniques to reach their environmental goals. A no-win situation is often created which pits government regulators against private investors over the issue of environmental protection versus business profits. Encouraging NE governments to fully support and develop environmental policies has been one of the principal activities of PRIDE. The PPD component will seek to inform NE governmental regulatory agencies and private sector firms about viable options for controlling pollution through the use of pollution prevention technologies.

Since 1991, the PRIDE Project has compiled a wealth of information about NE industries, governmental policies and strategies, and non-governmental organizations. Concurrently, through PRIDE, WEC has conducted over twenty pollution prevention audits for NE private sector industries as well as four regional workshops for pollution prevention. These experiences point to the need and demand for a permanent in-country presence which can respond quickly to industry needs and provide expertise and guidance after a site visit. Additionally, a more responsive mechanism for facilitating training and the transfer of U.S. technology is needed. PRIDE activities in the Near East have created an interest in pollution prevention. However, follow-up activities are currently limited and can be done only sporadically. The Pollution Prevention Demonstration component will seek to close this loop and meet this newly created need by implementing and building on the available information and experience.

A feasibility study team, the NE Bureau Environmental Conference, a Morocco Pollution Prevention Workshop, Mission cables, and other field visits evaluated the demand and need for pollution prevention methodology training and equipment in Egypt, Jordan, Tunisia, and Morocco. Visits to over fifty industrial plant sites and industrial and government organizations were made. Once the difference between traditional end-of-pipe pollution control methods and pollution prevention technologies was explained, both government and private businesses expressed a high level of interest in a pollution prevention demonstration activity.

The promotion of pollution prevention methodologies abroad links two of the Agency's key objectives: sustainable development of the private sector and sustainable use of the environment. The first of these objectives reflects Agency experience that long-term economic growth requires strong and growing private sectors in countries being assisted. PRIDE and the new PPD component seek to help develop such a process by transferring methods and technology which will help private sector firms become more efficient and competitive. The second Agency objective acknowledges that quality of life and economic growth depend on continuing availability of clean air, water, and other natural

resources. This project supplement adds a component which aims to introduce technologies that are less environmentally demanding i.e. those that are more sustainable.

In addition, there is a growing movement in U.S. industry to see business opportunities in environmental activities. This enables AID to address environmental problems in developing countries while also helping U.S. business. These sentiments are reflected in AID's Environmental Strategy which seeks to achieve environmentally sustainable development using foreign assistance resources. Transferring U.S. technologies in pollution prevention is a win-win situation for everyone: developing country companies who become more cost-efficient; U.S. companies who expand sales abroad, and private citizens who live and work in a cleaner environment.

### **2.3 Relationship to NE Bureau Policy**

The proposed PPD component reflects the NE Bureau's revised and approved (February, 1993) goal of promoting sustainable economic growth in the NE region and will focus on two of the three Bureau subgoals of:

- 1) Increased efficiency, productivity and competitiveness of selected economics in the region,
- 2) Sustainable development of the region's natural resources.

The PPD component is directly related to the Bureau's strategic objectives:

- 1) expanded and more efficient private sector economic activity,
- 2) more efficient use and improved quality of water resources.

Finally, the proposed new component would support a variety of NE Bureau program outcomes including: 1) increased use of pollution prevention and waste minimization techniques by public and private sectors, 2) increased public awareness of and support for conservation needs, 3) improved operating and management technology applied to productivity and competitiveness of firms, and 4) strengthened and increased U.S. business-host country alliances.

PRIDE, including this PPD component, also supports Agency and Bureau environmental and natural resource management objectives over the longer term. In the NE there is particular attention to issues of pollution abatement, energy efficiency, and water reuse and conservation. Although several Missions in the NE Bureau have bilateral projects from which lessons can be learned for working in the private and environmental sectors, none

specifically focus on the promotion of pollution prevention technologies. Centrally funded projects such as EPAT, GREENCOM, and WASH offer limited technical assistance, training, and policy analysis to NE Missions. However, none of these projects target exclusively the promotion and utilization of pollution prevention technologies and products, nor can they offer the follow-up capabilities of an in-country presence.

The Environmental Pollution Prevention Project (EP3) is a centrally-funded, world-wide project aimed at reducing environmental pollution resulting from urbanization and industrialization. This project focuses on providing pollution prevention technologies, control techniques, and financial assistance to implement process changes and to install cleaner production equipment. EP3 concentrates on supplying information on pollution prevention as well as end-of-pipe pollution treatment technologies. The EP3 project is compiling a Clearinghouse of U.S. pollution prevention technologies and manufacturers which will be instrumental in creating linkages between NE private sector firms and U.S. companies.

The design of EP3 is highly compatible with the approaches and goals identified in the PPD component of PRIDE. For this reason, a buy-in to the EP3 project would be an ideal mechanism for implementing some of this component of PRIDE.

#### **2.4 Relationship to A.I.D. Missions in the NE**

The PPD component will contribute to achieving private sector strategic goals in missions across the region. For instance, the Tunisia Mission's very active and multi-faceted private sector program over the last several years has had an important impact on the GOT's reform policies and activities in the private sector. The Mission is currently narrowing its focus in the private sector to increased private sector participation in economic growth. This component provides additional support by introducing pollution prevention technologies which will improve the competitiveness of Tunisian firms while helping to alleviate pollution problems in the country. In Morocco the component will complement the Mission's private sector strategic objective of increased competitiveness of Moroccan firms and expansion of the base of small and medium enterprises. Specifically, this will be seen by increased productivity of certain industries and new partnership arrangements with US firms.

USAID Jordan is trying to increase foreign exchange earnings from light industry, agribusiness, tourism, and other services. The PPD component could help to improve and enhance the production, processing, marketing and trade financing capabilities of private firms in order to enhance the international competitiveness of Jordanian goods and services. The Mission in Egypt has identified increased private investment as a strategic objective. There are a variety of problems which hamper private sector

investment and productivity including lack of access to appropriate technology and accurate market information. The introduction of US pollution prevention technology into different industrial processes will help alleviate some of these problems. Noting the demand for pollution prevention technology, the Egyptian Mission has re-designed its Energy Conservation and Efficiency Project (ECEP) to incorporate pollution prevention audits, assessments, and equipment demonstrations into the project's activities.

Specific environmental strategic objectives have been identified by the Missions in Egypt, Jordan, and Oman. The Egypt Mission's strategic objective is to enhance protection of fresh water and urban air resources. Installation of pollution prevention equipment will help to decrease water and air pollution in the highly industrialized, mostly urban, regions of the country. The Jordan Mission has targeted more efficient management of water resources as its strategic objective. Pollution prevention equipment has the potential to substantially decrease the amount of water used by industry, especially in the pulp and paper industry. Although the Moroccan and Tunisian Missions do not currently have an explicitly stated environmental strategic objective, both of these Missions recognize the environmental advantages of the pollution prevention approach. Tunisia has recently adopted an environmental strategy as part of its private sector approach while Morocco has proposed that its EDM project be re-designed to incorporate a pollution prevention component.

### **III. PPD COMPONENT DESCRIPTION**

#### **3.1 Introduction: The American Pollution Prevention Approach**

The development of dynamic and efficient industrial sectors is fundamental to sustained economic growth in all Near Eastern countries. In addition to changes in economic policies, expanded human and physical infrastructure, and higher levels of private investment, this development process requires the introduction and use of more resource-efficient technologies. Accentuating this requirement is the alarming rate of depletion and degradation of the region's natural resources, especially water.

In response to these challenges, Near East governments have begun to implement a series of market reforms which reduce subsidies, encourage investment and increase competition. Regional governments have also begun enforcing and strengthening environmental regulations while moving towards greater privatization. The overall effect of these changes in policy, while welcomed, has been to place Near East firms in the position of attempting to remain profitable while paying more for production inputs at the same time they are being forced to spend precious capital on pollution control equipment.

The installation and use of pollution prevention technologies in

Near East industries would foster continued economic development by helping firms become more efficient. Pollution prevention equipment and approaches to industrial problem solving offers a long term solution to the dual pressures on Near East firms by decreasing their water, energy, and raw material usage in addition to decreasing the amount of pollution generated by a production process. Lower operation, energy, and production costs would make an industrial plant more efficient and a decrease in the pollution generated would lower, and in some cases eliminate, the costs for "end-of-pipe" treatment. In short, the introduction of pollution prevention to the Near East industrial sector would save scarce investment resources for more pressing economic development uses and result in the conservation and protection of natural resources.

For many years in the U.S., manufacturers relied on end-of-pipe treatment technology even though pollution prevention technologies were being developed. Although there have been concerted efforts over the last two decades to develop a comprehensive pollution prevention strategy for the U.S., the principal thrust of U.S. regulatory agencies such as EPA have focused on end-of-pipe treatments. While U.S. firms were developing and manufacturing world class pollution prevention technologies, American legislation lagged behind. It was not until 1990 that the Pollution Prevention Act was passed into U.S. law. As a result of the late American response to passing appropriate legislation, U.S. businesses are all too aware of the long term, unsustainable costs and investments associated with reliance on end-of-pipe treatment strategies.

Experience in the U.S. and other industrialized countries in recent years has demonstrated that pollution prevention and waste minimization technologies represent an attractive pollution management alternative to end-of-pipe treatment that is less expensive, more cost-effective, and that is resource conserving as well. Moreover, a pollution prevention approach is sustainable over the long run because it ultimately results in more efficient and competitive production, and is even increasingly necessary for access to international markets. Feasibility studies for this project paper supplement indicate that there are NE firms interested in adopting US pollution prevention methods and technologies.

The American approach to pollution prevention technology varies somewhat from that of other industrialized nations. For instance, the American approach involves improvement of human behavior as well as use of new equipment. Pollution prevention site visits and audits can be expected to provide a variety of recommendations ranging from simple changes in housekeeping and operation and maintenance procedures to retrofitting of low cost, off-the-shelf pollution prevention equipment. This approach is significantly different from one which recommends a complete and often expensive redesign of the entire production process. Therefore, making available the American approach to NE firms

should allow them to become more efficient for less cost and less interruption of plant production. Ultimately, pollution prevention methodologies will help these firms become more competitive.

In the U.S., case experience suggests that payback periods for pollution prevention technologies are usually under two years, with extremely high overall rates of return, and are almost always a less costly means than end-of-pipe pollution remediation for meeting higher pollution standards. The Bureau's "Water Resource Strategy for the Near East" (October 1, 1992), provides economic information on 18 case studies of pollution prevention technology installations with water use efficiency and water quality benefits. Capital costs for the installations ranged from \$1,500 to \$2,000,000, with most well under \$100,000. For six of the cases it was possible to estimate payback periods on the basis of regulatory conditions typical of developing countries: four had payback periods of two years or less, and two had payback periods of 2-5 years. Pollution prevention technologies represent a private sector incentives-based way of improving the efficiency and competitiveness of Near East firms while addressing problems of natural resource depletion and degradation.

In addition to the positive environmental and economic impacts of pollution prevention technologies, there are social and health benefits as well. Pollution prevention technologies provide remarkable improvements in the working conditions within factories. Enormous amounts of toxic chemical and metal vapors fill the air within many Near East factories, causing worker exposures which ultimately result in illness and death. These materials represent avoidable wastage and costs. Pollution prevention technologies offer the opportunity to improve worker and company productivity by providing healthier and safer workplaces by capturing and recycling these valuable materials.

### **3.2 PPD Component Goal, Purpose, and Key Features**

The goal of PRIDE is "to promote sound environmental and natural resource policies and programs in support of long-term sustainable economic growth in ENE countries". The project purpose is "to assist ENE field Missions and host country institutions to: 1) identify and address critical environmental issues that threaten economic growth, public health, and ecological sustainability; 2) mobilize the private sector and NGOs to provide cost effective solutions to these problems; and 3) promote regional information exchange". The Pollution Prevention Demonstration component will specifically contribute to the latter two sections of the project purpose through on-the-ground activities in Morocco, Tunisia, and elsewhere in the NE Region.

The PPD component has four major subcomponents. The initial

objective will be to establish two in-country Pollution Prevention Offices in Morocco and Tunisia which will coordinate pollution prevention audits and assessments and their follow-up activities for interested firms. Although two offices will be established, PPD activities will be regional in nature and will collaborate with other PRIDE and EP3 activities. The PPD staff, primarily, will facilitate linkages between Near East private sector firms and U.S. suppliers of pollution prevention equipment. Additionally, PPD staff will offer assistance to parastatal industries which are undergoing the final stages of privatization. The criteria for assisting such parastatal firms will be developed during the implementation phase with Mission input. Adoption of pollution prevention practices and installation of equipment should help make these industries more economical and competitive, and thus become more attractive to private investors.

The four major subcomponents of the PPD component are:

- A) In-country Regional Offices in Morocco and Tunisia;
- B) Creation of linkages between U.S. suppliers and NE users;
- C) A Pollution Prevention Information, Education, and Communication (IEC) program;
- D) U.S.-based PPD component support (Funded from EP3 core Funds)

### **3.3 PPD Component Subcomponents**

#### **3.3.A In-country Pollution Prevention Offices**

Two in-country pollution prevention offices will be established in Morocco and Tunisia. The In-country Pollution Prevention offices will be located in institutions which can provide access and introductions to private sector business managers and the professional engineering and technical communities. In Morocco, the PPD Office will be part of the EDM Project Office.

This PPD component will be dependent on support from EP3 and other PRIDE components. PRIDE's private sector, trade, and import expertise as well as its accumulated data on industrial and environmental NGO's will be needed to support activities in each country. EP3 and PRIDE's legislative and policy work will help to encourage an atmosphere conducive to the promotion of pollution prevention. WEC workshops and promotional materials will be needed in order to create a positive first impression for the Pollution Prevention Representatives. EP3/PRIDE/WEC experts and information services will augment and enhance the capabilities of the in-country staff. WEC's current emphasis on provision of pollution prevention experts will be linked to

follow-up activities of this component and will be used to provide some of the highly specialized expertise not available long-term in the region. In conjunction with PPD audits and assessments, WEC may be asked to provide technical assistance training and information on industrial measures to improve health and safety in NE firms. WEC's assumption of the industrial hygiene aspects to pollution prevention will allow PPD staff to focus more on engineering and technical assistance. EP3 and PRIDE short-term specialists and core U.S. based staff will provide assistance as required.

### 3.3.A.i Staff

The offices in Morocco and Tunisia, ideally, will be staffed with 1 senior NE private sector / marketing specialist, 1 pollution prevention engineer, and 1 information analyst. In addition, an American Engineer probably will be located in the Moroccan Office who will act as PPD Component Director. In Tunisia, the private sector/ marketing specialist will serve as PPD Director. Each PPD Director will be responsible for overall project component implementation in their country. EP3 or PRIDE core staff will coordinate regional activities. The American Engineer will be a senior pollution prevention engineer with broad based management and marketing skills. The private sector specialists will be responsible for creating linkages between NE firms and U.S. suppliers. These linkages are described in the following component. The pollution prevention engineers will be responsible for providing follow-through to the audits and assessments conducted by short-term technical experts. The information analyst will have primary responsibility for tracking the impact of pollution prevention techniques on the efficiency and profitability of participating NE firms and for conducting data base searches when pollution prevention information is needed and for coordinating IEC activities.

Although the regional offices will be located in Morocco and Tunisia, the private sector/marketing experts and the pollution prevention engineers may participate in activities with other countries in the NE region, primarily Egypt and Jordan. These regional activities may involve a series of traveling workshops, trade shows, and short-term pollution prevention expert visits in addition to actual site-visits by in-country personnel. Development and management of regional activities will be the responsibility of the PRIDE and EP3 Core contractors.

### 3.3.A.ii Audits and Assessments

Evaluations of WEC and other PRIDE pollution prevention activities in the NE have identified the absence of an in-country presence as the major shortcoming of the NE Bureau's current approach to promoting pollution prevention in the region. A series of seminars, workshops, and short-term pollution

prevention experts have created an interest and a demand for pollution prevention services which the NE Bureau is currently unable to meet. The audit and assessment function of the Regional Offices will be instrumental in closing this loop. A thorough review of a plant's operating and maintenance procedures and production processes will provide an opportunity to train on-site personnel about pollution prevention. At the same time information about the plant can be gathered which will be used to link these firms to U.S. suppliers of pollution prevention technology and with specialized WEC supplied experts and PRIDE activities. Pollution prevention audits and plant assessments will help identify those changes in a company's practices which can be made quickly and at little or no cost. An important activity for PPD representatives will be to provide follow-up assistance to help NE firms to implement audit recommendations. The audit/assessment activity will be undertaken by WEC supplied experts, private consultants, or PPD engineers. These immediate adjustments should demonstrate the benefits of pollution prevention expertise and increase the interest among plant managers for further alterations in their production processes which may require purchase of pollution prevention equipment.

The PPD approach will be to concentrate on no-cost (housekeeping), low-cost (under \$50,000), and medium-cost (under \$500,000) U.S. pollution prevention procedures and products that can be retrofitted into existing Near East industrial facilities without jeopardizing current production volume or quality, or introduced into the design of new industrial plants. There may be very inexpensive (i.e. about \$5,000) technologies which can be demonstrated. Staff will assist Near East firms in using AID Mission programs (e.g. Commodity Import Program) when available, American Embassy commercial service programs, and any other programs which can assist in financing purchases of equipment and overcoming other obstacles to using imported U.S. products.

Pollution prevention information and sources of technologies will be provided through a U.S. pollution prevention technology data base designed for use in the field, currently under development by Capital Systems/PRIDE. This CD-ROM system is expected to be completed by August, 1993. The field data base will assist the in-country staff in performing pollution prevention audits and assessments as well as providing up-to-date information about U.S. companies and products. This field version will be made available to technical experts and interested Near East organizations, firms, and governments throughout the region. Initially, information will be made available at no charge to NE firms. Eventually a fee-for-service arrangement will be phased in. Additionally, the regional offices will dedicate a computer on their premises to this data base and will make it available to any interested individual. Making this data base readily accessible will allow NE firms to come into the regional offices and explore pollution prevention options for their firms in a manner which expands the pollution prevention capabilities of those firms. In-country staff will have the responsibility for

expanding information in this data base based on specific economic savings, returns on investments, and payback periods for common examples of the pollution prevention equipment purchased by Near East firms.

Training for operation and maintenance of equipment purchased by NE firms based on PPD's recommendations will not be funded. However, PPD can try to ensure that this technical training is provided by U.S. suppliers of pollution prevention equipment who participate in PPD activities. Quite often, vendors, as part of their standard sales package, already include installation and operation and maintenance training for sophisticated equipment. There is a general consensus among people with experience in transferring technology to developing countries that all too often imports do not function efficiently and sometimes not at all. Therefore, providing education and training for Near East company workers and managers will be essential for the success of the PPD component. American suppliers wishing to participate in PPD activities must be willing to provide the necessary technical assistance and training to ensure effective operation and maintenance capabilities in the companies which purchase their products. As a further backstopping safeguard, the regional office engineer will attend training sessions provided by these U.S. vendors so that he/she can provide, when necessary, follow-up advice to NE firms about their operation and maintenance procedures.

### **3.3.B Linkages Between NE Firms and US Suppliers**

One of the functions that the in-country pollution prevention offices will perform is to identify specific companies in the region which can become more competitive through the use of a pollution prevention approach. The private sector specialists will need to be able to identify and assess specific opportunities within those firms for the use of the pollution prevention approach and technologies. Then, the U.S. Support Office can identify American suppliers of these products and encourage them to participate in PPD activities which will include equipment information fairs, making available product information and promotional brochures, and regional operation and maintenance training for interested firms.

Although the country office engineers will assist NE companies to understand and evaluate the full range of appropriate U.S. technologies available, specific selection of a U.S. brand will be the sole responsibility of the NE firm involved. However, all U.S. vendors supplying information to the program on their products will be given information on companies in the region which are potential customers. Interested U.S. companies and trade consortia can choose to contact Near East companies directly, hire agents in host countries, or participate in the activities of the PPD component. The in-country private sector specialist will assist Near East firms in using A.I.D. Mission

programs (e.g. Commodity Import Program), Embassy commercial service programs, and other programs which can assist in financing purchases and overcoming other obstacles to using imported U.S. products.

The EP3 core staff in the U.S. will be responsible for coordination of contacts between U.S. firms and business organizations and Near East companies and business groups. The U.S. based contractor must also act as the principal initiator of U.S. business contacts on behalf of the PPD component. The core staff will have responsibility for facilitating the visits of U.S. businessmen to the Near East and for hosting Near East businessmen visiting U.S. companies.

The final linkage necessary for the success of the PPD component will be to promote exchange of information between all of the different institutions, projects, and private sector entities which are interested in business in the Near East. One major source of information and expertise for PPD will be the Private Sector component of PRIDE. This component is charged with:

- 1) facilitating fund creation for co-financing project development by the World Bank, the International Finance Corporation, OPIC or others,
- 2) helping host country's financial community to package and market financing instruments,
- 3) market surveys, feasibility studies, and financial analyses in the industrial and urban sectors giving preference to the identification of investments which promote the commercial transfer of U.S. environmental technology, services, and equipment.

Knowledge of these activities and information gathered from participating firms will be crucial for developing linkages between all of the interested parties (industries/suppliers/financiers).

### **3.3.C      Pollution Prevention Information, Education, and Communication Program**

Although the activities of this subcomponent are intermingled with all of the other PPD subcomponents, it is useful to think of these activities, separately, as performing the critical PPD mission: to improve efficiency of NE firms through the increased use of pollution prevention methodologies. Increased use of pollution prevention techniques and efficiency of NE firms can only be achieved by successfully delivering the pollution prevention message. The PPD approach will be to supplement PRIDE's ongoing information/education activities by developing a Information, Education, and Communication, IEC, program which will be the joint responsibility of US and overseas staff. The

information subcomponent consists of the database and product information fairs which will be provided by the PPD component. Pollution Prevention education will be achieved, partially, by using long and short term technical assistance staff to undertake pollution prevention audits and assessments and operation and maintenance training for NE plant personnel. The results from PPD as well as information on the use and philosophy of the pollution prevention approach will be communicated through a series of workshops, information fairs, newsletters, publications in trade journals, and training seminars.

### 3.3.C.i Regional Dissemination

The successful introduction of an American pollution prevention philosophy and methodology into North Africa and the Near East will require innovative thinking on the part of PPD managers and contractors and a willingness to make implementation adjustments quickly. While the main emphasis of PPD activities will be on NE Bureau countries, PPD should take advantage of ever improving telecommunications and increasingly close linkages of the global economy. The immediate objective of the PPD component is to assist NE countries become more competitive by introducing pollution prevention methods rather than end-of-pipe treatments. However, a longer term environment goal is ever present in this project component.

Financial limitations probably preclude more than two offices in the NE region. Therefore creative ways for accomplishing the component's regional objectives will be required. Initially, dissemination will depend upon short-term technical assistance to establish appropriate activities and level of effort in each country. For instance, a traveling Information Fair, which would allow U.S. suppliers to show case their products through videos, printed materials, and actual equipment demonstrations, where appropriate, could be organized throughout the region. Similarly, once workshop and seminar materials are developed, these too could be utilized in a variety of countries.

The PPD component proposes to link the U.S. office, overseas offices, USAID Missions, and AID/W electronically in order to take advantage of the speed and cost savings of this form of communication. U.S. and international pollution prevention data bases will be accessed via computer modem as well.

IRSIT, Institut Regional des Sciences Informatiques et des Telecommunications, as the pre-eminent information/data processing "think tank" in the Middle East could play an important role in PPD activities. IRSIT, located in Tunisia, has fully developed capabilities in electronic data collection, storage, and transmission with links to all the Maghreb countries, Europe, and the U.S. through the acunet system. They will soon develop a pilot trade data/information system linking into data banks in the U.S., Europe, and Asia to make available

two-way trade leads for a local chamber of commerce. PPD will explore new ways to take advantage of this modern communication capacity.

Tunisia will soon be the site of a new global technology park, the brain-child of former Senator Charles Percy and his son, Mark. Eighteen million dollars has already been raised in the private sector to begin Percy Park. Six American firms, including Westinghouse, have interests in the park. The University of Maryland plans to set up an overseas campus for Master's level programs. This park will be linked to six others ranging in a crescent from Spain through Turkey to Russia. PPD staff will consider ways to link with Percy Park in order to promote a pollution prevention approach to a broader audience.

Finally, it is possible that wealthier Arab neighbors from the Gulf States could become interested in the pollution prevention way of doing business. While PPD staff and resources will not be directly made available to them, under a fee-for-services mechanism, they could pay to attend seminars, workshops, or use PPD data bases. While utilization of PPD resources may be fairly exclusive, the promotion of an approach to help deal with industrial pollution will be more inclusive. IEC efforts could reach both private and public sectors in Bureau specific and other countries in the region.

### **3.3.D U.S.-Based PPD Component Support (EP3 Core-Funded)**

#### **3.3.D.i U.S. Office**

Staff hired by the implementing EP3 contractor in the United States will provide support to the PPD Office Directors, based in Morocco and Tunisia, for component implementation and management. The U.S. Office will have primary responsibility for identifying U.S. manufacturers of pollution prevention equipment and enrolling these companies in PPD in-country activities. Also, the staff will represent PPD at the appropriate pollution prevention equipment and trade exhibitions in the United States. The U.S. office staff will:

- 1) search through existing pollution prevention databases for products, processes, and supplies that meet the exact technical and economic needs of Near East companies;
- 2) keep informed about other pollution prevention programs, information exchanges, and databases currently operated by EPA, the United Nation Environment Programmes, and PRIDE;
- 3) remain fully informed about sources of U.S. export assistance such as the A.I.D. Private Sector Revolving Fund, the Department of Commerce International Trade Administration, the trade and development program of the

International Development and Cooperation Agency, the Export/Import Bank, the Overseas Private Insurance Corporation, the Overseas Private Investment Program, the Foreign Commercial Service, and the Small Business Administration, as well as new forms of assistance;

- 4) provide readily available information, stateside research related to specific potential trade transactions, and stateside liaison with U.S. firms, organizations, and government agencies to the regional offices;
- 5) coordinate overall technical assistance for pollution prevention activities and workshops using industry experts;
- 6) along with the PRIDE contractor and WEC staff, plan and coordinate regional activities involving technical assistance, training, information dissemination, and visits and sales of U.S. technology.

This staff will coordinate PPD activities with other AID programs, including PRIDE, EP3, EPAT, and GREENCOM, and other Federal programs to provide information to PPD in support of its regional activities. It will also be responsible for recruiting short term technical assistance for Tunisia and other countries in the Middle East which may wish to participate in the program, doing contracting for PPD when necessary, and coordination with other AID projects.

### 3.3.D.ii

#### Data Base Information

The office staff will be responsible for aiding the in-country regional office staff with pollution prevention data base searches. The office will draw on data from the International Cleaner Production Information Clearinghouse and the Pollution Prevention Information Clearinghouse operated by the United Nations Environment Programme and the U.S. EPA. These databases can provide users with supplemental vendor information on case studies and other published information pertinent to specific uses of pollution prevention. The office will also rely on other sources of information about U.S. pollution prevention technology such as the EP3 Clean Technology Clearinghouse.

### 3.4 End of Project Status

In addition to the EOPs already identified for PRIDE, there will be two new ones associated with the PPD component.

Current End of Project achievements for PRIDE are:

- 1) The adoption of ENR strategic planning concepts and methodologies by ENE Missions and countries.

- 2) Greater recognition and understanding of the costs of critical environmental trends in ENE countries in terms of economic losses, environmental health, distributional effects, ecological sustainability, and biological diversity.
- 3) Improved Mission ability to support the formulation of policies in ENE countries that improve environmental quality and slow resource degradation and depletion.
- 4) Demonstration of the financial and environmental benefits of ENE private and public sector adoption of voluntary actions and investment in long-term solutions to industrial pollution.
- 5) Improved level of environmental awareness in the media and among the public, and promotion of non-governmental organizations and private sector dialogue with government on ENR trends and policies.

The following is an indicative list of expected End of Project achievements for the PPD component:

- 1) Linkages between NE users and U.S. suppliers strengthened;
- 2) 40 Firms able to demonstrate increased efficiency through the use of pollution prevention.

### **3.5 PPD Component Inputs and Activities**

PPD activities and services will be provided through the following mechanisms:

- Delivery Order for a buy-in to the Environmental Pollution Prevention Project (EP3). The terms of reference will include 10 person-years for long-term staff: 2 person-years for PPD Private Sector & Marketing Specialists, 2 person-years for an Engineer, 2 person-years for an Information Analyst, 4 person-years for support staff, and short-term experts.
- An OYB transfer of NE Bureau funds to USAID/Morocco for an amendment of the Energy Demand Management Project currently under contract with RCG/Haigler, Bailly, Inc.
- An OYB transfer of NE Bureau funds to USAID/Tunisia for a grant to IRSIT for communications assistance
- An OYB transfer of NE Bureau funds to EP3 for regional activities.

The PPD component will provide various types of technical assistance including pollution prevention engineering expertise, private sector/marketing specialists, media specialists, and operation and maintenance training. Pollution prevention expertise will be provided by several mechanisms. The regional offices will have on staff at least one full time pollution prevention engineer who will be able to offer a wide range of general pollution prevention techniques and engineering solutions including changes in housekeeping and operation and maintenance practices. This expert will be supplemented by a series of short-term pollution prevention experts with specialized knowledge and skills. The services of these experts will be obtained by through PPD component short-term technical assistance or *pro bono* from PRIDE's cooperative agreement with WEC. General operation and maintenance training needed to implement the recommendations made as a result of pollution prevention audits/assessments will be provided by the PPD staff. Private sector specialists will be responsible for linking NE and US firms while media specialists will manage some of the IEC activities.

Whenever possible, technical assistance activities should make use of, or involve, local consultants. Most of the long term technical assistance staff will come from the region. By developing the pollution prevention skills and expertise of consultants in Near East countries, through direct participation in PPD activities, the PPD component will help develop private sector institutional capabilities for broad pollution prevention implementation, which, in turn, will lead to sustainable development.

### **3.6 Relationship to Other Projects and Agencies**

There are several AID and federal programs in addition to PRIDE and EP3 that may have bearing on the PPD component by either complementing PPD activities in a particular region or by collaborating with PPD on specific issues. These programs and agencies are discussed below.

#### **3.6.A US-AEP**

The U.S. Asia Environmental Partnership (US-AEP) is an effort by A.I.D. to advance economic development in conjunction with environmental protection endeavors throughout the region. Although this project does not emphasize specifically the promotion of U.S. pollution prevention technology products, its Technology Cooperation component seeks to foster trade activities between Asian and U.S. businesses. The project attempts to solidify trade relations and improve linkages between U.S. and Asian businesses in the area of environmental technology. PPD can analyze the success of US-AEP to see if it is applicable to

the NE. PPD can review US-AEP's trade show approach to determine how it provides guidance for implementing information fairs.

Another component of US-AEP that bears consideration is the Environmental and Energy Infrastructure component. Under this program, U.S. environmental technologies available to ameliorate environmental problems resulting from development are demonstrated. This program emphasizes the export of U.S. environmental products and services appropriate to industry needs in Asia. Evaluation of this component's success can aid PPD in the implementation of trade links between U.S. pollution prevention technology suppliers and private sector industries in the Near East.

### 3.6.B GREENCOM / EPAT

GREENCOM, an environmental education and communications project, is designed to disseminate information on environmental issues throughout the developing world. GREENCOM's focus will be on the priorities of individual host countries, not on specific technologies. GREENCOM activities could assist PPD, for instance, by reinforcing environmental awareness in Egypt through its proposed Center for Information Exchange which will be a conduit for environmental technological innovations.

One other similar AID project is the Environmental Policy and Training Project, EPAT, which also provides environmental information and dissemination that can be used by PPD in identifying industries and markets.

### 3.6.C AID/PSRF

A.I.D.'s Private Sector Revolving Funds program provides loans and guarantees for funding sales of U.S. environmental technology for projects in developing countries. Requirements for PSRF funds are that the project have developmental impacts, promote environmental development, earn foreign exchange, produce employment, develop local skills, and transfer U.S. technology. The PPD's component goals fit these requirements and could use PSRF as a potential funding mechanism.

### 3.6.F EPA

The Environmental Protection Agency recently developed the Pollution Prevention Information Clearinghouse (PPIC), which is a program that is dedicated to reducing industrial pollutants through technology transfer, education and public awareness. PPIC is designed to be a source of environmental information on pollution programs, provision of documents, and information concerning upcoming events and funding opportunities. This information can be accessed by PCs to reach databases, by

telephone, in the hard-copy reference library, or through information packages. PPD will tap into these databases and use information on pollution prevention technology to identify appropriate technologies.

Through PPIC, PPD will be able to access the International Cleaner Production Information Clearinghouse (ICPIC). This program is the United Nation's computerized information exchange system of the United Nations Environmental Program's Industry and Environmental Office (UNEP/IEO). The ICPIC provides pollution prevention data on specific industries, descriptions of cleaner production processes, and summaries of research in environmental technologies. Again, these databanks should provide PPD with valuable information regarding new technologies and applications in the pollution prevention field.

### 3.6.E Department of Commerce / other U.S. Agencies

The Department of Commerce has a mandate to facilitate trade between U.S. manufacturers and suppliers and potential buyers. The department's aim to foster global U.S. trade relations complements one of the objectives of the PPD: linking U.S. suppliers of pollution prevention technology with Near East industries. Funding sources such as the Overseas Private Insurance Corporation advance the goal of PPD by providing U.S. suppliers with insurance on their investments into new markets and by arranging direct loans for foreign entities interested in the purchase of U.S. goods.

The Export-Import Bank of the U.S. is an independent government agency whose mission is to assist foreign buyers in the purchase of U.S. goods through financial support. The Bank facilitates support by providing direct loans to those foreign entities interested in purchasing U.S. materials, and also through encouragement of funding and risk protection by U.S. banks of the suppliers.

The U.S. Trade Representative (USTR) is responsible for trade negotiations and trade policy. The USTR deals with GATT issues, trade and commodity issues relating to OECD activities, East-West trade negotiations and the UN Conference on Trade and Development. Other primary concerns are investment incentives and disincentives, as well as bilateral investment barriers. Although the USTR does not focus specifically on issues related to the environment, it is involved in the environmentally-related trade negotiations. With its mission to ensure fair trade practices for all U.S. business activities world-wide, PPD can benefit from USTR's knowledge and practices relating to trade.

### 3.7 Sustainability

It is anticipated that NE Bureau funding for PPD will be provided

in FY93 for approximately two years of activities. Missions interested in continuing PPD's activities after Bureau funding is expended will need to explore alternative mechanisms. However, after the first 12 months when the PPD regional offices have become well established, fee-for-services can be implemented which would leave behind a mechanism to continue facilitating linkages between NE and US firms. In the absence of Mission funding, a private trade or business association or other private sector organization such as a university or consulting firm could assume the function of the PPD component on a fully commercialized basis.

In order to achieve PPD's objective of increased knowledge about and ability to access pollution prevention technologies and methodologies, it is not actually necessary for the PPD Offices to be continued. The PPD country offices may create such strong links between US suppliers and NE firms as well as a sufficient pool of in-country pollution prevention experts that the PPD component becomes obsolete and can be disbanded while the activity of the PPD component is sustained.

It is important that there be a mechanism in place which can be used to channel information between NE firms and U.S. suppliers. It is likely that this mechanism will vary from country to country. In one place it could be just good relations and easy communication access between local and U.S. firms. In another country, a local consulting firm might provide the services of the PPD component for a fee. Alternatively, where markets are large enough U.S. firms might establish their own regional or country offices.

#### **IV. SUMMARY OF PPD COMPONENT ANALYSES**

The technical, economic, social soundness and women in development, institutional and administrative, and environmental analyses for the PPD component are based on information developed primarily from the following sources:

- Research undertaken in connection with preparation of the PID for this component (IRG, 1993), which included field visits in the Near East region;
- Responses from Near East Missions to specific requests for information;
- Various documents on specific countries prepared by the Near East Bureau's Project in Development and the Environment (PRIDE, 398-0365);
- Documents in the PRIDE library prepared by government agencies, donor agencies, and private firms;
- Research undertaken in connection with the project paper for R&D/ENR's Environmental Pollution Prevention Project (EP3, 936-5559);
- Reports of other AID projects discussing experience related to implementation of the PPD component;
- A wide variety of U.S. and some international research reports and other publications related to pollution prevention and clean technologies;
- Country specific knowledge and expertise and field trips of AID/NE/DR staff.

During the PPD component design it was discovered that insufficient data existed to make certain implementation decisions. As a result, these data will be collected during assembly of baseline information early in the implementation of this PPD component. For example, in the institutional and administrative analysis, potential counterpart organizations in each country are described briefly, and guidelines for determining the most suitable counterpart organization are provided. However, further investigation and a final determination will have to be made during PPD implementation.

A determination to amend the PRIDE project rather than to implement PPD as a new project was based on field and Bureau analyses at the time when the contractors were finishing their analyses. The summary analyses provided, therefore, do not justify implementation mechanisms or structure, rather they were used by the PPD component design team as a source of information along with many other sources.

##### **4.1 Technical Analysis**

The technical feasibility for the PPD component is viewed at two levels. Two fundamental questions are asked: 1) Is the PPD approach to stimulate demand for pollution prevention

interventions and a sustainable supply of goods and services to meet this demand feasible? and 2) At the plant level, what is the technical feasibility that a given firm in the Near East will actually adopt any pollution prevention or waste minimization techniques?

The PPD component is designed to address the key constraints and barriers for private firms to adopt what appear to be financially rewarding changes to their operations. These constraints are: 1) limited or no information on more efficient industrial processes and equipment which can also reduce pollution loads; 2) limited or no idea on a given plant's inefficiencies; 3) lack of concrete examples and success stories among similar firms in the region; 4) limited local supply of pollution prevention expertise; and 5) lack of appropriate linkages with U.S. firms which have technical and business solutions. The project has five major components that address these constraints: a means to access current databases in the U.S. through a U.S.-based Project Office; a local information, communication and education program to stimulate initial demand and follow up with targeted training; an integrated plant audit and follow-up process which will be institutionalized through a local entity and replicated within each country; demonstrations of concrete pollution prevention methods with low cost or no capital cost techniques initially, with firms graduating to more capital intensive investments as positive paybacks are achieved; and linkages between U.S. suppliers of pollution prevention goods and services and the emerging demand in the Near East. The strategy will be to start in two countries and to demonstrate successful methods which can be replicated throughout the region. The approach is to start small with firms willing to try simple, low cost techniques to achieve efficiencies, and build on these success with more complex and higher cost technologies which will still provide a quick payoff.

Given experience with similar projects in the energy and agroindustrial sectors (i.e., Morocco Energy Demand, 608-0193; ROCAP/PROEXAG 596-0165), this approach is sound and feasible. Details on targeting of industries, and least cost methods to obtain local counterpart cooperation and attract specific plants to participate for demonstrations needs to be worked out during the initial six month period of implementation. Fee-for-service, cost sharing and co-funding or leveraging mechanisms also need further analysis which can be done during the first year. Finally, a plan for the privatization of the regional office, or more likely its functions, needs to be worked out during the first year of implementation.

The PPD component will use a combination of information, audits, U.S. private sector linkages and targeted technical assistance and training to break down barriers and convince plant managers to test pollution prevention approaches. The audit process and follow-up visits for business planning and possible financing arrangements are the key ingredients in actually getting

agreement to install equipment or modify processes. However, it is the combination of all the components which make this approach feasible.

Details on the types and levels of services (TA, training, information) to be provided to individual firms by the regional offices, by cooperating agencies (e.g. trade or professional association), fee structures, level of involvement with U.S. suppliers, and other elements will need to be worked out during the first year of project implementation. For example, it may be wise to provide information services for free, while establishing fee-for-service arrangements for audits, TA and training through local counterpart organizations to capitalize them and ensure the project is working with only the serious entrepreneurs and plant managers. While financing arrangements may not be needed for initial low cost interventions, work should begin in the first year to scope out the potential need for financing for larger interventions as the project and firms gain experience and confidence in the pollution prevention approach.

#### **4.2 Economic Analysis**

This analysis focuses on pollution prevention approaches as opposed to end-of-pipe technologies because clean technologies cost less, bring positive financial benefits to the firm and are thus more sustainable. Clean technologies can also achieve the same removal efficiencies in emissions and effluents as end-of-pipe treatments. Such incentive-based systems for sound environmental management have evolved recently in the United States based on lessons learned through the command and control approach of the last two decades. Incentive-based approaches are being copied in other developed countries, and provide the opportunity for Near East countries to adopt similar methods. A comparative analysis between a pollution prevention and an end-of-pipe treatment for a given pollutant has not been conducted due to time and data limitations. If time were available, the analysis would most likely produce the same conclusions reached in the U.S. Environmental Protection Agency and other federal agencies: that source reduction and waste minimization are more economically beneficial than end-of pipe treatments.

The lack of reliable data and time constraints prevented this analysis from addressing externalities. Downstream and downwind damages from polluting industries in the region are significant. However, this study quantifies neither the damages nor any external benefits that arise from implementation of a particular clean technology application or pollution prevention approach. Only internal benefits arising from a facility's or industry's adoption of a pollution prevention method are analyzed.

Likewise, this analysis does not address transaction costs. Few industrial managers in the region know that pollution prevention technologies and methods exist or are being developed and

marketed by American, European, and Japanese firms that could reduce their input costs and increase profits. Nor is there a ready supply of engineers and business experts trained in pollution prevention methods. Thus, transaction costs for clean technologies are high, and demand for them is low. Therefore, the supply and demand for clean technologies is not in equilibrium, representing an important market failure.

A desktop review examined literature on industrial sector and pollution prevention methods and published case studies of appropriate pollution prevention approaches. This review assembled data that would allow for calculation of savings, payback periods, and net present value of investments. Eight cases were selected ranging from no capital cost methods to small investments in the \$17,000 to \$25,000 range, up to large investments reaching \$460,000.

From a financial standpoint, these pollution prevention interventions produce very profitable returns within a short payback period. Net present values ranged from \$45,000 for a low capital cost of \$5,000 with a six-month payback period to more than \$3 million for a more capital-intensive investment of \$500,000 with a payback period of seven months.

Results from this analyses were utilized to evaluate economic feasibility. Estimated payback periods for various pollution prevention and clean technologies were applied to indicative shadow prices for major inputs for countries where these prices could be ascertained. These results were extrapolated to the likely number of firms that the PPD component would reach within an estimated five-year active phase. The results were very encouraging, indicating that a conservative estimate of approximately \$64 million in net present value could be achieved if only 5 percent of the industries in the four countries examined adopted a range of pollution prevention methods. This is a significant return in proportion to the estimated cost of the project.

It should be noted that data weaknesses presented considerable challenges for the analysis. Good data on private sector firms in the region and for shadow prices for inputs for those firms is hard to find. There were also weaknesses in the published data available in the United States and elsewhere on pollution prevention methods. These weaknesses have been cited in other recent AID-funded projects (e.g., ASEAN Environmental Improvement Project, 399-0360). The weaknesses are not surprising, given the recent development of pollution prevention as an industrial efficiency approach, the proprietary nature of private firms in competitive markets where cost information is not normally shared, and the relatively small public sector investment in assembling and analyzing such data for public dissemination.

Nevertheless, the PPD component is justified based on the cost savings and financial returns to individual manufacturing firms

across the region, even without including the positive economic effect of externalities such as reducing pollution loads and the decreased social costs implied. In addition, it is expected that some fee-for-services and other cost-sharing arrangements will generate project or activity specific reflows. These contributions are not counted in the above estimates and would increase the financial viability of the PPD component.

More detailed country-by-country analyses in the early stages of project implementation will need to be conducted since it is anticipated that some costs (i.e., disposal, solid waste management) are significantly lower than in the United States and in the case studies selected. These analyses could contribute significantly to the pollution prevention literature and could be shared with similar projects in other AID bureaus and missions.

#### **4.3 Social Soundness / Women in Development Analysis**

The PPD component hopes to improve the efficiency of Near East firms through increased use of pollution prevention methodologies. A pollution prevention approach produces less waste in general and less hazardous waste in particular. It uses inputs more efficiently, including energy, thereby conserving resources and reducing pollution associated with energy production and consumption; and it substitutes nonhazardous or less hazardous inputs for those that are more hazardous to human health and the natural environment. General social implications, as well as gender-specific social implications, of improved industrial efficiency through wider use of a pollution prevention approach are summarized below.

The extent to which improved industrial efficiency and pollution prevention methodologies affect Near East workers and communities depends upon the extent to which such methodologies are adopted; the types and sizes of enterprises that adopt them; the locations of those enterprises relative to different resource and population concentrations; the types of processes and technologies that are adopted; the Near East countries, and therefore the socio-cultural milieus, in which they are adopted.

Where pollution prevention methodologies are adopted, the PPD Component can be expected to have a major impact on those living or working in industrial urban centers in the Near East countries. Less hazardous work environments will provide substantial positive health benefits for those who suffer the damaging health effects caused by industrial pollutants: the employees of industrial firms and those living in the surrounding communities. Decreased pollution emissions can be expected, also, to reduce many diseases that afflict children and adults exposed to industrial wastes in air and water. Throughout much of the Near East, industries do not treat industrial waste before disposal. The resulting environment degradation threatens both human health and economic growth.

Women may be involved in the PPD Component both as participants and beneficiaries. They and their children are particularly vulnerable to the lack of clean air and water. Including women in implementation, monitoring, and evaluation will increase the PPD's capacity to identify and address critical environmental health problems. For example, women can be included in the education and training component as participants in regional conferences or in education programs in engineering colleges.

The analysis concludes that (a) employees of participating firms, will benefit from the PPD component through healthier working conditions and possibly higher wages and more employment; (b) local communities will benefit from the PPD component through improved environmental quality and possibly increased employment and improved community economic development dynamics; and (c) women or other populations are not likely to be negatively affected.

#### **4.4 Institutional and Administrative Analysis**

PPD will be implemented by a competitively selected core contractor of the EP3 Project, who will supply a broad range of support for pollution prevention, private sector development, and information, as well as trade expertise, and by RCG/Hagler Bailly, Inc. for the Moroccan activities. PPD might consider working with the US network of trade and professional associations interested in pollution prevention as a means to achieve efficiencies in private sector enterprises and to expand their linkages with NE firms. Recent responses to similar projects (e.g., ASEAN Environmental Improvement Project, 399-0360) by private firms and non-government entities suggest they have considerable interest and adequate institutional and administrative capability to carry out the project.

A number of private sector-oriented groups were identified which appear appropriate for some or all the roles envisioned to support field implementation. Some groups (i.e., IRSIT in Tunisia, and the Moroccan Business Center) have experience in managing private sector and technology transfer projects with AID funding. A more detailed analysis on a country-by-country basis is needed to select appropriate counterpart institutions. This will be done as an initial implementation task.

Various organizational arrangements for implementing the project were evaluated, as were the pro and con arguments for locating offices in different countries. While one country may have advantages over another, the project is feasible with regional offices in most of the countries considered (Egypt, Jordan, Morocco, and Tunisia). Based on Mission response, it was decided to locate offices in the latter two countries.

The PPD component institutional and administrative analysis concludes that there is sufficient capacity within AID, the United States, and the Near East countries to carry out the

project. Within AID, the Near East Bureau's Development Resources Office (NE/DR) and the R&D Bureau's Office of Environment and Natural Resources are staffed with appropriate technical specialists to manage the project. NE/DR/ENR and R&D/ENR officers will share overall management responsibility for the project according to a memo of understanding to be signed by both of the Bureaus. Each USAID mission currently has private sector, environmental, and other officers who will do the coordination and management necessary for the proposed field offices. Advisory committees representing the US private sector and other interested agencies could be created to provide guidance to the PPD.

#### **4.5 Environmental Analysis**

A negative determination under Section 216.3(a)(2) of 22 CFR 216 of the Agency Environmental Procedures was approved by the NE Bureau's Environmental Coordinator and the Senior Environmental Officer and is included as Annex C.

## **V. COST ESTIMATES AND FINANCIAL ANALYSIS**

### **5.1 Financial Analysis**

This project component is a pilot activity to test whether NE firms are ready to benefit from adopting a pollution prevention philosophy. Little data currently exists on the economic benefits of adopting pollution prevention methods and technologies under NE country conditions. Evidence is available from the U.S. proving the benefits of this approach to the private sector. However, it is not possible at this time to do a full fledged financial analysis. Instead close monitoring of the PPD component's impact on NE firms will be done to determine whether the approach merits continuation.

### **5.2 Budget Summary**

The PRIDE Project Authorization will be amended to add \$2.7 million to cover two years of the PPD component for a new LOP authorization of \$21.7 million. In FY93, \$2.7 million will be obligated by executing a \$1.1 million buy-in to the Requirements Q Contract of the Environmental Pollution Prevention Project (EP3), a \$1.2 million OYB transfer to Morocco for an amendment to the EDM Project, a \$0.1 million OYB transfer to Tunisia for a grant to IRSIT for assistance with communications, and a small \$0.3 million OYB transfer to the EP3 Project to cover regional activities. The RCG/Haigler, Bailly, Inc. contract for the Energy Demand Management will be amended to obligate funds for Morocco. A detailed budget is provided for the two years of the PPD component the Tunisian and Regional activities only, and which assumes that the only source of funding will come from the NE Bureau. This budget covers a bare bones approach to project component implementation. If a pollution prevention equipment demonstration component were added this would cost an additional \$0.2 million. Should Missions wish to buy-in to the EP3 project, or if additional Bureau funds became available, it is assumed these funds would be used for supplemental short-term technical assistance, assessments/audits, workshops/seminars, or the recruitment of long-term technical assistance for individual countries. The following tables provide a summary and detailed information of how the PPD component budget was calculated.

Separate budgets for the Regional activities and the Tunisian office were prepared. At the PIO/T stage, further refinements will be made to this budget.

ILLUSTRATIVE BUDGET FOR TUNISIA

ITEM	UNIT COST (\$/yr)	1993	1994
<b>SALARIES</b>			
Private Sector Spec.	40,000	40,000	40,000
Engineer	25,000	25,000	25,000
Info. Analyst	17,000	17,000	17,000
Secretary	15,000	15,000	15,000
Driver	9,000	9,000	9,000
<b>NET TOTAL</b>		<b>106,000</b>	<b>106,000</b>
<b>TOTAL INCLUDING MULTIPLIER (2.25)</b>		<b>238,500</b>	<b>238,500</b>
<b>CONSULTANTS</b>			
Senior-level	330/day	6,600	8,250
Mid-level (Mostly Pro Bono)	275/day	35,750	41,250
Junior-level	200/day	4,000	4,000
<b>TOTAL</b>		<b>46,350</b>	<b>53,500</b>
<b>TOTAL INCLUDING MULTIPLIER</b> (2.25 for paid / 1.95 for pro bono)		<b>104,288</b>	<b>120,375</b>
<b>PER DIEM</b>			
Consultants	100/day	17,000	19,500

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TUNISIA BUDGET CONTINUED

ITEM	UNIT COST (\$/yr)	1993	1994
<b>TRAVEL</b>			
U.S. to Tunisia	2,500/trip	35,000	30,000
In-country	300/trip	8,000	8,000
<b>TOTAL</b>		<b>43,000</b>	<b>38,000</b>
<b>IN-COUNTRY TRAINING</b>			
Workshops	10,000 each	30,000	30,000
Seminars	6,000 each	24,000	24,000
Information Fairs	10,000 each	10,000	10,000
<b>TOTAL</b>		<b>64,000</b>	<b>64,000</b>
<b>EQUIP. &amp; COMMOD.</b>			
Vehicle + O&M		20,000	5,800
Computers	5,000	15,000	0
Stationery	500	3,500	3,500
Postage	100	7,000	7,000
Furniture	1,000	15,000	0
Communications	1,000	15,000	7,500
Aud/Vis Equipment	1,000	5,000	5,000
Office Rent/Util.	2,000/mo.	24,000	24,000
<b>TOTAL</b>		<b>104,500</b>	<b>52,800</b>
<b>COMBINED ITEM TOTAL</b>		<b>571,288</b>	<b>533,175</b>
<b>GRAND 93-94 TOTAL</b>		<b>\$1,104,463</b>	

ILLUSTRATIVE BUDGET FOR REGIONAL ACTIVITIES

ITEM	UNIT COST (\$/yr)	1993	1994
<b>CONSULTANTS</b>			
Senior-level	330/day	5,940	11,880
Fringe, OH, G&A, fee	275%	16,335	32,670
Pro Bono incentive	\$1250/week+21%	3,273	7,320
<b>TOTAL</b>		<b>25,548</b>	<b>51,870</b>
<b>PER DIEM</b>			
Consultants	150/day	8,100	16,200
<b>TRAVEL</b>			
U.S. to NE Region	2,500/trip	15,000	20,000
In-country	300/trip	3,000	3,000
<b>TOTAL</b>		<b>18,000</b>	<b>23,000</b>
<b>IN-COUNTRY TRAINING</b>			
Workshops	7,000 each	21,000	42,000
Information Fairs	10,000 each	20,000	20,000
<b>TOTAL</b>		<b>41,000</b>	<b>62,000</b>
G&A, Fees	@ 21%	16,030	24,570
<b>COMBINED ITEM TOTAL</b>		<b>108,670</b>	<b>177,640</b>
<b>GRAND 93-94 TOTAL</b>	<b>\$286,310</b>		

## **VI. IMPLEMENTATION PLAN**

The principle implementation mechanism for this PRIDE supplement will be the EP3 project administered by R&D/ENR and an add-on to the responsibilities of the RCG/Hagler, Bailly, Inc. EDM contract. To access EP3, the NE Bureau will transfer funds in FY93 to the Office of Environment and Natural Resources in the Research and Development Bureau through buy-ins to the EP3 project. Regional activities will be funded with a limited (less than \$300,000) OYB transfer to R&D/ENR. The Morocco Mission will execute a contract amendment to obligate funds for activities there.

### **6.1 PPD Component Management**

#### **6.1.A NE Bureau**

The PPD component of PRIDE will be managed jointly by the Office of Environment and Natural Resources in the Near East Bureau and the Office of Environment and Natural Resources in the Research and Development Bureau. A written agreement between the two bureaus will clarify the implementation responsibilities. Technical direction and direct component management will be the responsibility of the Environmental and Natural Resources Division of the Office of Development Resources of the Near East Bureau. The chief of the division or his/her designee will serve as AID Project Officer for PPD.

At least twice a year the EP3 Project Officer for PPD will invite other regional project officers and contractors they designate to a half day information/lessons learned sharing session. Staff and contractors from NE Missions and other geographic bureaus with relevant environmental and private sector activities will be asked, also, to contribute in writing their impressions and opinions about PPD and other related AID projects every six months. This feedback will be used to fine tune PPD component activities. Prior to this working session, the contractor will submit a semi-annual report which the Project Officer will review and present to the working sessions group.

The PRIDE Project Officer will be responsible for the technical direction of all component activities including review and approval of short term consultants, their scopes of work, and their draft reports, prior to finalization. This centralized direction is necessary to focus, coordinate, and provide quality control to NE Bureau pollution prevention and private sector activities.

#### **6.1.B USAID Missions**

The level of support required from USAID Missions in the field is dependent on the level of activity in a particular Mission. The

PPD Project Officer will try to minimize PPD component implementation responsibilities for Mission staff. However, in the early stages of component implementation, the contractor is likely to rely more heavily on the Mission for advice on the private sector climate, firms to be contacted, and so forth. The Project Officer would welcome as much assistance and involvement of Mission staff as possible, acknowledging staffing constraints in the field. Standard involvement such as travel concurrence, briefing, debriefing, and review of draft reports will be requested depending on Mission level of interest.

#### **6.1.C U.S.-Based PPD Component Management Office**

The EP3 contractor will be expected to provide sufficient staff and expertise to implement, manage, and support component activities. The contractor will be responsible for remaining informed about sources of U.S. export assistance and for recruiting U.S. firms or associations to participate in PPD activities. The U.S. based staff will be responsible for searching through existing data bases for pollution prevention products, processes, and suppliers. The U.S. based staff will be responsible for the production and distribution of final consultant reports and regular PPD component monitoring reports. Determination of when reports become final will be the responsibility of the contractor based on reviews by the NE and R&D Bureaus and the Missions.

This U.S. based office will maintain an electronic mail link to the Bureau, NE Missions, and the regional offices in accordance with AID regulations. The office will recruit short-term technical assistance experts and/or subcontractors and will make contractual and travel arrangements from the U.S. If appropriate, the office will be responsible for overseas contracting as well.

#### **6.1.D NE Country Pollution Prevention Offices**

It is anticipated that two country offices will be established in Morocco and Tunisia in the principal industrialized areas of each country. Each office ideally will be staffed with a Private Sector/ Marketing or Sales Specialist, a Pollution Prevention Engineer, an Information Analyst, a secretary, and a driver/errand employee. These personnel should be North African or Middle Eastern local hires. In addition, an American engineer will head the Moroccan office. This American will act as Chief of Party in Morocco, while in Tunisia the Chief of Party will be the Private Sector Specialist. The American will be required to speak French at a professionally competent level and preferably will have some knowledge of Arabic. Each Private Sector person will be required to be bilingual as will the Pollution Prevention Engineer and the Information Analyst. The secretary will need competency in English and French at a minimum. The regional

offices will be connected by electronic mail to the NE and R&D Bureaus and NE Missions. In the event that additional in-country offices are established as the result of Mission buy-ins, these offices will be managed by the PPD EP3 contractor.

The regional offices will have overall responsibility for promoting interest and demand for the pollution prevention approach in NE firms. The country offices will facilitate purchase by NE firms of pollution prevention equipment by supplying relevant information and advice, as well as, encouraging linkages between NE firms and U.S. suppliers of equipment.

## **6.2 Illustrative Workplan**

### **6.2.A Year One**

The contractors' first task in month one will be to: 1) recruit the seven key personnel (1 American Engineer, 2 Private Sector Specialists, 2 Bi-lingual Pollution Prevention Engineers, 2 Information Analysts, and other support personnel), 2) establish the offices in Morocco and Tunisia, and 3) submit a draft six-month workplan to the NE Bureau. Preparing the workplan will require a review of relevant Mission and Bureau efforts to date and an assessment of current priorities and long range objectives. The workplan will be completed in 30 days and will be approved by the Project Officer within 15 days of submission. A second six-month workplan will be developed by the contractor before the close of the first five months and will be approved by the Project Officer. Prior to fielding of staff, either long- or short-term, team planning and briefing sessions will be held.

The first six-month workplan will lay out in detail the responsibilities of each professional staff member. The schedule for introductory workshops, seminars, and short-term technical assistance will be established. The format and content of the bi-monthly, semi-annual, and annual reports will be described in this first workplan.

Methodologies for establishing economic and environmental baseline and impact data will be determined in the first six-month workplan. In addition, the mechanism for channeling information and/or services about pollution prevention needs to be identified for each country. It will be necessary to establish who will do the monitoring, how it will be conducted, and what evaluation criteria will be used to measure individual activity and overall component success.

The second six-month workplan will briefly review progress to date and provide an overview of anticipated activities for the two year contract period. It will lay out in detail activities for the next six months.

### **6.2.B Year Two**

During this year the concept of fee-for-services will need to be tested. How to accomplish this needs to be described in the contractor's third six-month workplan. Adjustments of PPD component direction based on implementation lessons to date should be proposed. Details of all activities will be described.

In the last six-month workplan, the contractor will need to specify what preparations will be made to be to either phase out the country offices or transfer funding to a different mechanism.

### **6.3 Implementation Schedule**

There will be a FY93 obligation via Delivery Orders to the EP3 Requirements Q Contract for PPD and by an amendment to the RCG/Haigler, Bailly, Inc. contract # 608-0193. Immediately following PPD approval PIO/Ts with detailed Scopes of Work will be sent to Contracts prior to the June 30 deadline for buy-ins.

### **6.4 Contracting Plan**

Delivery Orders will be issued to execute a buy-in to the Requirements (Q) Contract of the EP3 project and an OYB transfer to the core contract of EP3. An amendment to RCG/Haigler, Bailly, Inc. contract # 608-0193 will be executed by August 1, 1993. The EP3 contractor must make provisions to ensure that at least 10% of contract funds are utilized in conjunction with an 8A / Gray Amendment firm.

The buy-in and contract amendment will cover two years of activity only. Missions wishing to continue or expand PPD component activities will have to establish their own mechanisms for funding.

### **6.5 Procurement Plan**

The PPD component, as currently designed, does not plan to purchase pollution prevention equipment. Instead, PPD proposes to assist NE firms to obtain equipment from U.S. suppliers. Assistance to purchase such equipment, in the form of information and advice, will be provided.

Limited amounts of office supplies and equipment (computers), audio-visual support for the country offices' IEC activities, and vehicles will be purchased. Geographic codes 000 and procurement from host countries participating in PPD activities will apply for all commodities procured under this component unless specific source/origin waivers are approved by the delegated authority. U.S. equipment can be procured locally provided the purchase is under \$100,000 per transaction. Local procurement from

geographic code 935 will be allowed up to \$5,000 per transaction.

## **VII. MONITORING AND EVALUATION**

### **7.1 PPD Component Monitoring**

Two types of monitoring are planned for the PPD component of PRIDE: 1) component implementation monitoring and 2) activity or component monitoring. PPD has many experimental aspects, therefore, solid and detailed information from monitoring of individual activities will be essential.

Day to day monitoring of component activities will be the joint responsibility of the R&D and NE Bureaus. The A.I.D. Project Officer within the Office of Development Resources of the NE Bureau will have primary responsibility for monitoring component implementation, tracking component progress against workplan targets and development objectives, and for effecting timely remedial measures as required. Component monitoring will be facilitated to a large extent through the preparation, review, and utilization of six-month workplans and bi-monthly, semi-annual, and annual reports.

### **7.2 PPD Subcomponent Monitoring**

One way the PPD component will track the impact of its pollution prevention audit and assessment activities will be to monitor the implementation rate of each category of recommendation. For instance, each audit/assessment is likely to result in a series of no-cost, low-cost, and medium cost recommendations. By tracking the implementation of suggestions from each of these categories, PPD will be able to evaluate: 1) adoption of general pollution prevention housekeeping, behavioral, and operation/maintenance recommendations versus 2) adoption of higher cost pollution prevention equipment. It will be useful to establish the rate and timing of adoption and whether or not there is a difference by industrial sector or country. The information provided will be essential to determining what activities should be retained or modified.

Another way the impact of PPD activities will be tracked will be through cost benefit analyses and/or reviews of economic information for selected firms adopting pollution prevention methodologies. A sample of participating firms will be asked to assist PPD by filling out a standard plant evaluation report.

The PPD component will monitor the numbers and/or firms participating in IEC activities including use of the pollution prevention database, attendance at workshops/ seminars and information fairs. Records need to be kept on which outreach efforts encourage individuals or firms to participate in PPD activities. The number and types of training activities which individuals or firms participate in should be monitored.

The PPD component needs to identify mechanisms in each country

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for continuation of information channeling about the pollution prevention approach after PPD completion. Experience with other NE Bureau and Mission projects indicates that some kind of incentive is needed to encourage private sector firms to continue providing information for AID to monitor and evaluate impact. These incentives need to be developed in the early days of PPD component implementation.

### **7.3 Evaluation**

An external evaluation, which the NE Bureau will fund using PD&S monies, will take place in the 18<sup>th</sup> month after the component begins implementation. The purpose of this evaluation is to review progress to date, assess various impact reports which the contractor will have prepared, and recommend whether or not the component should be continued. If continuation is proposed, the evaluation should suggest any necessary changes in implementation, LOE, and where funding will be obtained. The final PRIDE evaluation should attempt to measure the impact of the project in improving environmental quality in participating countries.

### **7.4 Audit**

The EP3 buy-in terms of reference will contain the standard non-federal audit provision.

**ANNEX A**  
**PID AUTHORIZATION**

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<b>AGENCY FOR INTERNATIONAL DEVELOPMENT</b> <b>PROJECT IDENTIFICATION DOCUMENT</b> <b>FACESHEET (PID)</b>	<b>1. TRANSACTION CODE</b> <input type="checkbox"/> A = Add <input type="checkbox"/> C = Change <input type="checkbox"/> D = Delete	<b>Revision No.</b>  <b>DOCUMENT CODE</b> 1
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<b>2. COUNTRY/ENTITY</b> Near East Regional	<b>3. PROJECT NUMBER</b> 398-0376
--	--------------------------------------

<b>4. BUREAU/OFFICE</b> NE/DR/ENR A. Symbol      B. Code	<b>5. PROJECT TITLE (maximum 40 characters)</b> Regional Clean Technologies
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<b>6. ESTIMATED FY OF AUTHORIZATION/OBLIGATION/COMPLETION</b> A. Initial FY    93 B. Final FY      95 C. PACD          98	<b>7. ESTIMATED COSTS (\$000 OR EQUIVALENT, \$1 = )</b> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th colspan="2">FUNDING SOURCE</th> <th>LIFE OF PROJECT</th> </tr> <tr> <td>A. AID</td> <td></td> <td>12,000</td> </tr> <tr> <td>B. Other U.S.</td> <td>1.</td> <td></td> </tr> <tr> <td></td> <td>2.</td> <td></td> </tr> <tr> <td colspan="2">C. Host Country</td> <td></td> </tr> <tr> <td colspan="2">D. Other Donor(s)</td> <td></td> </tr> <tr> <td colspan="2" style="text-align: right;"><b>TOTAL</b></td> <td>12,000</td> </tr> </table>	FUNDING SOURCE		LIFE OF PROJECT	A. AID		12,000	B. Other U.S.	1.			2.		C. Host Country			D. Other Donor(s)			<b>TOTAL</b>		12,000
FUNDING SOURCE		LIFE OF PROJECT																				
A. AID		12,000																				
B. Other U.S.	1.																					
	2.																					
C. Host Country																						
D. Other Donor(s)																						
<b>TOTAL</b>		12,000																				

8. PROPOSED BUDGET AID FUNDS (\$000)							
A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH CODE		D. 1ST FY 93		E. LIFE OF PROJECT	
		1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan
(1)	EVUP			1.5		9.6	
(2)	PEBD			.4		2.4	
(3)							
(4)							
<b>TOTALS</b>				1.9		12.0	

<b>9. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each)</b>	<b>10. SECONDARY PURPOSE CODE</b>
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11. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)						
A. Code	CIT	EEF	PSD	TWN	TIC	
B. Amount	80	100	100	20	50	

<b>12. PROJECT PURPOSE (maximum 480 characters)</b> <div style="border: 1px solid black; padding: 10px; margin: 5px 0;">         Improved efficiency of N.E. firms through increased use of clean technologies       </div>
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**15. RESOURCES REQUIRED FOR PROJECT DEVELOPMENT**

**Staff:** Project design will be undertaken by Bureau staff utilizing information and data generated during the feasibility phase. Additional analyses required to support project design will be completed using core funding in the PRIDE Project

**Funds:** n/a

<b>14. ORIGINATING OFFICE CLEARANCE</b>	Signature: <i>Marcus L. Winter</i> Title: Marcus L. Winter, Acting Director NE/DR	Date Signed: MM DD YY 02 05 93	<b>15. DATE DOCUMENT RECEIVED IN AID/W. OR FOR AID/W. DOCUMENTS, DATE OF DISTRIBUTION</b> MM DD YY 
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<b>16. PROJECT DOCUMENT ACTION TAKEN</b> <input checked="" type="checkbox"/> A = Approved <input type="checkbox"/> S = Suspended <input type="checkbox"/> D = Disapproved <input type="checkbox"/> CA = Conditionally Approved <input type="checkbox"/> DD = Decision Deferred	<b>17. COMMENTS</b>
---	---------------------

<b>18. ACTION APPROVED BY</b>	Signature: <i>Dennis Chandler</i> Title: Dennis Chandler A-AA/NE	<b>19. ACTION REFERENCE</b>	<b>20. ACTION DATE</b> MM DD YY 02 05 93
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S. AGENCY FOR  
INTERNATIONAL  
DEVELOPMENT

FEB 5 1993

**ACTION MEMORANDUM FOR THE ACTING ASSISTANT ADMINISTRATOR, BUREAU FOR NEAR EAST**

**FROM:** Marcus L. Winter, NE/DR *MLW-LA*  
**SUBJECT:** Near East Regional Clean Technologies Project  
(398-0376)

**ACTION:** Your approval is needed for the Project Identification Document (PID), and for the development of the Project Paper (PP), for the Near East Regional Clean Technologies Project. Life-of-project funding is planned at \$12 million for a five year period beginning in FY 93, pending final project design decisions.

**BACKGROUND:** The Near East Regional Clean Technologies Project provides an opportunity to link two of the Agency's key concerns: the private sector and the environment. Experience in the U.S. and other industrialized countries in recent years has demonstrated conclusively that clean technology and waste minimization technologies represent an attractive pollution management alternative that is less expensive, more cost-effective, and that is resource conserving as well. A clean technology approach is sustainable over the long run because it ultimately results in more efficient and competitive production.

The goal of the project is to lower production costs for NE firms through changes in water usage, energy costs, raw materials and pollutants. The project purpose is improved efficiency of NE firms through increased use of clean technologies.

**BUREAU PID REVIEW:** The Near East Development Advisory Committee (NEDAC) met on January 21 to review the PID for the Near East Regional Clean Technologies Project. The NEDAC recommended that the PID be approved pending revisions as described below and identified a number of issues to be addressed during project paper (PP) development. The attached PID includes the requested revisions.

**PID Revisions:** The project purpose and goal should be revised to reflect the NE Bureau and Missions' private sector focus and de-emphasize somewhat environmental objectives. The PID overall should reflect more Agency developmental objectives and less commercial or trade aspects of the project. The project will not depend primarily on country CIPs for equipment procurement.

**Action:** No action required; the PID was revised as requested.

Issues: 1) Rolling Design: NE/DR/ENR suggested that the feasibility study undertaken for the PID and intended analyses during PP preparation should provide information to enable a reasonable level of implementation detail to be written into the PP. Activities during Phase I will be described and criteria for making the decision to move into Phase II will be identified. Cost benefit analyses undertaken for each case study in Phase I can then be used to design Phase II, based on concrete knowledge of NE conditions. Although it will be difficult to establish definitive benchmarks of achievement for the total LOP, targets should be established for each Phase so that project success can be measured.

Action: PP design team will describe the project as specifically as possible with current information and/or specify how remaining questions will be answered at various stages of project implementation.

2) Funding Levels and LOP: Some concern was expressed about whether funding levels and LOP were sufficient to achieve success. Early in PP development, it will be essential to establish Mission interest and level of support (buy-ins) which can be expected. It will also be necessary to clarify what in-country costs can be funded with core funds rather than with buy-ins. A reasonable amount of start-up time needs to be factored into design to establish an appropriate time frame for the project to succeed.

Action: Final funding levels and LOP will be established during the PP preparation.

3) Sustainability: Various fee-for-service mechanisms need to be examined, especially recent experience in Morocco with the Energy Demand Management Project and IESC in several countries. Decisions on payment approaches for clean technologies need to be based on a consideration of long term sustainability issues.

Action: Questions of project sustainability will be examined and solutions proposed in the PP.

4) Legal/Procurement Concerns: Project designers should consult with GC and procurement specialists to ensure that procurement of clean technology equipment is undertaken in accordance with A.I.D. regulations.

Action: The PP team will design the procurement section based on advice from relevant Agency specialists.

5) Location of the Regional Center: There was considerable debate about the appropriate location for the regional center. The feasibility study team had recommended Cairo for the main center with provision for at least one francophone satellite. Since the NE Bureau policy is to not spend scarce regional and DA funds in Egypt, Cairo as a center location was questioned. However, there may be sound developmental reasons to place the center there. The Bureau is willing to continue to consider Cairo as a site, provided the Egypt Mission picks up all project costs directly related to Egypt activities beginning in FY 94. The Missions in Morocco, Tunisia, and Jordan should also be canvassed

to see whether they are able to pick up core costs for the center as well as for country specific activities, or what other types of support they might be able to provide. Based on Mission response, a final determination of the center's location will be made, although the NEDAC currently thinks Egypt is likely to be the site for the center and Morocco the site for the main satellite. Missions will be asked to consider the management burden as well as funding availabilities for an in-country center.

Action: Visits to Missions by DR staff and a request to Missions to respond to a cable concerning the PID will provide Mission inputs into the design process.

6) Section 599/Gray Amendment: PP designers will ensure that Section 599 concerns are addressed and that Agency Gray Amendment policy is followed.

Action: Agency and Bureau guidance will be reviewed and incorporated into project design.

RECOMMENDATION: That you approve the attached Project Identification Document for the Near East Regional Clean Technologies Project so that PP design can proceed.

Attachment: Near East Regional Clean Technologies Project Identification Paper

Drafted: NE/DR/MENA:DPutman:CTEHPID:afs(PID approval):F

Clearances: NE/DR: MWinter (draft)  
NE/DR/ENR: GJackson (draft)  
NE/DR/MENA: RRedman (draft)  
NE/DP: VMolldrem (draft)  
SMerrill (draft)  
NE/ENA: FMiller (draft)  
MKorin (draft)  
NHuggins-Williams (draft)  
GC/NE: KO'Donnell (draft)

**ANNEX B**  
**LOGICAL FRAMEWORK**

**LOGICAL FRAMEWORK  
PROJECT IN DEVELOPMENT AND THE ENVIRONMENT**

<u>PROGRAM OR SECTOR GOAL:</u>	<u>OBJECTIVELY VERIFIABLE INDICATORS</u>	<u>MEANS OF VERIFICATION</u>	<u>IMPORTANT ASSUMPTIONS</u>
To promote sound environmental and natural resource policies and programs in support of long-term sustainable economic growth in ENE countries.	<u>Measure of Goal Achievements</u> Improved efficiency of natural resource use Improved environmental quality	Host country and Mission reports on key environmental indicators. Bureau reports Project evaluation reports	ENE Missions and host countries integrate sound environmental management into their strategic planning.  -Rational changes in environmental policy can be made that are cost effective.  -Governments will enact policies and implement programs encouraging private sector & NGO participation.
<u>Project Purpose</u>	<u>End of Project Status</u>		
To assist the ENE field Missions and host country institutions to:	<ol style="list-style-type: none"> <li>1. Specific policies are identified that can significantly reduce critical environmental problems.</li> <li>2. At least 4 ENE Missions and countries adopt ENR strategic planning concepts and methodologies.</li> <li>3. At least 4 ENE Missions and countries demonstrate greater recognition and understanding of the costs of critical environment trends.</li> <li>4. At least 4 ENE countries formulate policies that improve environmental quality and slow resource degradation.</li> <li>5. At least 8 industrial factories adopt voluntary actions and invest in industrial pollution abatement</li> <li>6. Improved participation and public awareness and NGO voice on ENR trends, policies, issues in several countries</li> </ol>	<p>-Several ENE missions incorporate Bureau-identified critical environmental and natural resource strategies into COSS, policy reform agenda and/or design projects with environmental components.</p> <p>-Host country governments act on recommended policy reforms and private sector initiatives.</p> <p>-The general public and NGOs have greater access to information and opportunities to express views and concerns to decision makers.</p> <p>Media (radio, tv, journal) discuss ENR issues; information networks developed</p>	<ol style="list-style-type: none"> <li>1. USAID Missions and ENE governments perceive the project TA as an important service</li> <li>2. Technically + financially attractive options exist and are available to those who make resource allocation decisions.</li> </ol> <p>2.1 It is in the perceived self interest of ENE governments and those with effective control over natural resources and allocation decisions to protect and enhance the environment.</p> <p>2.2 Governments allow NGOs to organize, develop and have an effective voice on environmental issues.</p>

OUTPUTS

**Strategic Planning**

1. Identification and dissemination of new and emerging EDR strategic planning concepts and methodologies useful to EDR Missions and host country institutions
2. Demonstration of strategic planning techniques that can help both Missions and host country institutions to develop action plans for using existing projects and programs to address critical EDR problems
3. Seminars which address emerging regional priorities enhance the participation of the private sector and the role of environmental NGOs for promoting democratic pluralism

OBJECTIVELY VERIFIABLE INDICATORS

**Magnitude of Outputs**

1. Documents or reports produced and disseminated or IA provided which is useful in:
  - assessing the significance of EDR trends and conditions in terms of economic growth, environmental health and ecological sustainability.
  - selecting priorities for action based on Mission portfolios and resources
  - identified specific opportunities for policy reform or change private sector initiatives and environmental education
- 2.1 At least two risk reduction/decision maker workshops organized and implemented involving 50 participants.
- 2.2 Mission buy-ins to support workshops & follow-up activities
- 2.3 Identify 10 environmentally beneficial actions, four of which have significant economic benefits.
- 3.1 Seminars organized and implemented in 4 EDR countries in areas such as environmental education, urban environmental quality, and water resource management.
- 3.2 Mission buy-ins

MEANS OF VERIFICATION

1. Documents, reports
- 2.1 Workshop schedules, attendance lists
- 2.2 Mission PIOT for buy-ins
- 2.3 Project, reports and demonstrations
3. Seminar schedules, attendance lists

IMPORTANT ASSUMPTIONS

1. Quality contractor performance, effective interaction with Missions to insure project outputs are relevant and incorporated.
2. USAID/host country interested in incorporating EDR into strategic planning
3. Private sector and NGOs are receptive and political atmosphere does not overly inhibit their activity.

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## BILL WATSON'S COPY

### Policy Analysis

- |  |   |  |   |
|--|---|--|---|
| <p>1. Environmental economic and institutional analyses that contribute to broad EDR country assessments and profiles</p>  | <p>1. TA delivered in at least 4 countries which analyzes:</p> <p>1.1 Costs of critical environmental trends to host country health, distributional effects, ecological sustainability, and biological diversity</p> <p>1.2 AID-hostcountry identify policies/lack of policies fostering inefficient resource use and market failure</p>  | <p>1. Documents containing analyses</p>                          | <p>1. Missions and host countries interested in addressing EDR policy issues.</p>   |
| <p>2. Assistance to Missions to carry out policy development initiatives that address EDR issues</p>   | <p>2.1 Seven or more requests for assistance received annually to identify technical assistance, prepare scopes of work.</p> <p>2.2 supporting studies completed on policies affecting:</p> <ul style="list-style-type: none"><li>-urban-industrial environmental quality</li><li>-water resources quality and availability including tenure issues associated with water allocation and living aquatic resource exploitation</li><li>-public access to information on critical environmental trends and public participation in EDR policy formulation</li></ul> | <p>2. Correspondence, SOAs, copies of studies.</p>               | <p>2. USAIDs will have funds to permit them to take advantage of assistance offered and project can deliver expertise to meet mission/host country needs.</p> |
| <p>3. Information disseminated on policy research and reform in EDR countries and on methods and approaches to EDR strategic planning, policy formulation and implementation</p> | <p>3. Semi-annual (9) newsletters distributed for use by USAIDs and made available to other interested audiences</p>  | <p>3. 9 newsletters distributed to USAIDs by core contractor</p> | <p>3. Information generated is useful, relevant</p>   |

INDUSTRIAL POLLUTION CONTROL

Private Sector

- |   |  |   |  |
|---|--|---|--|
| <p>1. World Environment Center transfers U.S. experience and technical expertise in industrial pollution control and acts as an environmental information service for the industrial sectors in the Near East.</p>  | <p>1. At mission, host country, or private sector request, WEC experts or associates conduct SD TA/training workshops/seminars, assist to establish 4 chamberpart organizations, demonstrate at least 10 industrial audits, and provide internships to at least 25 participants.</p> | <p>1. 1990 baseline vs mid project evaluation assessing WEC.</p>                    | <p>1. WEC has organization and management ability to handle expanded operations or ability to access services of associate institutions.</p> |
| <p>2. Testing of alternatives for expanding the adoption of voluntary private sector actions for addressing industrial pollution.</p>   | <p>2.1 Two or more alternatives tested in collaboration with WEC private, industrial firms</p>   | <p>2. Project and mission reports</p>   | <p>2.1 BA provided is effective.</p>   |
| <p>2.2 Creating or strengthening indigenous institutions which can promote private sector actions through training, environmental auditing services and information dissemination.</p>  | <p>2.2 At least two private (industrial) firms in WEC countries develop capability to provide environmental auditing services.</p>   |   | <p>2.2 Private sector industry exists, incentives exist and local firms are motivated to develop capacity to address pollution problems</p>  |
| <p>3. Complete country/subregion feasibility studies presenting voluntary pollution reduction measures in the urban private sector.</p>   | <p>3. Studies completed on (e.g.) tourism waste water management and commercial transportation (buses) air pollution, and host country firms use them to address pollution abatement.</p>  | <p>3. Project and Mission reports</p>   | <p>3. Studies are relevant to WEC countries and form basis for action</p>  |
| <p>4. The identification and analysis of regulatory options for addressing urban/industrial pollution by drawing on U.S. expertise to seek out host country institutions and promotion of dialogue between private and public sectors through workshops and/or the establishment of in-country working groups or advisory committees.</p> | <p>4.1 BA on ways of addressing urban/industrial pollution provided to host country institutions and firms which result in action in at least 4 countries.</p>   | <p>4. Workshop agendas, participant lists. Mission requests for BA and M&amp;A.</p> | <p>4. Services of U.S. expertise from municipal organizations, are available through the project.</p>  |
| <p>5. Development of a regional strategy for overcoming non-regulatory barriers to private sector investments in pollution prevention, control or reduction.</p>  | <p>5.1 Mechanisms for improving indigenous private sector access to information on environmental costs and technology options developed and shared.</p>  | <p>5. Requests from USAID and documented responses from project contractors.</p>    | <p>5. Organizations such as WEC can provide expertise and/or information and information is relevant and acted upon.</p>                     |
|   | <p>5.2 Project leverages non-WEC sources of capital investment through co-financing.</p>   |   |  |

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**Public Awareness  
Environmental Education  
and Accountability**

- |   |  |  |   |
|---|--|--|---|
| <p>1. Develop and implement an EIE regional strategy to promote environmental education</p>   | <p>1. Project contractor and associates produce:<br/>1.1 Inventory of U.S. and international institutions, expertise and resources, including A.I.D. Washington projects that can be accessed.<br/>1.2 A plan for supporting regional initiatives, such as short-term training for journalists, translation and dissemination of audio-visual and printed materials, etc.<br/>1.3 A plan for monitoring, evaluating and disseminating the results of the lessons learned from project pilot initiatives and ongoing efforts by others in the region.</p> |  |   |
| <p>2. Environmental training needs assessments that identify priorities, by local institutions that can develop and implement a national action plan, and opportunities for donor involvement</p> | <p>2. At least 2 country needs assessments completed</p>   | <p>2. Printed documents</p>  | <p>2. USAID and host institutions support</p>   |
| <p>3. Assistance to Ministries to identify environmental education (EE) initiatives and technical expertise and programs to implement these initiatives</p>                                       | <p>3.1 Mission request and project identification and priorities or letters of intent<br/>3.2 Several education ministries EE into existing human resources development and education programs.</p>  | <p>3.1 Mission requests, procurement documents<br/>3.2 Mission project documents, PP documents, PIA/PA</p> | <p>3. USAID interested in incorporating PA/EI in existing programs/projects.</p>  |
| <p>4. Collect and disseminate information on existing programs, expertise, activities and opportunities in EIE</p>  | <p>4. National dissemination of information to education and local contacts developed in several countries</p>   | <p>4. Printed documents</p>  | <p>4. Contractor or other service can access information and disseminate it in useful form.</p>   |
| <p>countries, and case materials for establishing in-country libraries.</p>   |  |  |   |
| <p>5. Support selected in-country activities to demonstrate approaches to promote public awareness and government accountability by use of small grants</p>                                       | <p>5. PIA/PA prepared by USAID offices. Six grants of \$40,000 or less provided to 5 EIEs in 3 countries for PA/EI activities</p>  | <p>5. Grant documents</p>  | <p>5. There are local EIEs and they are interested in PA/EI activities.<br/><br/>USAIDs and are interested in and support democratic pluralism in environment</p> |

**BEST AVAILABLE COPY**

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**BEZA WATER SUPPLY COMB**

<u>INPUTS</u>	<u>IMPLEMENTATION TARGET</u> <u>(TYPE/QUANTITY)</u>	<u>MEANS OF</u> <u>VERIFICATION</u>	<u>ASSUMPTIONS</u>
		P.No.	
1. Long-term technical assistance	\$ 5,103,530	324	Documents: - Funds available - Contract, Cooperative Agreement, RSSA, individual contracts - Contractor/Cooperator financial reports - Substantial buy-ins from USAID missions - Contractors/cooperators & AID/M capable of recruiting suitably-qualified personnel
Core contract	\$ 3,946,308	228	
Senior Research Economist		60	
Institutional Specialist		60	
Private Sector Analyst		48	
Administrative assistant		60	
RSSAs	\$ 1,157,230	96	
Environment Engineer		60	
Pollution Control Officer		36	
2. Short term technical assistance	1,798,436	108	
3. MEE Cooperative Agreement	2,270,771	127	
4. Urban Pollution Analysis	301,283	24	
5. Equipment	150,000		
6. Audit/Evaluation/Design	900,000		
7. Contingency	404,064		
8. Mission buy-ins	6,000,000		

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**ANNEX C**  
**ENVIRONMENTAL ANALYSIS**

**THRESHOLD DECISION BASED ON  
INITIAL ENVIRONMENTAL EXAMINATION**

(A) PROGRAM COUNTRY : NEAR EAST REGIONAL  
(B) ACTIVITY LOCATION : NEAR EAST COUNTRIES  
(C) PROJECT TITLE/ID : PROJECT IN DEVELOPMENT &  
THE ENVIRONMENT  
(398- 0365). AMENDMENT  
(D) PERIOD OF FUNDING : FY93-96  
(E) AMOUNT : \$2.7 MILLION  
(F) IEE PREPARED BY : Signature J. Paul E. des Rosiers  
J. Paul E. des Rosiers  
Senior Environmental Advisor  
(G) ENVIRONMENTAL ACTION : NEGATIVE DETERMINATION  
RECOMMENDED under A.I.D. Regulation 216  
Section 216.3 (a) (2) (iii).

**(H) DECISION OF NE BUREAU ASSISTANT ADMINISTRATOR**

APPROVED: Dennis Chandler  
Dennis Chandler, A-AA/NE  
DATE: 6/16/93

**(J) DECISION OF THE NE BUREAU ENVIRONMENTAL COORDINATOR**

APPROVED: Gilbert Jackson  
Gilbert Jackson, NE/DR/ENR  
DATE: 4/6/93

NB. Items C,D and E of this IEE reflect the Amendment in its final form.

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INITIAL ENVIRONMENTAL EXAMINATION

1. PROGRAM COUNTRY : NEAR EAST REGIONAL
2. ACTIVITY LOCATION : NEAR EAST COUNTRIES
3. PROJECT TITLE/ID : NEAR EAST REGIONAL CLEAN TECHNOLOGIES PROJECT (398-0376)
4. PERIOD OF FUNDING : FY93-98
5. AMOUNT : \$12 MILLION
6. IEE PREPARED BY : Signature   
J. Paul E. Des Rosiers  
Senior Environmental Advisor
7. ENVIRONMENTAL ACTION RECOMMENDED : NEGATIVE DETERMINATION under A.I.D. Regulation 216 Section 216.3 (a)(2)(iii).

8. DISCUSSION OF MAJOR ENVIRONMENTAL RELATIONSHIPS OF THE PROJECT RELEVANT TO THE ATTACHED IMPACT IDENTIFICATION AND EVALUATION FORM:

A. DESCRIPTION OF THE ACTIVITY

The purpose of this project to improve efficiency of NE firms through increased use of clean technologies. This will be done by (a) fostering demand for clean technologies by raising awareness of the benefits of these technologies, and (b) facilitating purchase and use of clean technologies by NE firms.

This action will finance the NE Regional Clean Technology Center for the Near East, probably in Cairo, an office and clean technology data base in the U.S., and possibly satellite clean technology center(s) in other Near East countries.

The NE Regional Clean Technology Center will promote clean technologies through demonstrations, installations, audits, clean technology workshops and training programs, and public awareness programs. It will also engage in linking potential purchasers of clean technology with U.S. suppliers of the technology.

The Clean Technology Office in the U.S. will maintain databases of U.S. clean technology suppliers, products, and related information, will be linked to existing clean technology databases, will be electronically linked with the regional center(s), and will serve as the U.S. base for the project. It will stimulate and promote linkages between American and Near East firms.

B. RECOMMENDED ENVIRONMENTAL ACTION

Pursuant to 22 CFR 216.3(a)(2), the originator of the proposed project has reviewed the potential environmental impacts of the

action and has determined that the technical assistance aspects of the proposed project, if implemented as described, will not have a significant negative impacts on the environment, and that the clean technologies installed consequent to the project would have only beneficial effects on the environment. To ensure compliance with A.I.D. environmental procedures, the use of clean technologies will be monitored and documented. A fixed proportion of project funds will be set aside to document and evaluate the environmental impacts of each clean technology at the demonstration site. This documentation can be used in turn to satisfy reporting requirements in the form of objectively verifiable indicators as well as other evaluation tools.

Pursuant to 22 CFR 216.3(a)(2)(iii), the originator of the proposed project recommends a negative determination of significant environmental impact for the NE Regional Clean Technologies Project, and requests NE Bureau approval of a negative threshold decision for this project.

**ENVIRONMENTAL IMPACT IDENTIFICATION AND EVALUATION FORM\*\***  
(see next page)

**ENVIRONMENTAL IMPACT INDICATOR AREAS**

**A. LAND USE**

- |  |   |
|--|---|
| 1. Changing the character of the land through:     |   |
| a. Land clearing                                   | N |
| b. Construction (roads, buildings)                 | N |
| c. Extraction of minerals                          | N |
| d. Creation of Deposits for Unwanted Materials     | N |
| 2. Alteration of Natural Barriers (dunes, marshes) | N |
| 3. Foreclosing Important Future Uses               | N |
| 4. Potential for Endangering Populated Areas       | N |
| 5. Other Factors                                   |   |
- 

**B. SURFACE AND GROUND WATER**

- |  |   |
|--|---|
| 1. Effects on Quality                            |   |
| a. Introduction of industrial pollutants         | N |
| b. Introduction of agricultural pollutants       | N |
| c. Introduction of urban/sewage wastes           | N |
| d. Introduction of or important wastes           | N |
| e. Potential for Transnational Impacts           | N |
| 2. Effects on Quantity                           |   |
| a. Changes in Water Flow Rates                   | N |
| b. Increasing probability of floods              | N |
| c. Potential for changing Demand/Supply Relation | N |
| d. Potential for Transnational Impacts           | N |

**C. AIR**

- |  |   |
|--|---|
| 1. Potential for increased NO <sub>x</sub> , SO <sub>x</sub> , HC, CO <sub>2</sub> /CO emissions | N |
| 2. Potential for increased Particulate emissions   | N |
| 3. Potential increase of noxious Odors, Vapors   | N |
| 4. Noise pollution   | N |
| 5. Other factors   | N |
- 

**D. ENERGY**

- |   |   |
|---|---|
| 1. Potential for Increased Energy Demand    | N |
| 2. Use of Renewable Energy Sources          | N |
| 3. Plans for Energy Efficiency/Conservation | N |
| 4. Other Factors                            | N |

**E. COASTAL AND MARINE RESOURCES**

- |   |   |
|---|---|
| 1. Introduction of Biological/Chemical Pollutants | N |
| 2. Introduction of Agricultural Runoff            | N |



ANNEX D  
EP3 BUY-IN FOR TUNISIA

# POLLUTION PREVENTION DEMONSTRATION (PPD) IN TUNISIA

## Statement of Work

### I. OBJECTIVES

The goal of the Environmental Pollution Prevention Project (EP3) is reduction in environmental pollution associated with urbanization and industrialization. The purpose of EP3 is to create the necessary conditions for decision makers in the public and private sectors to undertake proper urban and industrial pollution management in A.I.D.-assisted countries. To achieve this purpose, the EP3 project can assist USAID/Tunisia with the following specific activities:

- (1) providing a broad range of technical assistance, training, and information services for environmental awareness and pollution prevention at the plant, industry category, and country levels;
- (2) strengthening and expanding in-country sources of technical expertise for pollution prevention, including establishing national programs of pollution prevention training, information, and technical assistance;
- (3) identifying, promoting, and expanding sources of financing for pollution prevention technology and creating linkages between firms and agencies in the Near East and U.S. suppliers of pollution prevention expertise and equipment;
- (4) helping to improve national environmental policies, laws, regulations, and their implementing institutions so as to expand incentives for cleaner production;
- (5) promoting activities to encourage, coordinate, and combine the pollution prevention efforts of A.I.D. and other U.S. and donor agencies with the aim of achieving maximum pollution prevention benefit from their respective resources and comparative advantages.

The objective of PPD/Tunisia is to establish a sustainable pollution prevention program through the creation of a Pollution Prevention Office in Tunisia which will coordinate pollution prevention audits and assessments and their follow-up activities for interested firms in Tunisia.

PPD/Tunisia will include provision for long term and short term technical assistance from industrial pollution prevention experts from the U.S., Tunisia and the Near East Region; limited travel; in-country training, workshops, seminars, and information/technology demonstration fairs to:

- Create linkages between U.S. suppliers and Tunisia users of

pollution prevention technology;

- Establish a pollution prevention Information, Education and Communication (IE&C) program to disseminate information, technical data and marketing information on pollution prevention; and
- Develop the demand for and utilization of U.S. pollution prevention technology in Tunisia.

## II. BACKGROUND

In 1993, USAID/Tunisia, with assistance from the NE Bureau supported PRIDE Project, developed a long term Private Sector Development Environmental Strategy containing:

- Sixteen (16) Strategy elements for stimulating demand for private sector environmental strategies and technologies;
- Nine (9) Strategy elements to foster supply of private sector environmental services and technologies; and
- Four (4) Strategy elements for improving the performance and efficiency of private enterprises.

The Strategy was prepared over several weeks in very close collaboration with the new Government of Tunisia Ministry of Environment and Land Use and closely reflects the Ministry's policy regarding development of pollution prevention services and technology. Also during 1993, the NE Bureau was in the process of preparing a new pollution prevention/clean technology project initiative. This process culminated with the decision to create a new 5th Component for the PRIDE Project focussing on pollution prevention. These two activities which were in development simultaneously resulted in a decision to provide funds to enable a PRIDE/EP3 buy-in to establish a pollution prevention program and office in Tunisia.

PPD/Tunisia will provide funding under the EP3 buy-in for 3 specialists to be assigned long-term to Tunisia (Private Sector Specialist, Engineer and Information Analyst), complemented with short-term expert consultancies, workshops, training and information fairs needed to establish a sustainable pollution prevention program in Tunisia. The EP3 Project will provide pollution prevention information available in the U.S.-based EP3 Clearinghouse to Tunisia through the information, education and communication capability of the Pollution Prevention Office in Tunisia. EP3 will also provide short-term U.S. pollution prevention experts (both paid consultants and pro bono specialists), local in-country pollution prevention and control specialists, EP3 training and design assistance during implementation.

## III. DESCRIPTION OF PPD/TUNISIA

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## A. Pollution Prevention Office

An in-country Pollution Prevention Office will be established in Tunisia. It is presently envisioned that the Office could be located in (1) UTICA (Union Tunisienne de l'Industrie, du Commerce et de l'Artisanat); (2) the new "Percy Technology Park" (a privately based, 418 million global technology park soon to commence construction in Tunis); or (3) the Tunisian-American Chamber of Commerce (TACC), all of which can provide access and introductions to private sector business managers and the professional engineering and technical communities. As part of the planning for PPD/Tunisia, visits and discussions will be conducted with these organizations to determine which entity, or group of organizations, is most suitable for PPD/Tunisia.

The EP3 buy-in activities under PPD/Tunisia will be coordinated with other PRIDE activities. PRIDE's private sector, trade and imports expertise and information on industrial and environmental NGO's in Tunisia will be useful during PPD/Tunisia implementation. PRIDE's legislative and policy work will also be able to encourage an atmosphere conducive to the promotion of pollution prevention. The World Environment Center (WEC) will be providing workshops, promotional information and assisting with technology demonstrations which will be useful in creating a positive impression about activities of the Pollution Prevention Office. PRIDE/WEC experts and information services may augment and enhance the capabilities of the in-country staff. WEC's current activities will be linked to follow-up activities of PPD/Tunisia and will be used to provide some of the highly specialized expertise not currently available in Tunisia. In conjunction with PPD/Tunisia audits and assessments, WEC may provide technical assistance, training and information on industrial measures to improve health and safety in Tunisian firms.

## B. Staff

Three locally contracted Tunisian specialists will be provided under PPD/Tunisia:

- Private Sector Specialist/Marketing Analyst;
- Pollution Prevention Engineer; and
- Information Analyst.

The Private Sector Specialist will serve as Office Director and will be responsible for overall PPD/Tunisia implementation. The Private Sector Specialist will be responsible for creating linkages between Tunisian firms and U.S. suppliers of pollution prevention equipment and services. These linkages are described in the following section. The Pollution Prevention Engineer will be responsible for providing follow-through to the audits and assessments conducted by short-term technical experts from the U.S. The Information Analyst will have primary responsibility

for tracking the impact of pollution prevention techniques on the efficiency and profitability of participating firms and for conducting database searches when pollution prevention technical, trade or marketing information is needed.

### C. Functions of the Pollution Prevention Office

The PPD Pollution Prevention Office in Tunisia will have two primary functions:

- (1) Promoting interest and demand for the pollution prevention approach in Tunisian firms, including:
  - Pollution Prevention Audits and Assessments;
  - Pollution Prevention Workshops and Training;
  - Pollution Prevention Information, Education and Communication (IE&C).
- (2) Facilitating transfer of pollution prevention know-how and technologies to Tunisian firms including:
  - Bringing buyers and sellers together;
  - Providing services in support of technology transfer including information on U.S. suppliers and product specifications; liaison with U.S. suppliers; assistance with government, AID and other donor programs; and assistance to U.S. firms using U.S. export assistance programs; and
  - Promoting joint ventures between U.S. and Tunisian companies to promote and market U.S. pollution prevention and control technologies and services.

### D. Pollution Prevention Audits and Assessments

Evaluations of PRIDE pollution prevention activities in the Near East have identified the absence of an in-country presence as the major shortcoming of the NE Bureau's approach to promoting pollution prevention. A series of seminars, workshops and visits by short-term pollution prevention experts have created an interest and a demand for pollution prevention services and technologies which the NE Bureau is currently unable to meet. The audit and assessment function of the Pollution Prevention Office will be instrumental in closing this loop. A thorough review of a plant's operating and maintenance procedures and production processes will provide an opportunity to train on-site personnel about pollution prevention. At the same time information about the plant can be gathered which will be used to link these firms to U.S. suppliers of pollution prevention technology and with specialized technical experts. Pollution prevention audits and plant assessments will help identify those changes in a company's practices which can be made quickly and at little or no cost as well as recommendations for new, clean

production processes and equipment.

An important activity for PPD/Tunisia will be to provide follow-up assistance to help Tunisian firms to implement audit recommendations. The audit and assessment activity will be undertaken by U.S. pollution prevention experts, private consultants and/or Tunisian experts/engineers. These immediate adjustments within the plants should demonstrate the benefits of pollution prevention expertise and increase the interest among plant managers for further alterations in their production processes, some of which may require purchase of pollution prevention equipment.

The PPD approach will be to concentrate on no-cost (housekeeping), low-cost (under \$50,000), and medium-cost (under \$500,000) U.S. pollution prevention procedures and products that can be retrofitted into existing Tunisian industrial facilities without jeopardizing current production volume or quality, or introduced into the design of new industrial plants. There may be very inexpensive (i.e. about \$5,000 dollars) technologies which can be demonstrated. Staff will assist Tunisian firms in using AID Mission programs (e.g. Commodity Import Program) when available, American Embassy commercial service programs, and any other programs which can assist in financing purchases of equipment and overcoming other obstacles to using imported U.S. products.

#### E. Linkages Between Tunisian Firms and U.S. Suppliers

One of the functions that the Pollution Prevention Office in Tunisia will be to identify specific companies in Tunisia which can become more competitive through the use of the pollution prevention approach. The private sector specialist will need to be able to identify and assess specific opportunities within those firms for the use of the pollution prevention approach and technologies. Then, the EP3 Office in Washington can identify American suppliers of these products and encourage them to participate in PPD activities which will include equipment information fairs, making available product information and promotional brochures, and regional operation and maintenance training for interested firms.

Although the PPD pollution prevention engineer will assist Tunisian companies to understand and evaluate the full range of appropriate U.S. technologies available, specific selection of a U.S. brand will be the sole responsibility of the Tunisian firm involved. However, all U.S. vendors supplying information to the program on their products will be given information on companies in the region which are potential customers. Interested U.S. companies and trade consortia can choose to contact Tunisian or other Near East companies directly, hire agents in host countries, or participate in the activities of PPD/Tunisia. The in-country private sector specialist will assist Tunisian firms in using A.I.D. Mission programs (e.g. Commodity Import Program), Embassy commercial service programs, and other programs which can assist in financing purchases and overcoming other obstacles to

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using imported U.S. products.

The EP3 core staff in the U.S. will be responsible for coordination of contacts between U.S. firms and business organizations and Tunisian companies and business groups. The U.S. based EP3 contractor must also act as one of the principal initiators of U.S. contacts on behalf of PPD/Tunisia. The core staff will have responsibility for facilitating the visits of U.S. companies to Tunisia and for hosting Tunisian businessmen visiting U.S. companies.

The final linkage necessary for the success of PPD/Tunisia will be to promote exchange of information between all of the different institutions, projects, and private sector entities which are interested in business in Tunisia. One major source of information and expertise for PPD/Tunisia will be the Private Sector component of PRIDE. This component is charged with:

- Facilitating fund creation for co-financing project development by the World Bank, the International Finance Corporation, OPIC or others,
- Helping host country's financial community to package and market financing instruments,
- Market surveys, feasibility studies, and financial analyses in the industrial and urban sectors giving preference to the identification of investments which promote the commercial transfer of U.S. environmental technology, services, and equipment.

Knowledge of these activities and information gathered from participating firms will be crucial for developing linkages between all of the interested parties (industries/ suppliers/ financiers).

#### F. Pollution Prevention Information, Education and Communication

Although the activities of this PPD activity are intermingled with all of the other PPD activities, it is useful to think of these activities, separately, as performing the critical PPD/Tunisia mission: to improve efficiency of Tunisian firms through the increased use of pollution prevention methodologies. Increased use of pollution prevention techniques and efficiency of Tunisian firms can only be achieved by successfully delivering the pollution prevention message.

The PPD/Tunisia approach will be to utilize information available through PRIDE and the EP3 Clearinghouse in Washington to develop a Information, Education, and Communication (IEC) program which will be the joint responsibility of US and overseas staff. The information program consists of environmental databases, pollution prevention publications and information, and training and product information fairs which will be provided by PPD/Tunisia. Pollution Prevention education will be achieved through the long and short-term technical assistance staff,

pollution prevention audits and assessments, and training for plant personnel. The results from PPD/Tunisia as well as information on the use and philosophy of the pollution prevention approach will be communicated through a series of workshops, information fairs, newsletters, publications in trade journals, and training seminars.

Pollution prevention information and sources of technologies will be provided through a variety of U.S. pollution prevention technology data bases including one designed for use in the field, currently under development by Capital Systems/PRIDE. This CD-rom system is expected to be completed by August, 1993. The field data base will assist the in-country staff in performing pollution prevention audits and assessments as well as providing up-to-date information about U.S. companies and products.

Initially, information will be made available at no charge to Tunisian firms. Eventually a fee-for-service arrangement will be phased in. Additionally, PPD/Tunisia will make databases readily accessible for Tunisian firms to come into the Pollution Prevention Office and explore pollution prevention options for their firms in a manner which expands their pollution prevention capabilities. In-country staff will have the responsibility for expanding information in databases based on specific economic savings, returns on investments, and payback periods for common examples of the pollution prevention equipment purchased by Tunisian and other Near East firms.

The successful introduction of an American pollution prevention philosophy and methodology into Tunisia will require innovative thinking on the part of PPD managers and contractors and a willingness to make implementation adjustments quickly. While the main emphasis of PPD/Tunisia activities will be on Tunisia, PPD/Tunisia should take advantage of ever improving telecommunications and increasingly close linkages of the global economy. The immediate objective of PPD/Tunisia is to assist Tunisia become more competitive by introducing pollution prevention methods rather than end-of-pipe treatment alone. Thus, a longer term environment goal is ever present in this project.

PPD/Tunisia proposes to link the U.S. EP3 office, Chambers of Commerce or other appropriate industrial organizations in the Near East, USAID Missions, and AID/W electronically in order to take advantage of the speed and cost savings of this form of communication. U.S. and international pollution prevention databases provided by PRIDE and EP3 will be accessed via CD-ROM or computer modem.

IRSIT, Institut Regional des Sciences Informatiques et des Telecommunications, as the pre-eminent information/data processing "thinktank" in the Middle East will play a role in PPD/Tunisia. IRSIT, located in Tunisia, has fully developed capabilities in electronic data collection/storage and transmission with links to Near East countries, Europe, and the

U.S. through the acunet system. They will soon develop a pilot trade data/information system linking into data banks in the U.S., Europe, and Asia to make available two-way trade leads for a local chamber of commerce. PPD/Tunisia will explore new ways to take advantage of this modern communication capacity.

Tunisia will soon be the site of a new global technology park, the brain-child of former Senator Charles Percy and his son, Mark. Eighteen million dollars has already been raised in the private sector to begin Percy Park. Six American firms, including Westinghouse, have interests in the park. The University of Maryland plans to set up an overseas campus for Master's level programs. This park will be linked to six others ranging in a crescent from Spain through Turkey to Russia. PPD/Tunisia staff will consider ways to link with Percy Park in order to promote a pollution prevention approach to a broader audience.

Finally, it is possible that wealthier Arab neighbors from the Gulf States could become interested in the pollution prevention way of doing business. While PPD staff and resources will not be directly made available to them, under a fee-for-services mechanism, they could pay to attend seminars, workshops, or use PPD data bases. While utilization of PPD resources may be fairly exclusive, the promotion of an approach to help deal with industrial pollution will be more inclusive. The Regional Environmental Advisor to the U.N. Economic and Social Commission for Western Asia (ESCWA) provides pollution prevention assistance to Gulf States and has indicated interest in collaborating with PPD/Tunisia and EP3. PPD/Tunisia pollution prevention training programs could reach both private and public sectors in Tunisia, the Near East and the Gulf.

#### G. U.S.-Based PPD/Tunisia Support

Staff hired by the implementing EP3 contractor in the United States will provide support to PPD/Tunisia on implementation and management. The U.S. Office will have primary responsibility for identifying and providing short-term pollution prevention experts to assist with audits and assessments, training and other PPD/Tunisia implementation activities and identifying U.S. manufacturers of pollution prevention equipment and enrolling these companies in PPD/Tunisia activities. Also, the staff will represent PPD at the appropriate pollution prevention equipment and trade exhibitions in the United States. The U.S. office staff will:

- (1) Set up and provide staff for the PPD/Tunisia Pollution Prevention Office;
- (2) Identify and provide short-term experts for PPD/Tunisia audits and assessments;
- (3) Provide experts for in-country pollution prevention training and information fairs;

- (4) Provide services and information in the EP3 Clearinghouse in Washington to establish IE&C. IE&C will include databases, training materials and courses, videotapes, publications. The EP3 Clearinghouse will search through other pollution prevention databases for products, processes, and supplies that meet the exact technical and economic needs of PPD/Tunisia and Tunisian companies;
- (5) Keep informed about other pollution prevention programs, information exchanges, and databases currently operated by EPA, the United Nation Environment Programmes, WEC and PRIDE and coordinate PPD activities with these programs and AID programs, such as EPAT and GREENCOM;
- (6) Remain fully informed about sources of U.S. export assistance such as the A.I.D. Private Sector Revolving Fund, the Department of Commerce International Trade Administration, the trade and development program of the International Development and Cooperation Agency, the Export/Import Bank, the Overseas Private Insurance Corporation, the Overseas Private Investment Program, the Foreign Commercial Service, and the Small Business Administration, as well as new forms of assistance;
- (7) Provide readily available information, stateside research related to specific potential trade activities, and stateside liaison with U.S. firms, organizations, and government agencies to the regional offices;
- (8) Coordinate overall technical assistance for pollution prevention activities and workshops using industry experts, and PRIDE (including WEC).

#### IV. Scope Of Work

The PPD/Tunisia program for industrial pollution prevention will utilize the Environmental Pollution Prevention Project (EP3), to share and transfer the advances made in the United States in pollution prevention, waste minimization and clean production technologies with industry in Tunisia.

PPD/Tunisia will identify, design and promote a Tunisian pollution prevention program and help create the enabling environment for the implementation of industrial pollution prevention, reduction and management of wastes through technical assistance, training and information services. EP3 and its implementation contractor will provide technical assistance to the Pollution Prevention Office and factories in Tunisia, on source reduction, pollution prevention, waste minimization and recycle/reuse of produced wastes.

EP3 will access environmental experts from industry, TACC-member companies in U.S., professional societies, environmental consultants, laboratories, EPA, state and local environmental

officials, universities, NGOs and environmental groups to address pollution problems in Tunisia. EP3 will also utilize local, in-country experts from Tunisian companies and non-profit organizations, local professional societies, local environmental consultants, government, Tunisian research laboratories and companies and other specialists.

A. Task 1: SETTING UP STRATEGIES

The EP3/Washington contractor shall submit to the R&D/ENR Project Officer, NE/DR/ENR and USAID/Tunisia a work plan for the Task 1 four (4) weeks prior to starting work. The work plan shall state detailed elements of the work involved in all activities to be performed, resumes of Tunisian specialists who will staff the PPD/Tunisia Pollution Prevention Office, work performance schedules and budgets. The initial findings obtained from the activities outlined below, following NE/DR/ENR and USAID/Tunisia clearance and approval of the R&D/ENR Project Officer, shall be reviewed periodically with UTICA, TACC, and invited Tunisian industrial organizations to insure close collaboration with associated environmental pollution prevention activities.

B. Task 1: Activities and Elements

Task 1 of the PPD/Tunisia program is tailored specifically to the needs of Tunisian industry and priorities of USAID/Tunisia. Task 1 includes the following activities and elements: (1) Pollution Prevention Office in Tunisia; (2) PPD/Tunisia strategy and Pollution Prevention Roundtable; (3) EP3 Task 1 plant level innovations; and (4) Leadership Conference on Pollution Prevention with presentation of results of Task 1 and Task 2 Action Plans.

(1) Establishing the Pollution Prevention Office in Tunisia, which will be located at (1) UTICA (Union Tunisienne de l'Industrie, du Commerce et de l'Artisanat); (2) the new "Percy Technology Park" (a privately based, 418 million global technology park soon to commence construction in Tunis); or (3) the Tunisian-American Chamber of Commerce (TACC), all of which can provide access and introductions to private sector business managers and the professional engineering and technical communities. Three locally contracted Tunisian specialists will staff the Pollution Prevention Office in Tunisia:

- Private Sector Specialist/Marketing Analyst;
- Pollution Prevention Engineer; and
- Information Analyst.

The Private Sector Specialist will serve as Office Director and will be responsible for overall PPD/Tunisia implementation. The Private Sector Specialist will be responsible for creating linkages between Tunisian firms and U.S. suppliers of pollution

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prevention equipment and services. These linkages are described in the following section. The Pollution Prevention Engineer will be responsible for providing follow-through to the audits and assessments conducted by short-term technical experts from the U.S. The Information Analyst will have primary responsibility for tracking the impact of pollution prevention techniques on the efficiency and profitability of participating firms and for conducting database searches when pollution prevention technical, trade or marketing information is needed. The PPD Pollution Prevention Office in Tunisia will have two primary functions:

(a) Promoting interest and demand for the pollution prevention approach in Tunisian firms, including:

- Pollution Prevention Audits and Assessments;
- Pollution Prevention Workshops and Training;
- Pollution Prevention Information, Education and Communication (IE&C).

(b) Facilitating transfer of pollution prevention know-how and technologies to Tunisian firms including:

- Bringing buyers and sellers together;
- Providing services in support of technology transfer including information on U.S. suppliers and product specifications; liaison with U.S. suppliers; assistance with government, AID and other donor programs; and assistance to U.S. firms using U.S. export assistance programs; and
- Promoting joint ventures between U.S. and Tunisian companies to promote and market U.S. pollution prevention and control technologies and services.

(2) Preparing a PPD/Tunisia strategy and convening a Pollution Prevention Roundtable to discuss the operational detail of Task 1, and to identify anticipated activities, scheduling, and responsibilities for later tasks. Elements of the PPD strategy, which is expected to take 4-6 weeks and involve close collaboration with USAID/Tunisia, will include:

- Rapid assessment of Tunisian environmental policy and regulations;
- Identifying Tunisian pollution prevention and control experts;
- Identifying in-country, regional, and other sources of financing for industrial pollution prevention equipment including the World Bank or other development banks;
- Selecting the initial 6-8 target industry plants;

The initial target industry plants will represent a major industrial pollution problem in Tunisia and will be identified in part through research based on existing data and studies, and in part through consultations with USAID/Tunisia, TACC, UTICA, Tunisian Chamber of Commerce and industry associations, government agencies, and representatives of various industry categories and plants. Selection criteria will include indications of interest on the part of plant managers in reducing pollution and minimizing waste in their industry categories; the apparent practicability of introducing both no/low capital cost and more capital-intensive pollution prevention innovations; and a high likelihood that such innovations will result in significantly cleaner production and a significant positive effect on environmental quality.

The strategy will be finalized at the Pollution Prevention Roundtable with USAID/Tunisia, TACC, UTICA, chambers of commerce and other invited participants.

(3) The Task 1 plant level innovations component of the PPD/Tunisia program will be conducted by EP3 technical teams including U.S. experts and local Tunisian experts and are expected to take two to four months, depending on the complexity of the situations in initial target plants and the natures of the innovations introduced. This component will result in pollution prevention innovation successes in the 6-8 initial target plants, and the beginnings of a Tunisian network of experienced industrial pollution prevention professionals and advocates. This component includes:

- Laying the groundwork for pollution prevention activities at the target plants in a preparatory seminar for in-country pollution prevention specialists and all plant personnel that will participate in the team working in individual plants. Known pollution problems at the plants and the general procedures for conducting pollution prevention audits and assessments will be discussed. After the seminar, personnel from the target plants will begin the process of collecting needed data at their factories in preparation for the audits and assessments. EP3 technical teams will assist plants in developing or estimating baseline environmental data on quality and quantity of discharges and emissions, costs and efficiencies of raw materials use, equipment specifications including water and chemical use and other information needed for the environmental assessment.
- Conducting pollution prevention audits and assessments in the initial target plants to identify measures for reducing pollution generated by the facilities. The audits and assessments entail several visits to each target plant by EP3 personnel, including local pollution prevention specialists, over a two-week period. Of the pollution prevention measures identified during the audits and assessments, those that involve no/low capital cost actions that can be carried out immediately, and their expected

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benefits, will be fully detailed. These would include measures such as improved housekeeping, recycling, better inventory management, more efficient overall process management, minor equipment changes, improved maintenance, and so on. The contractor may use up to \$5,000 per plant to acquire off-the-shelf hardware to expedite innovations.

- Less detailed recommendations will also be made regarding more capital-intensive process changes and cleaner production equipment that will both enhance profitability and reduce polluting discharges. Additional assistance related to these more capital-intensive innovations will be provided later in Task 2 of the program, after the plant has successfully carried out the no/low capital cost innovations.
- Formulating and carrying out a program of no/low capital cost pollution prevention innovations in the initial target plants. Technical assistance will be provided for carrying out the innovations, for training plant personnel and for measuring pollution prevention and cost reduction benefits.

Conducting industry study tours to the U.S. This activity includes selection of industry and government experts to participate in visits to U.S. industries, clean production equipment manufacturers, government programs and other U.S. institutions that will assist PPD/Tunisia select and implement Task 1 and Task 2 innovations and establish a sustainable pollution prevention program.

(4) The Leadership Conference on Pollution Prevention - Decision and Commitment Benchmark - is a highly publicized one-day meeting of USAID/Tunisia, UTICA, TACC, key members from industry and government, and other invited participants to present the results of implementing no/low capital cost innovations at the target plants and their pollution prevention and economic benefits. The individual Task 2 pollution prevention action plans for more capital-intensive innovations will be presented for each target plant. The Task 2 action plan will be presented and explain the timing and precise nature of these activities. The Leadership Conference on Pollution Prevention therefore marks not only a Tunisian leadership commitment in principle to pollution prevention, but also acceptance of concrete commitments necessary for a successful Task 2 from the institutions directly involved in their implementation.

#### C. Task 1: Deliverables

The contractor shall complete the Task 1 activities and elements within nine months of work plan approval and provide the following deliverables:

- Prepare a Task 1 PPD/Tunisia work plan for the approval of the R&D/ENR Project Officer and clearance of NE/DR/ENR and USAID/Tunisia four (4) weeks prior to starting any work.
- Establish and staff the Pollution Prevention Office in Tunisia.
- Convene Pollution Prevention Roundtable and Leadership Conference on Pollution Prevention.
- Prepare a Task 1 PPD/Tunisia report which provides the results of (1) PPD/Tunisia strategy and Pollution Prevention Roundtable; (2) EP3 Task 1 plant level innovations; and (3) EP3 Task 2 Action Plan and Leadership Conference on Pollution Prevention.

The EP3 Task 1 plant level innovations section of the report shall identify recommended no/low capital cost innovations, results of monitoring their implementation and recommendations of more capital-intensive innovations identified at each Task 1 industrial facility. The Task 2 Action Plan shall include a listing of potential industry facilities for more capital-intensive pollution prevention innovations and an implementation plan for these innovations.

#### D. Task 2: DEMONSTRATIONS & DISSEMINATION

The contractor shall submit a Task 2 implementation action plan within two (2) weeks of approval of the Task 1 report. The Task 2 implementation action plan shall state detailed elements of the work involved in all activities to be performed, work performance schedules and budgets. The initial findings obtained from the tasks and activities outlined below, following R&D/ENR Project Officer approval and NE/DR/ENR and USAID/Tunisia clearance, shall be reviewed periodically with UTICA, TACC, and invited Tunisian industrial organizations to insure close collaboration with associated environmental pollution prevention activities.

#### E. Task 2: Activities and Elements

Task 2 of the PPD/Tunisia program will extend for fifteen (15) months beyond Task 1. The Task 2 program includes the following activities and elements: (1) Task 2 plant level innovations; (2) Task 2 industry level training and technical assistance; (3) Task 2 industry study tours and demonstration projects; and (4) Task 2 PPD/Tunisia Pollution Prevention Program Development.

(1) Task 2 plant level innovations. Task 2 includes pollution prevention audits and assessments at 6-8 additional target plants using the same methodology described above in Task 1 plant level innovations. EP3 technical teams will consist of U.S. experts

and local, in-country specialists. Task 2 also includes the following types of assistance to Task 1 and Task 2 target plants that have successfully introduced no/low capital cost pollution prevention measures:

- Support for technical and economic appraisals for capital-intensive pollution prevention and control technology;
- Technical assistance to help assess information from suppliers of pollution prevention equipment and to help identify sources of financing the equipment; and
- Technical assistance associated with installing pollution prevention equipment.

(2) Task 2 industry level training and technical assistance. This assistance includes activities designed to extend plant level pollution prevention innovations throughout the target industry. The types of PPD/Tunisia Task 2 assistance activities include:

- Training for plant managers and other personnel, either industry-wide training related to pollution prevention and waste minimization in the industry category, on-site training in individual plants, or demonstration-based training utilizing innovations introduced in Task 1 target plants;
- Technical assistance to address pollution problems throughout the industry category and develop industry-wide or region-wide pollution prevention measures; and
- Assistance for establishing linkages with in-country and U.S. suppliers of pollution prevention expertise and technology.

(3) Task 2 PPD/Tunisia Pollution Prevention Program Development. This activity is the foundation for a self-sustaining Tunisian program in pollution prevention and control. An important function of this activity is to design a fee-for-services or other concept to provide sustainable pollution prevention training, information, and technical assistance to industry. PPD/Tunisia will experiment with fee-for-services or other conceptual designs for collecting and disseminating pollution prevention and control information, providing a range of training programs, providing pollution prevention and control technical assistance services, and developing and maintaining databases of suppliers of pollution prevention and control expertise and technology for referral purposes. Special activities that may be undertaken by PPD/Tunisia, using EP3 teams comprised of U.S. and local in-country specialists, include:

- training for operating and maintaining special measuring and testing equipment to monitor pollution prevention innovations in individual plants;

- hosting regular meetings of industry and government officials to address specific pollution problems;
- training "pollution prevention managers" from factories who can train other plants and work with technical experts to conduct pollution prevention audits and assessments;
- Conducting pollution prevention awareness programs including preparation of materials for general public, government, and industry pollution prevention awareness programs.

#### F. Task 2: Deliverables

The contractor shall submit the Task 2 implementation work plan within two (2) weeks of approval of the Task 1 reports. The contractor shall complete the Task 2 activities and elements within fifteen (15) months of work plan approval and provide the following deliverables:

- Prepare a Task 2 PPD/Tunisia implementation action plan for the approval of the R&D/ENR Project Officer and clearance of NE/DR/ENR and USAID/Tunisia prior to starting any Task 2 work.
- Prepare a Task 2 final report which provides the results of (1) Task 2 plant level innovations; (2) Task 2 industry level training and technical assistance; (3) Task 2 industry study tours and demonstration projects; and (4) Task 2 PPD/Tunisia Pollution Prevention Program Development.

The EP3 Task 2 plant level innovations section of the interim report shall identify recommended equipment and innovations, results of monitoring their implementation and results of feasibility studies, financial architecture and potential roles for local partners. The report will also identify EP3 technical experts from the U.S. and Tunisia who assisted with Task 2 implementation and comment on progress in designing the fee-for-services or other conceptual design for a sustainable Tunisian pollution prevention program should be presented.

#### IV. PPD/Tunisia Pollution Prevention Office

The contractor shall staff the PPD/Tunisia Pollution Prevention Office and provide PPD/Tunisia office space, secretarial services, office equipment described below and program support in Tunisia. The contractor shall provide support services that links PPD/Tunisia with the EP3 Clearinghouse and EP3 Headquarters in Washington. The contractor shall budget for local copying and distribution of pollution prevention information and publications, communications with the EP3 Clearinghouse and EP3 Headquarters and specialized computer hardware and software needed to operate the PPD/Tunisia IE&C program.

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The PPD/Tunisia Pollution Prevention Office shall be equipped with a fax machine, and three (3) personal computers with Windows™ capability, including at least one laptop/portable type machine. The office computer system shall be capable to link electronically with the U.S. and have CD-ROM storage/retrieval facilities. Electronic links (including computers and Fax) between the offices, the EP3/Washington and the EP3 Clearinghouse, USAID Missions, and AID/W are essential to take advantage of the speed and cost savings of this form of communication to convey massive amounts of information. U.S. and international pollution prevention data bases will be accessed via computer modem. Finally, the office will acquire one motor vehicle to be use in official Office business and funds should be allocated for operation and maintenance costs.

Limited amounts of office supplies and equipment (audio-visual supports, etc) shall be provided by the contractor for the PPD Office. Geographic codes 000 and procurement from host countries participating in PPD activities will apply for all commodities procured under this component unless specific source/origin waivers are approved by the delegated authority. U.S. equipment can be procured locally provided the purchase is under \$100,000 per transaction. Local procurement from geographic code 935 will be allowed up to \$5,000 per transaction.

The contractor will contract with three Tunisian specialist to staff the Pollution Prevention Office in Tunisia for twenty-four (24) months: (1) Private Sector Specialist/Marketing Analyst; (2) Pollution Prevention Engineer; and (3) Information Analyst. The duties and qualifications of these three specialists are provided below:

- A. The Private Sector Specialist/Marketing Analyst will serve as Office Director and will be responsible for overall PPD/Tunisia implementation. The Private Sector Specialist will be responsible for creating linkages between Tunisian firms and U.S. suppliers of pollution prevention equipment and services. The Private Sector Specialist will:
- Task 1: Identify specific companies in the region which can become more competitive through the use of a pollution prevention approach.
  - Task 2: Identify and assess specific opportunities within those firms for the use of the pollution prevention approach and technologies.
  - Task 3: Assist Near East firms in using A.I.D. Mission programs (e.g. Commodity Import Program), Embassy commercial service programs, and other programs which can assist in financing purchases and overcoming other obstacles to using imported U.S. products.
  - Task 4: Assist in the preparation of scopes of work for short- term technical assistance.

- **Task 5:** Be a key resource and/or member working with short-term technical assistance involved with private sector activities.
- **Task 6:** Assist the Information Specialist in the planning and holding of Pollution Prevention Workshops, Seminars, and Information Fairs sponsored by PPD/Tunisia.
- **Task 7:** Provide inputs on private sector aspects of documents including Annual Workplans, financial reports and progress reports.

Qualifications of the Private Sector Specialist include:

- Strong private sector/business/engineering background, with a minimum of ten (10) years of experience, including at least five (5) years of relevant experience in Tunisia;
- Bachelor's degree (or higher) in Business, Administration, Engineering or a related field, preferably from an accredited U.S. University;
- Experienced in the introduction of new technologies and the promotion of industrial private sector development;
- Bi-lingual in English and French at least at the FSI-equivalent S3/R3. Knowledge of Arabic is desirable. Effective communication and writing skills in English and French are required.

Duration - 24 person months.

- B. The Pollution Prevention Engineer** will be responsible for providing guidance and follow-through to the pollution prevention audits and assessments conducted by long- and short-term technical experts in Tunisia. The Engineer will coordinate thorough reviews of plants' operating and maintenance procedures and production processes and will:
- **Task 1:** Plan, coordinate, implement or direct all pollution prevention audits and plant assessments undertaken by means of short-term technical assistance.
  - **Task 2:** Identify those changes in a company's pollution prevention practices which can be made quickly and at little or no cost, those that require medium scale changes or those that involve the purchase of new technologies.
  - **Task 3:** Provide follow-up assistance to help Tunisian firms to implement audit recommendations.
  - **Task 4:** Assist Tunisian companies to understand and evaluate the full range of appropriate U.S. technologies available.

- Task 5: Attend training sessions provided by U.S. vendors so that he/she can provide, when necessary, follow-up advice to firms about their process operations and maintenance procedures.
- Task 6: Gather relevant technical information about all plants audited/assessed. This information will be used to link these firms to U.S. suppliers of pollution prevention technologies and with specialized U.S. experts.
- Task 7: Assist with the preparation of documents such as scopes of work, workplans, and progress reports.
- Task 8: Assist in the coordination of short-term technical assistance related to industrial audits/assessments.

Qualifications of the Pollution Prevention Engineer include:

- Bachelor's degree in Engineering (preferably a Master's Degree) from an accredited U.S. University;
- At least three to five (3-5) years of experience as an Industrial Engineer working in Tunisia;
- Expertise in pollution prevention/clean technologies is desirable, or at least demonstrated commitment to the PP approach rather than end-of-pipe solutions.
- Bi-lingual in English and French at least at the FSI-equivalent S3/R3. Knowledge of Arabic is desirable. Effective communication and writing skills in English and French are required.

Duration - 24 person months.

C. The Information Analyst will have primary responsibility for tracking the impact of pollution prevention techniques on the efficiency and profitability of participating NE firms and for conducting data base searches when pollution prevention information is needed. In conjunction with other long and short-term technical assistance, will be responsible for the IE&C activities. The Information Analyst will:

- Task 1: Responsible for expanding information in Pollution Prevention Databases based on specific economic savings, returns on investments, and payback periods for common examples of the pollution prevention equipment purchased by Tunisian firms.
- Task 2: Develop an Information, Education, and Communication (IE&C) program which in coordination with US based EP3 staff.
- Task 3: Responsible for planning and organizing pollution

prevention workshops, information fairs, newsletters, publications in trade journals, and training seminars.

- Task 4: Prepare scopes of work for short-term technical assistance related to the Information, Education and Communications subcomponent of the PPD.

Qualifications of the Information Analysts include:

- Bachelor's Degree in Arts or Sciences with experience in data base management and data analysis;
- Must be a highly motivated individual with excellent inter-personal and communication skills, and interested in learning about IEC techniques;
- Bi-lingual in English and French at least at the FSI-equivalent S3/R3. Knowledge of Arabic is desirable. Effective communication and writing skills in English and French are required.

Duration- 24 person months.

V. Staffing

The contractor shall provide the following personnel to perform the tasks described in the Statement of Work.

- Paid Consultants: Industrial process engineers and waste minimization specialists, environmental engineers, pollution prevention experts, occupational health and safety specialists, environmental policy and institutional analysts, environmental auditors, resource economists and financial specialists with experience in industrial pollution prevention and control, waste minimization, cleaner production and environmental protection. Consultants provide technical assistance to improve process efficiencies and reduce environmental pollution from existing Tunisian industry. Approximately 70 person-days of senior level consultants and 15 person-days of mid-level consultants are required in the first year and in the second year (Total 170 person-days).
- Pro bono Experts: Industrial process engineers and waste minimization specialists, environmental engineers, pollution prevention experts, occupational health and safety specialists, environmental policy and institutional analysts, environmental auditors, resource economists and financial specialists with experience in industrial pollution prevention and control, waste minimization, cleaner production and environmental protection. Pro bono experts provide technical assistance to improve process efficiencies and reduce environmental pollution from

existing Chilean industry. Approximately 85 person-days are required in the first year and 110 person-days in the second year (Total 195 person-days).

- **Local Experts:** Industrial process engineers and waste minimization specialists, environmental engineers, pollution prevention experts, occupational health and safety specialists, environmental policy and institutional analysts, environmental auditors, resource economists and financial specialists with experience in industrial pollution prevention and control, waste minimization, cleaner production and environmental protection. Local experts team with the EP3 Coordinator and EP3 expert teams which include U.S. paid consultants and/or pro bono experts to provide technical assistance to improve process efficiencies and reduce environmental pollution from existing Chilean industry. Approximately 75 person-days are required during the first year and 75 person-days in the second year (Total 150 person-days).

## VI. Travel

The envisioned travel includes twenty six (26) visits by paid consultants and pro bono experts from the U.S. to Tunisia during the two year project. The average duration of travel is expected to be about 14 days. It is expected that there will be 12 trips in the first year and 14 trips in the second year. The purpose of the travel is:

- To prepare PPD/Tunisia Strategies;
- To conduct Task 1 and Task 2 pollution prevention audits and assessments at Tunisian industrial facilities;
- To facilitate Pollution Prevention Roundtables and Leadership Conferences and other EP3 training activities;
- To conduct technical and economic appraisals for cleaner production equipment and processes and assist with Phase II technology demonstrations;
- To assist with implementation of Task 2 Tunisian pollution prevention program development.

## VII. Training

The contractor shall organize, arrange for facilities and prepare materials for in-country training activities including the Pollution Prevention Roundtable and Leadership Conference on Pollution Prevention, training courses for plant managers and industry employees, and specialized environmental training workshops, seminars and information fairs. It is anticipated

that there will be 16 total training activities: 3 workshops, 4 seminars and one information fair in each year.

These workshops will be devised primarily to instruct plant engineers working in industrial firms in the concept of clean technology, latest advances in the field, and current experiences with introducing clean technologies in Tunisia. The seminars planned for Tunisia will be open to the general public and will target a wide range of audiences, from government officials, academic/university audiences, and private sector participants. The scope of these seminars could vary depending on the target audience. Seminars and Workshops will be conducted in close coordination with the Mission, EP3 support staff, and the NE Bureau. It is expected that the Pollution Prevention Office in Tunisia will make maximum use of visiting senior/mid level consultants (assisting with audits/assessments) by including them as active resources in seminars and workshops.

An important vehicle for disseminating accomplishments, program news and information of future PPD/IEC activities will be a Newsletter. PPD design expects the publication and distribution of these country-specific newsletters on a quarterly basis, starting in the second quarter of the first year.

#### VIII. Monitoring and Evaluation

PPD/Tunisia will track the impact of its pollution prevention audit and assessment activity by monitoring the implementation rate of each category of recommendation. For instance, each audit/assessment is likely to result in a series of no-cost, low-cost, and medium cost recommendations. By tracking the implementation of suggestions from each of these categories, PPD will be able to evaluate: 1) adoption of general pollution prevention housekeeping, behavioral, and operation/maintenance recommendations versus 2) adoption of higher cost pollution prevention equipment. It will be useful to establish the rate and timing of adoption and whether or not there is a difference by industrial sector or country. The information provided will be essential to determining what activities should be retained or modified.

Another way the impact of PPD/Tunisia activities will be tracked will be through cost benefit analyses and/or reviews of economic information for selected firms adopting pollution prevention methodologies. A sample of participating firms will be asked to assist PPD/Tunisia by filling out a standard plant evaluation report.

PPD/Tunisia will monitor the numbers and/or firms participating in IEC activities including use of the pollution prevention database, attendance at workshops/ seminars and information fairs. Records need to be kept on which outreach efforts encourage individuals or firms to participate in PPD/Tunisia activities. The number and types of training activities which individuals or firms participate in should be monitored.

PPD/Tunisia will need to identify mechanisms in each country for continuation of information channeling about the pollution prevention approach after PPD completion. Experience with other projects indicates that some kind of incentive is needed to encourage private sector firms to continue providing information for AID to monitor and evaluate impact. These incentives need to be developed in the early days of PPD/tunisia implementation.

External evaluation of PPD/Tunisia will be funded by the NE Bureau using PD&S funds and will be conducted in the 21st month of implementation. The purpose of this evaluation is to review progress to date, assess various impact reports which the contractor will have prepared, and recommend changes in implementation and funding plans.

#### IX. Relationships and Responsibilities

PPD/Tunisia will be jointly managed by the PP Environmental Coordinator of the Near East Bureau and the Project Officer of the R&D/ENR Environmental Pollution Prevention Project (EP3). The R&D/ENR Project Officer is responsible for the technical direction of all PPD buy-in activities and NE/DR/ENR will monitor implementation, tracking progress against workplan targets and development objectives. R&D/ENR and NE/DR/ENR will continue to work closely together throughout implementation of PPD and R&D/ENR will keep NE/DR/ENR informed about all PPD/Tunisia implementation activities. The elements of the management relationship and responsibilities are provided below:

- NE/DR/ENR is responsible for preparing the PIO/T describing the Statement of Work to be performed by the EP3 contractor; for clearance of contractor workplans; for clearance of contractor deliverables; for monitoring implementation, tracking progress against workplan targets and development objectives; for review of bimonthly, semi-annual and annual reports. R&D/ENR expects NE/DR/ENR to provide comments to the R&D/ENR Project Officer on remedial measures to improve PPD implementation.
- NE/DR/ENR will participate in selecting EP3 counterpart organizations in Tunisia and selecting target industries for pollution prevention audits and assessments; in planning and conducting roundtables, workshops, conferences, seminars, and training activities; in designing the contractor's information network for environmental pollution prevention products, processes and suppliers and its delivery system in Tunisia; and in developing a sustainable fee-for-services concept for information, training and technical assistance; and for promoting linkages between EP3 and PRIDE.
- R&D/ENR is responsible for providing technical direction to the EP3 contractor and for all financial management and project documentation normally required under buy-in arrangements. The R&D/ENR Project Officer is responsible for approving workplans, personnel, deliverables and reports and will insure all required NE/DR/ENR and USAID/Tunisia

clearances are obtained prior to final Project Officer approval. R&D/ENR is also responsible for linkages between the PPD Pollution Prevention Office in Tunisia and EP3/Washington and the EP3 clearinghouse.

- R&D/ENR is responsible for organizing and conducting twice a year information/lessons learned sharing sessions. Staff and contractors from Near East Missions and other geographic bureaus with relevant environmental and private sector activities will be asked to contribute their impressions and comments about PPD in order to fine tune PPD implementation activities.

In addition to the responsibilities of NE/DR/ENR and R&D/ENR, USAID/Tunisia is a key member of the EP3/Tunisia PPD implementation team. The EP3 Project Officer will minimize PPD implementation responsibilities for Mission staff, but welcomes as much assistance and involvement of Mission staff as possible, acknowledging staffing constraints in the field. Mission involvement may include clearance of contractor workplans, personnel selection, deliverables and reports and participation in selection of EP3/Tunisia counterpart organizations and Task 1 and Task 2 industries. The Mission may also participate in selecting technical specialists, negotiating in-country support and carrying out programs for introducing pollution prevention innovations in target plants.

USAID/Tunisia may determine the nature of working partnerships between EP3 technical specialists and host country public and private institutions and individual counterparts. USAID/Tunisia may participate in roundtables, workshops, conferences, seminars, and training activities; in designing the contractor's system for linking Tunisian companies with U.S. environmental pollution prevention products, processes and suppliers; and in developing a sustainable fee-for-services concept for EP3/Tunisia information, training and technical assistance.

#### X. Approvals

Effective and timely execution of this Scope of Work is needed to meet A.I.D.'s objectives. In order to meet these objectives, the contractor shall submit to A.I.D.'s R&D/ENR Project Officer and to NE/DR/ENR and USAID/Tunisia a Phase I work plan for approval four (4) weeks prior to starting work and a Phase II action plan for approval two (2) weeks prior to starting work. The work plan and action plan shall duly state:

- Key activities and detailed elements of each task;
- Approach for implementing each task, including all required A.I.D. approvals;
- Work performance schedules with appropriate milestones for

each task;

- Budget for each task;
- Contractor organization including point of contact with address, phone number and fax number.

The contractor shall not execute the work plan or action plan until approved in writing by the A.I.D. R&D/ENR Project Officer.

#### XI. Period of Performance

The PPD/Tunisia technical assistance, training and information program will be conducted for approximately two years, beginning o/a September 1, 1993.

#### XII. Required Reporting

In addition to the reports indicated in the Statement of Work, the contractor shall submit monthly status reports within ten days after the end of each month and shall itemize the different activities, the progress to date, problems and issues encountered by the contractor and suggested solutions to overcome outstanding problems which hinder contract performance.

#### XII. Estimated Budget

The total three year EP3 buy-in budget is \$1,130,000 with the first year budget of \$580,000 and \$550,000 in the second year. The EP3 buy-in budget is detailed in Section 5.2 of the Project Paper Supplement.

ANNEX E  
OYB TRANSFER TO USAID/TUNISIA

Draft  
Proposal for an Environmental Information System

USAID/Tunisia has proposed that IRSIT create an Environmental Information System (EIS) for monitoring the environment as an activity for the regional component of the Pollution Prevention Project Paper Supplement for PRIDE. The ultimate goal would be to develop a system that uses various kinds of information databases (meteorological, satellite, UNEP, EPA) to present end users with various scenarios and/or alternatives to environment related problems. The activity would cost \$100,000 over 2 years and could, eventually, involve information links with users in Tunisia, Morocco, Jordan, and Egypt.

IRSIT's existing and extensive links with Tunisian industry could be a valuable asset to the PPD Office. The PPD Office would be able to greatly expand its interaction and contact with Tunisian firms through the advanced telecommunications network of IRSIT which allow for the rapid dispersal of information throughout society. The PPD Office would be able to advertise services (training courses; arrival of technical experts, trade associations or fairs, and manufacturer's representatives; pollution prevention audits and assessments), exchange information on sources of pollution prevention equipment, and engage in extensive communications with plants about specific technical problems and solutions via the E-mail, electronic bulletin board, and modem capabilities of IRSIT.

A small grant for IRSIT would be provided by executing an OYB transfer of NE Bureau funds to USAID/Tunisia. A Memorandum of Understanding between the NE Bureau and the Mission will be developed if needed.

ANNEX F  
OYB TRANSFER TO USAID/MOROCCO

**USAID/MOROCCO**  
**MOROCCO ELEMENT OF THE POLLUTION PREVENTION COMPONENT OF THE**  
**PROJECT IN DEVELOPMENT AND THE ENVIRONMENT (pride # 398-0365)**

**May 24, 1993**

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**PROJECT DESCRIPTION**  
**USAID/MOROCCO**  
**MOROCCO ELEMENT OF THE POLLUTION PREVENTION COMPONENT OF THE**  
**PROJECT IN DEVELOPMENT AND THE ENVIRONMENT (PRIDE #398-0365)**

**Background:**

There is much evidence that Morocco is becoming more concerned with environmental issues. For example, some government ministries have recently created directorates of environment to look after environmental implications of their activities. An important step has been the creation of the Under Secretariat of Environment in the Ministry of Interior. This secretariat is working with the World Bank on the Morocco Environmental Management Project to develop the institutional framework in Morocco within which to set environmental rules and regulations, environmental standards, and means of confronting environmental problems.

USAID/Morocco worked with the World Bank on the preparation of the initial feasibility study for this project and funded a report entitled, "Mobilizing Morocco's Private Sector for Environmental Management." This report concludes, among other things, that European firms will begin sending, "polluting industries" to Morocco and that the extent of resulting pollution "will be unprecedented". The report also points out that there is a nascent private sector environmental capability that is ready to act once regulations and/or a market are identified. The report suggests that awareness of clean technology/pollution prevention (CTPP) is sorely lacking in the country but that there is tremendous scope for a wide range of pollution prevention activities.

An indication of the interest in CTPP was a seminar hosted by the National School of Industry and Mines in Rabat in March, 1993. USAID sponsored this seminar which attracted over 160 representatives of the private sector, technical managers, academics, and governmental officials. The seminar featured opening remarks by the Minister of Energy and Mines and a keynote address by the Under Secretary of Environment. The Under Secretary argued that throughout the world industry is considered the engine that drives development but that the effects of pollution are rarely, if ever, considered. He added that to the extent possible the industrial countries have the responsibility to provide the latest technology to developing countries and that CTPP technology is a good example. The Under Secretary also alluded to the Morocco Environmental Management Project.

Since the seminar USAID/Morocco has received requests for information concerning CTPP and the Under Secretariat of the Environment has requested copies of the United States Pollution Prevention Act to study as a possible model for environmental laws. Private sector representatives and government officers have stated that now is the time for action, not words. USAID agrees with this and believes that receptivity to CTPP activities is at a high point and can be exploited if action is taken immediately.

The perception that there is potential for clean technology has also fueled speculation that given its proximity to Europe, the Moroccan market will be quickly penetrated by European manufacturers of clean technology should a demand develop. Thus, Morocco is confronted with a two pronged problem: the government is struggling with the issue of which way to frame the new set of environmental regulations; the few Moroccan firms that are aware of the possibility of investing in clean technology are also debating whether to continue to pursue end-of-pipe remedies to pollution problems or to try a clean technology approach. Decisions are being made now.

USAID/Morocco is in an excellent position to influence the direction of environmental policies in the country through providing real world examples of clean technology applications and by supporting policy studies. USAID is also positioned well to provide assistance to U.S. firms in the export of CTPP equipment to Morocco.

The United States has a technological advantage over most other countries in a wide range of CTPP equipment and knowledge, in many ways as a result of the United States Pollution Prevention Act. This project element offers a good opportunity to introduce U.S. technologies to a Moroccan market place that has indicated a growing interest in U.S. equipment and expertise.

Interest is growing and many different sectors are trying to learn more about pollution prevention: the time is right for swift action.

One of the most important objectives of the current extension phase of the Energy Demand Management Project is to provide, "sustained private sector institutional capacity that will be created through project activities." The EDM contractor (RCG/Hagler-Bailly, Inc.) is required to, "promote competition and assure that there will be more than one firm sustaining project activities after the PACD." This is to be accomplished by enabling project engineers and subcontractors to develop skills that will respond with high quality work to the demand for engineering services that is created in the Moroccan market. The EDM project provides an on-going operation, an already established infrastructure, a positive name recognition throughout Morocco, a large number of contacts in the private and public sectors, and four years experience of creating a market and responding to it. CTPP techniques are a new set of process oriented engineering skills that will be a strong complement to the EDM Project. Using this EDM infrastructure will permit CTPP activities to begin almost immediately and take full advantage of current opportunities.

#### **Project Description:**

USAID proposes to add a clean technology component to EDM. The fourfold objective of the clean technology component will be,

1) to introduce clean technology to Morocco as an effective cost saving investment for industry, 2) to create a demand for clean technology and pollution prevention services and equipment, 3) to provide Moroccan engineers with skills that will enable them to sustain project activities after the PACD, and, 4) to provide opportunities for information sharing and training on a regional basis. Because contacts and operational modalities are already in place, it will not be necessary to re-create the project in order to assure that objectives are met.

The component will be implemented: to continue and amplify services currently being provided, to increase the range of services provided, to increase training activities, to develop a market for clean technology/pollution prevention, to aid U.S. manufacturers of clean technology equipment enter the Moroccan market, and to provide examples of working CTPP equipment and techniques for other countries in the region.

In addition to improving the technical ability of the project engineers and subcontractors, this component will also provide funds for training, demonstration projects using clean technology, a database and contacts in the U.S. for equipment manufacturers. It will also provide assistance to the Under Secretariat of Environment to focus directly on the development of the environmental regulatory framework with emphasis on pollution prevention instead of "end-of-pipe" legislation.

The following minimum outputs will be expected from the component:

- four clean technology information bulletins distributed to all names on the EDM Project mailing list,
- a minimum of eight full environmental audits of industrial entities which will include reports and actionable recommendations,
- a minimum of twelve system audits to determine simple, cost effective "house cleaning" activities and small technologies which will include actionable recommendations,
- state-of-the-art communications system offering ability for real-time communications with the EP3 database of U.S. companies that manufacture clean technology and expertise that is available for installation and training for use,
- one joint venture between a U.S. and a Moroccan firm to supply one clean technology item to Moroccan firms which will continue after the PACD,
- eighty technical managers, senior managers, and

senior government officials trained in clean technology applications in Morocco,

- eight private sector representatives and government officials sent to the United States on pollution prevention/clean technology study tours,
- two Moroccan engineers able to provide state-of-the-art clean technology/pollution prevention services and with the knowledge of where to find state-of-the-art assistance as and when necessary,
- two policy analyses/policy studies with the objective of providing the GOM with an overview of all environmental laws and regulations that currently exist in the country and that provide the GOM with a strong basis for the development of their legal framework along the lines of the U.S. Pollution Prevention Act of 1990,
- at least one course in pollution prevention/clean technology offered at the National School of Mines in Rabat and contacts and exposure of the concepts and practices to other top level engineering schools,
- at least one regional seminar on clean technology/pollution prevention with the cooperation of the Moroccan Association of Energy Managers (AMGE), or similar association,
- one detailed environmental audit of the petroleum refinery at Mohamedia that results in actionable and affordable recommendations,
- at least one television spot about pollution prevention and clean technology during the LOP,
- at least four demonstration projects using clean technology, pollution prevention equipment.

#### **Inputs**

- 24 months LTTA (expat)
- 48 months LTTA (local)
- one support staff
- 8 months STTA (expat and local)
- state-of-the-art computer system including latest communications software with access to the world,
- educational materials on pollution prevention for in-country training and seminars, and for institutions of higher learning,
- demonstration equipment
- U.S. study tours/short courses

- one project evaluation

**COMMODITIES:**

Commodities to be purchased under this component will include demonstration equipment, engineering equipment, books and reference materials, and computer hardware and software. Vehicles will not be necessary because the contractor already has them in place.

**Implementation Plan:**

Given the urgency of this activity and the need to utilize existing structures as discussed above, USAID will draft an Other Than Full and Open Competition waiver under AIDAR 706.302-70(b)(3)(i), "Impairment of foreign aid programs," for the modification of the Hagler-Bailly contract and will recommend signature by the Acting Assistant Administrator of the Near East Bureau. This draft waiver will be transmitted to the NE Bureau by the end of May and it is recommended that the waiver be included as part of the project authorization in AID/W.

The Mission will then prepare the contract modification that will be used as the obligating document. The detailed scope of work for the contractor will be completed by a consultant who will report to the EDM Project Officer. The funds will be made available through a pass-through to the Morocco OYB after the Regional Clean Technology Project is authorized in AID/W in June, 1993.

The approach to implementation of this component will be the same as the other components of the project. Clean technology activities will become a part of the Annual Workplan, and Quarterly Reports. The contractor will be required to submit to USAID a workplan for the last three months of CY 1993 for clean technology activities before the 1994 Annual Workplan is completed. CY 1994 clean technology activities will be detailed in the CY'94 annual workplan.

The EDM Steering Committee will continue to function for this component and USAID will recommend that the committee includes representative(s) from the Under Secretary of Environment to discuss clean technology activities under the project, particularly policy studies and training.

The contractor will hire an expatriate engineer who will arrive in Morocco very soon after the contract is signed. In addition two Moroccan engineers will be hired at the same time and will be added to the Hagler-Bailly staff.

By the end of the Calendar Year'93, the contractor, drawing largely on its experience to date, will determine three target industries for pollution prevention/clean technology activities. These industries will be those in which an immediate gain can be

made and where impact will be visible.

The new engineers hired by the contractor will immediately begin to contact those firms that have been served by the project and will offer to perform environmental audits. Because of the reputation of EDM USAID anticipates that this process will be quickly accomplished. The project will institute the same cost sharing framework in which fees will be charged for clean technology services as it uses for other project components.

The component will also support regional objectives of the project. Funds will be reserved to sponsor visits to Morocco by private and public sector officials of other countries in the region. The purpose of these visits will be to visit clean technology application, demonstration projects, and to participate in the regional clean technology seminar. The database developed by the project will be made available to the Tunisia clean technology project and to other interested parties in the region.

The project will cooperate with the Bureau, EP3, and will participate in other relevant regional activities.

#### **Monitoring and Evaluation**

The project component will be monitored as are other components of the project. This includes site visits, monthly and quarterly reports, and the Annual Workplan. At the end of the first eight months of implementation of this component an evaluation will be undertaken. The purpose of this evaluation will be to determine the impact of the project to date and to determine if any changes in implementation methodology need to be taken.

The most important aspect of the evaluation will be to determine if there is sufficient market demand, or indications of market demand to guarantee continuation of Clean Technology activities after the PACD. If there is not, a decision will then be taken as to whether or not a new project should be developed.

#### **ILLUSTRATIVE BUDGET**

Technical Assistance	807,000
Commodities	158,000
Training	140,000
Policy Studies	75,000
Evaluation	<u>20,000</u>
Totals:	1,200,000

ANNEX G  
MEMORANDUM OF UNDERSTANDING  
FOR REGIONAL ACTIVITIES



U.S. AGENCY FOR  
INTERNATIONAL

DEVELOPMENT MEMORANDUM OF UNDERSTANDING BETWEEN THE NEAR EAST BUREAU AND THE  
OFFICE OF ENVIRONMENT AND NATURAL RESOURCES, BUREAU FOR  
RESEARCH AND DEVELOPMENT BUREAU CONCERNING THE POLLUTION PREVENTION  
DEMONSTRATION COMPONENT OF PRIDE

DATE: June 3, 1993

A. BACKGROUND

The Near East (NE) Bureau has developed a new Pollution Prevention Demonstration (PPD) Component Supplement to the Project in Development and the Environment (PRIDE). In addition to in-country activities in Morocco and Tunisia, the PPD Component will seek to disseminate information about pollution prevention throughout the Near East Region. This regional element of PPD will require developing an Information, Education, and Communication (IEC) program. IEC will be used to educate NE firms about the benefits of pollution prevention through: 1) a series of workshops, information fairs, and seminars for engineers, government officials, and private sector associations; 2) dissemination of a Pollution Prevention database for use in the field, currently under development by PRIDE; 3) provision of short-term technical assistance experts, who will conduct pollution prevention audits and assessments; and 4) providing access to the Environmental Pollution Prevention Project (EP3) Clearinghouse.

Recognizing the similar procedures, objectives, and expertise present within EP3 administered by the Office of the Environment and Natural Resources, Bureau for Research and Development (R&D/ENR), the regional activities of the PPD Component were designed to rely heavily upon this existing project. The most efficient implementation mechanism for these regional activities of PPD will be to transfer funds from the PRIDE Project to the core contract of EP3.

B. MECHANISM FOR FINANCING ACTIVITIES

Regional activities of the PPD Component of Pride will be implemented by R&D/ENR's EP3 Project via an OYB transfer from the NE Bureau to R&D. This OYB transfer is envisioned to be an one time occurrence which will fund two years of regional activities.

C. SELECTION OF PROJECT ACTIVITIES

In selecting specific activities for the regional elements of the PPD Component, it is understood that the following principles will be maintained:

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1. The NE Bureau is free to select activities from any of the countries within the NE Region.
2. Early identification of possible activities will be maximized to assist both bureaus in the planning process.

D. WORKING ARRANGEMENTS AND IMPLEMENTATION COORDINATION

To facilitate a collaborative working and implementation environment between the two Bureaus, the following steps will be undertaken:

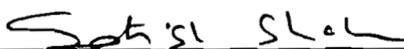
1. The R&D/ENR Project Officer is responsible for the technical direction of all PPD buy-in activities and NE/DR/ENR will monitor implementation, tracking progress against workplan targets and development objectives. R&D/ENR and NE/DR/ENR will continue to work closely together throughout implementation of PPD and R&D/ENR will keep NE/DR/ENR informed about all Tunisia/EP3 and PPD Regional implementation activities.
2. NE/DR/ENR is responsible for preparing the PIO/T describing the Statement of Work to be performed by the EP3 contractor; for clearance of contractor workplans; for clearance of contractor deliverables; for monitoring implementation, tracking progress against workplan targets and development objectives; for review of bimonthly, semi-annual and annual reports. R&D/ENR expects NE/DR/ENR to provide comments to the R&D/ENR Project Officer on remedial measures to improve PPD implementation.
3. NE/DR/ENR will participate in selecting EP3 counterpart organizations in the NE Region and selecting target industries for pollution prevention audits and assessments; in planning and conducting roundtables, workshops, conferences, seminars, and training activities; in designing the contractor's information network for environmental pollution prevention products, processes and suppliers and its delivery system in the Near East; and in developing a sustainable fee-for-services concept for information, training and technical assistance; and for promoting linkages between EP3 and PRIDE.
4. R&D/ENR is responsible for providing technical direction to the EP3 contractor and for all financial management and project documentation normally required under buy-in arrangements. The R&D/ENR Project Officer is responsible for approving workplans, personnel, deliverables and reports and will insure all required NE/DR/ENR and USAID/Tunisia clearances are obtained prior to final Project Officer approval. R&D/ENR is also responsible for linkages between

the PPD Pollution Prevention Office in Tunis and EP3/Washington and the EP3 clearinghouse.

5. R&D/ENR is responsible for organizing and conducting twice a year information/lessons learned sharing sessions. Staff and contractors from Near East Missions and other geographic bureaus with relevant environmental and private sector activities will be asked to contribute their impressions and comments about PPD in order to fine tune PPD implementation activities.
6. The scope of work for the OYB transfer for PPD Regional Activities includes specialized, targeted technical assistance, information services and training activities that will facilitate linkages between Near East industries and U.S. suppliers of pollution prevention equipment. Initially, the EP3 contractor will meet with USAID/Near East Missions and select a small number of industrial organizations interested in sharing information on pollution prevention. Examples may include local chambers of industry, local affiliates with the American Chamber of Commerce, or industry associations such as the leather tanners or textile dyeing and finishing association.
7. These interested industrial organizations in the Near East Region will share EP3 information on pollution prevention in several ways. The EP3 Clearinghouse in Washington will supply publications, newsletters and pollution prevention information to the organizations and facilitate linkages to U.S. environmental pollution prevention products, processes and suppliers. Pollution prevention training workshops and information fairs will be conducted throughout the Near East Region to spread the new philosophy and success of pollution prevention and to showcase U.S. clean production equipment and products through videos, printed materials and actual equipment demonstrations. Targeted technical assistance will be offered to a small number of industry plants to help promote the adoption of the principles of pollution prevention, waste minimization and clean production technologies and equipment.
8. The two year total personnel requirements, budget and activities of PPD Regional Activities are summarized below:
  - One hundred eight (108) days of regional technical assistance - Fifty four (54) days of paid senior consultants and 54 days of pro bono specialists. Eighteen (18) days of each type of assistance is programmed in the first year and 36 days of each in the second year.
  - Travel and per diem associated with regional technical

assistance - six (6) trips from the U.S. to the Near East Region in the first year and 8 in the second year. Also, Ten (10) in-country trips each year.

- In-country training in the Region: three (3) workshops and two (2) information fairs in the first year and 6 workshops and 2 information fairs in the second year.

  
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Satish Shah  
Director  
Office of Development Resources  
Near East Bureau

  
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Twig Johnson  
Director  
Office of Environment and  
Natural Resources  
Research & Development  
Bureau

ANNEX H  
WAIVER REQUEST AND JUSTIFICATION



J.S. AGENCY FOR  
INTERNATIONAL  
DEVELOPMENT

**ACTION MEMORANDUM FOR THE ACTING ASSISTANT ADMINISTRATOR**

**FROM:** Satish Shah, Chief, NE/DE *DE/MA*

**SUBJECT:** Morocco Element of the Pollution Prevention Component of the Project in Development and the Environment (PRIDE #398-0365) - Justification for other than Full and Open Competition.

**PROBLEM:** Compliance with full and open competition procedures to implement the Morocco element of the Near East Regional Pollution Prevention Component of the Project in Development and Environment would impair foreign assistance objectives and would be inconsistent with the foreign assistance program.

**SPECIFIC INFORMATION:**

- (A) Cooperating Country: Morocco
- (B) Authorizing Document: Near East Bureau Pollution Prevention Demonstration Component of the Project in Development and the Environment (PRIDE #398-0365) Project Paper Amendment
- (C) Project: Pollution Prevention Component of the Project in Development and the Environment (PRIDE #398-0365)
- (D) Nature of Funding: Development Assistance
- (E) Description of Services: Contract services for technical assistance for the project
- (F) Approximate Value: \$1,200,000
- (G) Source/Origin: 000/000

**BACKGROUND:**

In March 1993 USAID/Morocco sponsored a seminar on clean technology that attracted over 160 high level technicians and representatives of the Moroccan private and public sectors and received widespread coverage in the media. As a result of this seminar, great interest in clean technology/pollution prevention (CTPP) was generated. USAID/Morocco continues to receive other indications of high interest in clean technology activities.

Interest was high and the timing was right when in April 1993 the Mission received a draft Project Paper Amendment to the regional PRIDE Project from the Near East Bureau recommending that

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After reviewing the document, USAID/Morocco recommended to the Bureau that the most effective way to implement the Morocco element is to modify the contract of RCG/Hagler-Bailly, Inc., the contractor that is currently implementing the highly successful Energy Demand Management Project.

**DISCUSSION:**

There is heightened awareness and interest in environmental issues in both the public and private sectors in Morocco. For example, the Government of Morocco will soon enter into an agreement with the World Bank that will provide technical assistance for the development of legal and policy frameworks for environmental activities. In addition, European companies are poised to sell both pollution prevention and end-of-pipe equipment to Morocco.

Immediate action by USAID/Morocco to help introduce clean technology will provide real examples of the benefits of this technology which can be used to influence environmental policy directions. In addition, immediate action by USAID will provide an early opportunity for U.S. manufacturers of clean technology to be introduced to the Moroccan market. By acting now, USAID stands in a position to influence Morocco's movement towards pollution prevention based economic growth and to ensure that U.S. companies have an opportunity to participate.

USAID/Morocco's four-year old Energy Demand Management Project has shown that there is a demand for high quality engineering services in Morocco. Through the RCG/Hagler-Bailly contract, highly skilled Moroccan engineers with technical assistance from U.S. engineers have developed an extensive network of contacts in the private sector over the project period. By providing world class energy audits and other engineering services, the project has become well-known and demand for its services outstrips the contractor's ability to respond.

Given the immediacy of action required adding a CTPP component to the RCG/Hagler-Bailly contract is necessary to quickly exploit an already well developed, vast network of contacts and an excellent reputation for high standard process oriented engineering work. The existing contract focuses on a variety of industrial assessments designed to increase energy efficiency. The new clean technology/pollution prevention effort approach is very similar, i.e., the emphasis is on material use efficiency, including energy, which when applied in an environmental context results in less pollution. A modification of the already existing RCG/Hagler-Bailly contract is the most effective way to assure the quick and efficient success of a clean technology/pollution prevention intervention. The existing RCG/Hagler-Bailly contract, #608-0193-C-00-9002, presently in the amount of \$8,146,471, has a contract completion date of May 30, 1995. The PPD component activities envisioned for Morocco will occur within the existing timeframe (PACD 9/30/95) of the \$12.9 million EDM Project.

The methods used to accomplish Morocco's pollution prevention

component objectives will be the same as those used to accomplish the objectives of the Energy Demand Management Project. Making use of the unique process-oriented engineering capability already established, and the network that project engineers have nurtured will ensure immediate and all important credible entry into the marketplace.

Using full and open competition in order to contract for the Pollution Prevention component would cause delays in the Mission's ability to move quickly to take advantage of Morocco's current high interest in these types of activities. A new contractor would be required at a minimum to establish contacts in the private sector, develop necessary confidence on the part of GOM counterparts, hire local staff, and establish an office, all before significant clean technology activities with important impact could begin. Using full and open competition procedures would make it impossible to accomplish project objectives in the time-frame of the two year Regional Pollution Prevention Component of the PRIDE Project. This would have an adverse effect on the Mission's current attempts to gain credibility in the environmental field, and would also adversely affect the Mission's objectives of influencing environmental policy directions towards clean technology/pollution prevention, opening the market to the savings in clean technology investment, and, providing assistance to U.S. firms in penetrating the Moroccan market with clean technology equipment and technical assistance.

**AUTHORITY:**

This justification for other than full and open competition falls under the AIDAR 706.302-70 (b)(3)(i), which states that, "compliance with full and open competition procedures would impair foreign assistance objectives, and would be inconsistent with the fulfillment of the foreign assistance program." Under this exception, you have the authority to determine that compliance with full and open competition procedures for implementation of clean technology activities would impair foreign assistance objectives and would be inconsistent with the fulfillment of the foreign assistance program. Such a finding will allow USAID/Morocco to modify the contract with Hagler-Bailly as the mechanism to introduce clean technology engineering services to Morocco.

The Agency Competition Advocate has been consulted before making a written determination and has found that this justification falls under the reference cited above, and that no other authority provided in FAR 6.302 or AIDAR 706.302 is suitable.

**RECOMMENDATION:**

That, by signing below, you determine that compliance with full and open competition procedures would impair foreign assistance objectives, and would be inconsistent with the fulfillment of the foreign assistance program, thereby permitting the Mission to modify the contract with Hagler-Bailly under the Energy Demand Management Project.

Approved: Dennis M. Chandler Date: 6/16/93  
Dennis M. Chandler  
Acting AA

Disapproved: \_\_\_\_\_  
Dennis M. Chandler  
Acting AA

Clearances:

A.I.D. Competition Advocate: LCordaro for JMurphy FAX

USAID/Morocco Clearances:

MDagata	DIR	<u>draft</u>
RBurns	PDPE	<u>draft</u>
MReynolds	RCO	<u>draft</u>

USAID/Near East Clearances:

KO'Donnell	GC/NE	<u>draft</u>
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