

**THE ASIA ENVIRONMENTAL PARTNERSHIP/
HOUSING GUARANTY REGIONAL PROJECT**

Background Issues and Options Report

January 29, 1993

**Research Triangle Institute
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19 July 1993

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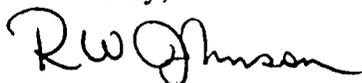
Dear Ms. McDonald:

Enclosed are two copies of the final report on RTI's assistance to the Asia Environmental Program and the Regional Offices of Housing and Urban Development for Indonesia and the Philippines and Thailand, India and Sri Lanka. This work was carried out under RTI contract PCE-1008-I-00-2067-0, Delivery Order # 1.

The main body of the report expresses design options for a program to combine the resources of the AEP and the Housing Guaranty loan program. Annexes detail studies and analyses we carried out including both field work in Asia with the Governments of Indonesia and the Philippines and private firms in those two countries as well as interviews in the United States with various U.S. government agencies and international lending agencies and firms in the U.S. private sector.

A follow-on meeting with representatives of several U.S. firms potentially interested in the Asia environmental technology market was held in USAEP offices, but no subsequent revisions to our final report, delivered at that time, were required. The enclosed constitute the final report as submitted at the time of task completion.

Cordially,



Ronald W. Johnson

cc: David Obringer

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The material contained in this report is the opinion and responsibility of the authors.

The Asia Environmental Partnership/Housing Guaranty Regional Project

I. Introduction and Summary

The Asia Environmental Partnership/Housing Guaranty Loan program is a regional effort addressing serious urban household-generated environmental degradation. AEP/HG will facilitate the participation and investment of U.S. private sector companies in producing urban environmental infrastructure in the region. The **Project Goal** is to (1) improve the living conditions of below median income urban residents through increasing the supply of environmentally sound infrastructure, and (2) increase the sales of U.S. environmental technology, goods and services in Asia. The **Project Purpose** is to involve U.S. private sector firms in delivering water, wastewater and solid waste services in the growing Asian market. Initial efforts in Indonesia and the Philippines and possible Sri Lanka will develop and demonstrate strategies that can be effective throughout the region in meeting these objectives.

AEP/HG focuses on three core urban environmental services: water, wastewater and solid waste. The rapid pace of urbanization in Asia has outstripped the public sector's capacity to provide basic services, leaving urban populations, especially poor households, vulnerable to life-threatening health risks. In the Philippines, household-generated waste contributes 70% of the urban environmental degradation; in Indonesia it is 80%. The initial proposed resources to implement this project will include \$5 million in grant resources from the U.S. Asia Environmental Partnership (US AEP) and up to \$25 million in new HG authority for FY 93 in the Philippines. \$125 million in new HG authority in Indonesia, as a component of the Municipal Finance for Environmental Infrastructure Program, also will support this program over the five year life of project.

US AEP already is addressing significant industrial sources of environmental degradation, and is promoting direct sales of U.S. technology and goods and services to address those sources. The AEP/HG program complements the US AEP arsenal by adding a focus on household sources of environmental degradation which pose the most serious threats to the health and welfare of urban residents, particularly lower income households.

The groundwork for U.S. work in the urban environmental sector has been laid by extensive U.S.A.I.D. involvement in municipal services and urban infrastructure. HG lending and associated technical assistance efforts in Indonesia and the Philippines have supported devolution of responsibility to local government units and strengthening their capacity to finance and manage. Mission environmental programs also are focusing attention on certain sources of urban pollution and raising public and NGO awareness of the threats to health and other concerns caused by urban sources of pollution. In Indonesia, the Philippines and Sri Lanka, USAID/Mission programs are supporting the legal and regulatory framework, the financing, and the implementation of private sector investments in urban infrastructure. In particular, USAID/Mission projects are supporting the use of Build, Operate and Transfer (BOT) type mechanisms and strategies to promote the additionality of private investment in urban infrastructure.

The AEP/HG project will add to and complement these on-going efforts of USAID/Missions and US AEP in the region through a focus on the U.S. environmental industry as a source of sales and investments to develop additional urban infrastructure. The resources of the HG program provide the lever to establish mechanisms providing some risk assurance to U.S. private sector companies and to

bring in additional equity and debt financing from such international institutions as the International Finance Corporation (IFC).

In conjunction with the leverage the HG program will provide, US AEP-financed Urban Infrastructure Technical Advisors (UITA), managed by the RHUDO in collaboration with the USAID/Missions, will work with U.S. companies to carry out a market strategy for municipal services. These advisors will: (1) identify 5 to 10 possible water, wastewater and solid waste projects in each country; (2) make initial feasibility assessments; (3) use the resources of other US AEP projects and agreements to increase the U.S. market awareness of opportunities and to increase awareness of Asian public sector decision-makers potential Asian private partners of U.S. capabilities and interests; (4) select the one or two most probable projects in each country and arrange financing for a U.S. firm to conduct a complete feasibility study and to design bid documents for a BOT/BOO type sales and investment project; and (5) assist in developing a financing package using HG loan funds as leverage to provide risk assurance. An indicative project is the development of a new water sourceworks to provide additional water supply to the metropolitan Cebu area, which presently covers only 35% of the households with water supply, and almost no lower income households.

Over the five year life of the project, additional cycles of the previous five activities will generate an additional 2 to 3 similar BOT/BOO projects in each country for which HG and US AEP resources are available. The dollar value of sales and investment opportunities for U.S.-led consortia on each of these BOT/BOO projects ranges from \$25 million to \$200 million, with typically about 30% of that value as actual direct export flows of U.S. technology, goods and services.

Project success relies upon the collaboration of AEP/HG resources with the larger US AEP program and existing and developing USAID/Mission programs to strengthen urban municipal finance and management systems. Without financially viable and efficiently managed municipal "buyers" for the BOT/BOO type projects, investors either will not be interested or will price their BOT contracts at prohibitive, risk-free prices that municipalities cannot afford.

From a development point of view, the AEP/HG project complements the urban municipal finance and management activities currently being undertaken by USAID/Missions. It fits into an environmental technology market niche that is not yet well developed by any U.S. competitors, but that has the potential to dwarf all other potential sales of U.S. environmental goods and services. The market for environmental goods and services for municipal environmental infrastructure is new and is open to aggressive strategies from U.S. private sector firms wishing to develop large sales and investment opportunities. Other bilateral donors are not engaged in such municipal development activities. Thus, there is a window of opportunity for U.S. business to develop medium- and long-term strategies to secure extremely large sales of their environmental goods and services in the municipal services sector in Asia. U.S. firms are as competitive in environmental technologies and services as firms in other industrialized nations. And the U.S. is almost uniquely playing a role among the bilateral donor agencies in addressing urban environmental infrastructure deficits through strengthening the role of local governments and the private sector in financing and managing urban infrastructure.

II. Project Design

The design team for AEP/HG met with dozens of representatives of U.S. and Asian private sector firms and similar numbers of U.S., Indonesian and Philippine public sector officials. From these inputs and discussions with other donors, AEP/HG has been designed to meet critical developmental needs and to develop a market strategy that will allow U.S. firms to compete favorably for large sales of environmental technology, goods and services. The AEP/HG is a regional effort addressing the most serious contributor to environmental degradation in Asia, affecting especially lower income households. AEP/HG will address these problems by leveraging the investment of U.S. private sector companies in urban environmental infrastructure in the region. The project focuses on the three, core urban environmental services of water, wastewater and solid waste.

The **Project Goal** is to (1) improve the living conditions of below median income urban residents through increasing the supply of environmentally sound infrastructure, and (2) increase the sales of U.S. environmental technology, goods and services in Asia.

The more specific **Project Purpose** is to involve U.S. private sector firms in providing water, wastewater and solid waste services in the growing market for these technology, goods and services in Asia.

A. Perceived Problems

The rapid pace of urbanization in Asia has far outstripped the public sector's capacity to provide basic urban services, leaving urban populations, especially the urban poor, vulnerable to increasingly life-threatening health conditions. Population growth rates throughout the region show marked differences between urban and rural areas. Indonesia's urban population growth rate is 5.4%, contrasting with a total growth rate of only 2.1%. Urban areas in the Philippines are growing at a rate 15 times faster than rural areas. For Sri Lanka, the urban population growth rate is 1.4%, contrasting with a total growth rate of 1.4%. For Thailand, the respective urban and total rates are 4.6% and 1.8%, and for India the rates are 3.7% and 2.1%.

In India, just over 75% of the urban population has access to safe drinking water; in Sri Lanka the figure is over 80%, and in Thailand it is over 60%. But in Indonesia and the Philippines, the percent of population with access to safe drinking water is only just over 40% and 50% respectively. Few urban areas in any of these countries have any sewerage treatment at all, relying on undrained septic systems and general drainage systems discharging directly into the nearest large body of water. The adequacy of solid waste collection varies widely, but in virtually no city in the region is the disposal method (sanitary landfill, incineration, informal burning) adequate to safeguard the health of the community particularly the poorer urban households. Pollution from domestic wastes represents the largest single contributor to Biochemical Oxygen Demand (BOD) in rivers and streams in urban areas. In the Philippines, domestic waste contributes up to 70%, while in Indonesia it is up to 80%. The principle contributors are the organic wastes from inadequate solid waste collection and disposal systems, and seepage from undrained septic systems or human waste discharged into drainage systems.

B. A Regional Program Opportunity

The characteristics of the marketplace in the region and of the U.S. business community make the development of a long-term market strategy in order for U.S. firms to play a major role. Unlike individual sales of goods to industry, the urban infrastructure market has few players, but requires a focused strategy. The collaboration of US AEP and the HG program gives AEP/HG a unique focus. The relatively new AEP brings to the project resources and strategies for familiarizing U.S. firms with the Asian market potential in environmental goods and services and familiarizing Asian "buyers" with the potential of U.S. environmental goods and services. AEP also has linkages to a variety of financing programs available to U.S. firms. The HG program in Asia has been focusing on a component of environmental goods and services since the early 80s -- the basic urban environmental services of water, wastewater, and solid waste. USAID/Missions and the HG program in the region have worked extensively with devolution and decentralization, and thus bring to the project an understanding of and ties to the public and private institutions responsible for those services, elements lacking in all the other donor countries.

The regional aspects of the program are important in two key respects:

The urban services market for water, wastewater and solid waste sales and investment is in large (greater than \$25 million for solid waste and greater than \$50 million for water and wastewater) projects mainly in the control of local governments and central government institutions that work with local governments. This is a complex market that needs to be approached with common strategies. U.S. private firms are not likely to see the market potential as worth their investment in unique, single country settings unless their initial marketing activities can be extended readily to other countries in the region; and

The pattern for countries in the region is increasingly to devolve responsibilities for major elements of environmental management to local governments. The opportunities to learn across the region how local government environmental management strategies work and do not work leverages U.S. development assistance to develop a regional market.

C. Outline of the Project and How It Will Work

1. AEP/HG Technical Assistance Resources Implementation

a. Technical Assistance Team and Qualifications

There will be full-time market development activity by the AEP-financed Urban Infrastructure Technical Advisors (UITA) and their support staff. For each country, AEP/HG technical assistance will require a team of three individuals. The UITA, likely an American expatriate, should have extensive knowledge of U.S. business practice and capital project marketing and financing experience. A second Advisor, most likely a host country professional, should have extensive knowledge of the organization, management and financing of water, wastewater and solid waste services in the host country, particularly with an understanding of the interaction of the public and private sectors. The third, a host country individual, should have administrative and secretarial skills and be familiar with a business environment.

The selected UITA will be the Team Leader. A minimum of ten years experience in the ASEAN

region is essential to building a bridge of understanding between local government practices, cultural differences and the U.S. private sector companies interested in pursuing BOT projects. Details of the UITA's qualifications are in Annex A. The Team Leader will be supported by an additional Advisor, most likely a host country individual, who should have experience in collaboration between public and private sectors in the host country. This Urban Environmental Services Advisor (UESA) will complement the skills of the Team Leader, emphasizing knowledge of the way urban environmental services are provided and how the private sector works with the public sector in the host country.

b. AEP/HG TA Team Activities

(1) **Preliminary Project Identification.** The first step for the TA team is to assess sector priorities in water, wastewater, and solid waste and identify municipalities which have the most urgent needs. The output of this step is the identification of five to ten potential projects that initially appear to be viable.

(2) **Project Prefeasibility.** The second step is for a more detailed examination of the financial, technical, social and political feasibility of the identified projects. The TA Team will visit and work in local areas selected in step one and examine the credit-worthiness and management capacity of the key municipalities, and will make further technical assessments of the potential projects. AEP/HG resources will provide short term local and/or expatriate consultant help for the preliminary technical evaluation, if necessary. In addition, resources and prior activities of projects such as Municipal Finance (MFP) and Private Sector Participation in Urban Services (PURSE) projects in Indonesia and Decentralized Shelter and Urban Development (DSUD) and Local Development Assistance Program (LDAP) in the Philippines will reduce the amount of direct AEP/HG effort necessary to narrow the projects down. The one or two projects most likely to succeed on all accounts -- financially, socially, politically and profitably -- will be the output of this step.

(3) **U.S. Market Awareness.** While stage two effort is underway, an educational program on the objectives of the AEP/HG Program and how it will help U.S.-based companies become more competitive in Asia will be developed and presented to a roster of US companies willing to pursue municipal projects on a BOT basis either by themselves or in consortium with other companies. The TA Team will develop a list of U.S. firms from its own knowledge and from the extensive data base files kept by the U.S. Foreign Commercial Service (FCS), the Trade and Development Agency BiWeekly and/or US AEP. AEP/HG resources will finance the preparation and presentation of several seminars or workshops, and U.S. companies would be expected to finance their own participation.

US AEP resources human and organizational resource development activities will provide funding for representatives of U.S. firms to visit the local areas selected during the Prefeasibility stage, partly to familiarize the U.S. companies with the opportunities, partly to allow them an initial opportunity to begin to scope out the size and characteristics of the potential BOT/BOO investment and partly to expose the local government (and appropriate central government) and private sector businesses with interested U.S. firms. U.S. business representatives would have transportation costs covered, but would be expected to finance their own local costs, allowing them to stay as long as they felt worthwhile.

The US AEP resources also will finance visits by local government, private sector and perhaps some central government officials to the U.S. to afford the opportunity to see actual U.S. water, wastewater and solid waste technology and systems in operation and meet with system operators and U.S. firms specializing in the construction and operation of these services.

The final output of this series of activities will be signing a Memorandum of Understanding (MOU) between the AEP/HG and the local government unit with whom a BOT/BOO contract eventually will be signed, expressing agreement in principle to proceed with a feasibility study and agreement in principle to the concept of a privately financed, U.S.-led BOT/BOO investment.

(4) Formal Feasibility Study. Upon reaching a Memorandum of Understanding on the first project to move to a full blown U.S.-led investment and development operation, the AEP/HG Team will facilitate a complete feasibility study. This will include continuing TA Team visits to the selected local area, working with local officials, key decision makers, the private sector and other influential members of the community. Dialogue will continue to further clarify the BOT concept and to assist the local government in working with the firm(s) selected to carry out the feasibility study.

The AEP/HG team, with extensive reliance on Washington-based US AEP contractors, will secure financing for the comprehensive feasibility study, perhaps with TDA or other agency funds. In the host country, projects such as the PURSE project in Indonesia should participate in financing the comprehensive feasibility study. The grant-financed study by a U.S. and/or U.S./local partnership will be an incentive for U.S. companies to participate in the BOT process. If the feasibility study indicates that the BOT project is viable technically and financially, a Letter of Intent to proceed (LOI) will be exchanged between the municipality and the AEP/HG TA Team. The firm that carried out the feasibility study then will prepare bid documents. As the output of this stage, the feasibility study will provide potential BOT/BOO bidders with enough information on the technical issues, the costs of construction, and the financial characteristics of the project to allow them to prepare proposals for the BOT contract they will offer the local government.

(5) Bidding, Evaluation and Selection. There can be considerable variation in the actual proposals offered by the possibly several BOT bidders. While everyone will have the same basic cost and technical information, bidders are free to offer additional services such as rehabilitation of an existing water sourceworks and/or treatment plant in exchange for the right to access the additional water generated by the rehabilitated plant. Other forms of risk or profit assurance may be sought in the bids, such as the right to develop and exploit a section of land owned by the municipality for a specified period. Thus, the actual proposed price per cubic meter of water supply, or metric ton of solid waste handled, and so forth, can vary from bidder to bidder even with everyone starting in the same place. The local government thus has the benefits of true competition for the best price, while the bidders have the opportunity to structure their proposals to meet the particular needs of their companies/consortia.

Bid documents will be issued to a short list (3-5) of US companies or consortia. The local government unit to sign the contract and perform its terms will select the best proposal. A fixed amount of AEP/HG resources will be provided to the local government unit to assist them in hiring independent sources to evaluate the proposals.

Once a selection of the best proposal is made, project financing assistance if necessary will be

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provided through other US AEP resources (the Infrastructure Financing Advisor Service -- IFAS -- and others) and the AEP/HG TA Team. This assistance will be offered on a strictly neutral basis during the bid preparation process to all bidders. Bidders may choose to arrange their own financing as part of their confidential competitive process. U.S. firms also are eligible for such programs as supplier credits through Export-Import Bank and political risk insurance through the Overseas Private Investment Corporation, and equity assurance through the OPIC Equity Fund Guarantee.

(6) **Project Continuation.** During the bidding and selection process, the AEP/HG team will proceed to a second round selection of a new BOT/BOO project, if decision is made to continue the AEP/HG program beyond year two. In that event, the step by step process will be similar to that described for the first project selected, bid, evaluated and contracted in each country.

2. Achieving Leverage for Capital Financing with the HG Program

Most local government units in Asia lack access to the amount of "upfront" capital financing required for water, wastewater and solid waste infrastructure facilities. Municipalities typically either or both do not have available sources from which to acquire debt financing and are perceived as poor credit risks. Furthermore, central governments often are constrained because they are near donor imposed debt ceilings, have self-imposed budgetary restrictions on additional sovereign debt as part of fiscal policy management, or face more demands for public sector investment than can practically be met. The HG program brings additionality to the urban services sector, and through various leverage options may achieve more infrastructure investment than the actual value of the HG loan funds themselves.

Five mechanisms that allow additional urban infrastructure investments based on the HG program are discussed in Annex B. The unique AEP/HG financing strategy created for this project focuses not only on additional urban infrastructure investment, but also on the involvement of U.S. private sector firms.

Individual BOT/BOO project implementation will be a contract between the local government unit responsible for the service (water supply, wastewater treatment, solid waste) and a U.S.-led private consortium. The terms of the contract typically call for delivery of a specified quantity of service, such as 50,000 cubic meters of water of specified quality per day, in exchange for payment of a specified amount per cubic meter, such as P 12/cm or Rp 1000/cm (about U.S.\$50/cm). Similar terms would apply to specific quantities of sewer sludge delivered for treatment or solid waste delivered for treatment/sanitary disposal.

A principle concern of the BOT contractor, and the financing institutions backing the BOT, is the ability of the local government unit to meet the financial terms of the BOT contract. As part of the HG Program Agreement between the borrowing government and U.S.A.I.D., in exchange for the HG funds, the borrower agrees to establish a mutually satisfactory mechanism for insuring a portion of the cash flow from the implementing local government unit and the BOT contractor. This may take several forms, and we expect it to be a matter for negotiation between A.I.D. and the borrowing government as neither the GOP nor the GOI are willing to provide their sovereign guarantee to a BOT contractor.

One example of such a mechanism would be the GOI's agreeing to open in the Regional Development

Account (RDA) a line of credit in the Rupiah equivalent of the HG loan. This line of credit could be drawn upon by the local government, or perhaps directly by the BOT contractor, only in the event of a failure to meet the monthly payment required in the contract. From the GOI point of view, the amount the RDA potentially would have to pay out would be limited to the amount of the HG loan. Thus the GOI does not risk additional amounts of its own funds other than what it has agreed to borrow through the HG program. It will not exceed the value of the HG loan, so in the literal sense they will have borrowed through the HG the necessary capital should the entire line of credit be used. In practice, BOT contractor, the financing institutions, and the central government would not be entering into BOT situations where the likelihood of the local government's use of the line of credit is high. Thus, to the central government, the risk is no greater than if the Rp equivalent of the HG loan were on-lent through the RDA to a local government -- the risk of repayment by the local government of the amount of the HG.

The negotiation of the assurance mechanism in exchange for the HG is similar in concept to the present use of several HG loans in negotiation of a policy agenda. In exchange for policy actions, HG loan guarantees are made available. In the AEP/HG program, in exchange for a form of financial performance assurance, HG loan guarantees are made available to the borrowing government. The big difference from other HG loans is on the output side. A \$25 million HG loan that generates a specific project undertaken by central or local government generates a \$25 million infrastructure investment. The same \$25 million in HG loan guarantees through a BOT financial performance assurance mechanism generates between \$75 and \$100 million in infrastructure investment.

The "free foreign exchange" aspect of the HG loan is unchanged in this mechanism. The "leveraged HG" is merely the matter of using the advantages to the borrowing government (foreign currency and terms) to negotiate an instrument that will induce U.S. private firms and financing institutions such as the IFC to provide debt and equity financing for BOT projects.

The letter of credit mechanism using the RDA has not been discussed with the GOI. It would seem to their advantage, however, in that it represents no greater commitment than their present commitments either to insure additional GOI budget allocation to eligible projects or place the Rp equivalent in the RDA for direct on-lending. With USAID/RHUDO East Asia the design team has discussed the letter of credit mechanism with the Government of the Philippines (Department of Finance). They suggested an alternative, which is a multiparty agreement among the Department of Finance, the implementing local government(s) and the BOT contractor for a portion equal in value to the HG loan of the local governments' Internal Revenue Allotment (IRA, a central government revenue transfer prescribed by the Local Government Code) to be placed on actual deposit in the Development Bank of the Philippines, or to be assigned if needed to such an account. In this case, the GOP participates in the payment assurance process, analogous to a collection agent.

We cannot expect the direct issuance of sovereign guarantees. Further, we cannot expect any form of "profit" or "return on investment" guarantee. The law in the Philippines governing BOT type contracts specifically prohibits guarantees of profits or returns, but explicitly allows performance guarantees. The legal framework for BOTs is still being developed in Indonesia, but from previous discussions we would not expect the GOI to accept use of such a term as guarantee, although we believe they will see the advantages of creating some type of mechanism as we have described here. The design team also believes it is reasonable to consider a variety of mechanisms that borrowing governments may propose, as long as the mechanism provides the BOT contractor the assurance that

there is a well established central government source to whom to turn, on a non-negotiable basis, if and when the local government fails to perform according to the contract.

With this "assurance" or "risk insurance" in hand, the private consortium can go to various sources of financing to put together the financial package. The IFC has indicated that this type of risk assurance should leverage their participation in a ratio of three or four to one. That is, with assurance of up to say \$25 million in cash flow, the IFC indicates general willingness to finance a total investment from \$75 million to \$100 million. This leverage factor is consistent with findings of the Philippines Assistance Program in the development of the Philippine Private Sector Infrastructure Development Fund. IFC participation typically requires that the total investment package be at least 30% equity with the remaining 70% debt financing, and the IFC can take up to 25% of the equity participation.

3. Expected Accomplishments and Monitoring Indicators

a. Project Results

The ultimate project result sought in each country by the end of year two is a major infrastructure project leveraging U.S. private sector investment. These projects will be single, large (\$40-\$100 million) BOT/BOO type infrastructure projects with the host country contracting party the city, municipality or other local government agency responsible for the service delivery. For water and wastewater projects, U.S. participation benefits will be in A&E (design) and construction management and procurement management. This could equal up to 15 percent of the capital costs. Direct imported (U.S.) sales of equipment could equal up to 20% of the construction cost. Management and operation contracts for treatment facilities on a continuing basis will involve additional U.S. participation. For solid waste facilities, benefits will arise from design and construction activities as in water and wastewater projects as well as operation and management.

b. Monitoring Indicators

As discussed in the previous technical assistance section, the activities leading to the expected project results involve numerous transactions with local government "buyers" of U.S.-led investment and operations goods and services and with U.S. suppliers. These transactions are the basis for the following monitoring indicators:

(1) Project Identification: 5 to 10 possible water, wastewater and solid waste projects in each country.

(2) Project Prefeasibility: Assessments of the 5 to 10 possible projects.

(3) U.S. Market Awareness: Three workshops or trade promotion conferences in the United States to make firms aware of the potential for involvement in major urban environmental infrastructure projects in Asia through equity investment, design, construction management and operations activities; travel of twenty-five U.S. firms' representatives, on a cost-sharing basis, to visit potential project sites; travel of fifty host country public and private individuals to meet with U.S. firms in their home offices, to observe U.S. water, wastewater and solid waste systems in operation, and to discuss the adaptability of U.S. technology and services to their specific problems.

(4) Project Selection and Feasibility: A major technical, financial and managerial feasibility study, expected to begin between the 6th and 8th months of year one and continue for 12 months.

(5) Continuing Project Management: During the Feasibility Study Activity, the AEP/HG technical assistance team will manage the relationship between the Feasibility Study contractor (U.S. firm and the local (and central if appropriate) institutions acting as a neutral participant to assist in safeguarding the interests of both parties.

(6) Project Continuation: During the second year, identify an additional probable project in each country and initiate the Feasibility study process.

(7) Project Implementation: By the end of the second year, negotiations between a U.S.-led consortium and local government unit for a single BOT/BOO or similar project in each country.

III. Program Factors

A. Conformity with AEP/PRE/II Policy and Strategies

In Asia a major HG program strategy for addressing these urban environmental services deficiencies is to strengthen the policy environment and local government systems for financing and providing these basic services. Programs using HG lending for urban infrastructure services began in 1988 in Indonesia, 1990 in the Philippines, and are beginning in Sri Lanka, India and Thailand. In the Philippines, the HG program complements a long history of USAID/Philippines' local government unit strengthening through technical assistance and capital financing. In Indonesia, the initial HG program has expanded to encompass several urban policy and urban services projects linking private and public sector resources. In Sri Lanka, the program complements a new technical assistance initiative focusing on private provision of infrastructure.

Although there are modest differences from country to country, the infrastructure finance strategies for the Housing Guaranty program in the region are:

Shift the way central government finance is used away from direct central government implementation of public works projects and toward rationalized grant systems and loan programs for local governments, based on market terms;

Shift more financial responsibility from central to local levels of government; and

Shift financing from totally public sector to mixed public and private sector sources.

The AEP/HG regional project will add to and complement these strategies through its focus on the U.S. private sector as an additional source of infrastructure finance capital.

Current US AEP strategies, as they relate to this project, include:

Increase the awareness of U.S. environmental technology, goods and services firms of market opportunities in Asia;

Increase the awareness of Asian buyers of environmental technology, goods and services of the comparative advantages of U.S. suppliers; and

"Package" the resources of the U.S. government and other institutions in a regional strategy aimed at penetrating an as-yet new market, ahead of, or at least simultaneous with, firms from other countries, and at generating large sales and investment projects in the urban environmental infrastructure services of water, wastewater and solid waste.

The combination of AEP and HG resources aims not so much at small-scale, low dollar value direct sales as at developing a market for large-scale U.S. sales and investment in expanding environmental infrastructure in Asia.

B. Linkages to USAID/Missions' Strategies

Among USAID/Indonesia's four Strategic Objectives, the "increased access to basic sustainable services" and the "wider adoption of proven policies and practices in . . . environmental conservation" are supported by the AEP/HG program. HG financing increases the supply of basic urban services, especially the environmental services of water, wastewater and solid waste management. Mission technical assistance increases the awareness of GOI officials of the importance of and feasibility of incorporating environmental concerns into the provision of basic urban services. The AEP/HG in Indonesia will support these Mission priorities through the capital financing of the Mission's HG program and through coordination of technical assistance activities with the on-going technical assistance activities of other Mission programs, including especially MFP and PURSE projects.

USAID/Philippines' basic Mission strategy in the urban sector includes significant support for the GOP's decentralization strategy. The Mission couples decentralization with private sector/public sector collaboration and fostering effective markets. With the USAID/Philippines' subgoal of Economic Competitiveness, AEP/HG supports the provision of essential infrastructure and services. The AEP/HG also supports outcomes under two other Mission subgoals -- People Empowerment (effective local government) and Ecological Sustainability (improved infrastructure development policy). The Local Development Assistance Program (LDAP) and the Decentralized Shelter and Urban Development Program (DSUD) both support local government units' capacity to govern, develop their own financial resources, and implement and manage basic environmental (as well as other) services. The Philippine Assistance Program (PAP) links reform of the financial sector and capital markets to capital assistance resources, and through the Private Sector Infrastructure Development Fund (PSIDF) supports the development of private sector investment in major infrastructure projects through Build, Operate and Transfer (BOT) and related financing and management approaches.

USAID/Sri Lanka recently has developed the Promotion of Private Infrastructure Project (PPI) in order to address Sri Lanka's severe infrastructure shortage and remove constraints to national economic development. This falls in line with Mission strategic objectives to strengthen the Sri Lankan economy through fostering private sector development and increasing the efficiency of the public sector's role in basic public services and infrastructure provision.

C. Linkages to Other Donor Programs

The World Bank and the Asian Development Bank both have major lending programs that affect urban environmental services in all the countries targeted for the AEP/HG program. These lending programs, however, rely on traditional approaches to public sector infrastructure finance. That is, infrastructure financing is 100% debt financing with the usual borrowing agency a central government financial institution. Onlending to local government units or other institutions is characteristic of some of the IBRD and ADB programs, and in those cases the downstream borrower assumes all or most of the financial obligations of the original loan to the central government. In the case of municipal or local development loan funds, the terms imposed on the local government borrower may be more extensive than the quasi-concessional terms of the original loan agreement with the central agency.

The AEP/HG project differs from most of these IBRD and ADB urban infrastructure loans in that it seeks the investment of private sector consortia in BOT and similar financing and management mechanisms. A combination of both equity and debt financing characterizes BOT type investments, and the risk is shared between public and private sector participants as opposed to the exclusively public sector risks of traditional donor infrastructure finance.

The AEP/HG project can work closely with other donor financing, however. The participation of the IFC in the debt and equity packages put together by the AEP/HG technical assistance program and the private sector investors is an important element in managing the risks of the BOT type schemes, and in securing debt financing in a relatively unknown (to commercial lenders) market. The ADB's new equity financing facility is not yet fully developed for this type of program, although further exploration in the future is appropriate. It also is highly likely that any water supply sourceworks project also will require an expansion of the water distribution system, which is less attractive to private investors because of the potential complexity of dealing with numerous "clients" (water users) and the complexity of fitting into an existing municipal system. The rehabilitation and expansion of existing supply systems, therefore, would very likely require participation of the more traditional infrastructure financing mechanisms of the IBRD and ADB or bilateral donors as a collateral effort with the AEP/HG leveraging of U.S. private investment.

D. Conformity to Host Countries' Policy and Strategies

The Government of Indonesia (GOI) has explicitly stated as a priority the "sustainable enhancement of urban environmental quality and management of sustainable development." Furthering this priority is the GOI's commitment to continuing its broad policy agenda to increase local governments' responsibility for, and capacity for, providing basic urban services including water, wastewater and solid waste management. The Government of the Philippines (GOP) has recognized as one of the overriding constraints to economic growth the lack of adequate infrastructure. The Development Bank of the Philippines and the National Economic and Development Authority both supported in 1992 the principle of increasing private investment in infrastructure. The 1991 Local Government Code expressly devolves to local government units the responsibility for many basic infrastructure services, including the environmental services of water, wastewater and solid waste, and the GOP is pursuing an urban policy agenda intended to strengthen both the role of local government units in services provision and the role of local and private sources in financing urban services. The Government of Sri Lanka (GSL) has demonstrated its interest in and commitment to the private provision of infrastructure, creating the Secretariat on Infrastructure

Development and Investment to carry out a new Private Infrastructure Project and indicating the intention to create an independent infrastructure project fund.

IV. Factors Affecting Project Selection and Further Development

A. Social Issues

The World Bank has identified that for most people in Asia, water supply, sanitation, and solid wastes are the most important of all environmental problems. Investment in environmental infrastructure offer high economic, social and environmental returns. Lack of these services leads directly to health problems and to productivity losses. The situation is exacerbated by the rise in urban populations and the expected increase in demand for urban services. For example as urban populations rise threefold, domestic demand for water will rise five fold.

It is often the most disadvantaged groups in society that are burdened with the lack of municipal services as they cannot afford alternatives. Vended water to poor neighborhoods is priced many times the municipal tariff. A recent study reviewing vending in sixteen cities shows that the unit cost of vended water is always much higher than that of water from a piped city supply -- from 4 to 100 times higher, with a median of 12. This is an example of how in the absence of formal services, people have to provide their own services at high cost. Further the economic costs of compensating for unreliable services are high.

The use of polluted water for drinking and bathing is one of the principal ways that infectious diseases are spread. Diseases such as typhoid and cholera are carried by infected drinking water; others are spread when people wash themselves in contaminated water. As a rule, diarrheal death rates are typically about 60 percent lower among children in households with adequate water and wastewater disposal facilities.

Inadequate waste water facilities is a major cause of degradation of the quality of groundwater and surface water. Estimates are that between 70% and 80% of surface water pollution in Asia is a result of household contamination. Inadequate investments in waste collection and disposal mean that large quantities of waste enter both groundwater and surface water. Economic growth tends to lead to larger discharges of wastewater and solid wastes per capita simply increasing the problems. All the countries under consideration in the regional program are showing increases in per capita GDP growth.

B. Economic and Financial Issues

The environmental infrastructure projects that will be built as a result of the AEP/HG project necessarily will be economically viable both in terms of development priority of the country and in terms of the economic rate of return (ERR), which will be above the opportunity cost of capital, or the private sector will not undertake the investment. Given the range of infrastructure projects, ERRs in the sector have traditionally ranged between 8% to 15% without taking into account significant indirect benefits due to public health improvements and mitigation of environmental degradation.

It is highly likely that the ERR for the individual projects chosen under this program will have an ERR higher than average because of the single and large nature of the type of project envisaged and the significant competition for scarce capital resources that will have to be met in order for the project

to proceed. Most emphasis will be on the financial soundness and viability of the specific BOT/BOO arrangement and its relationship to the municipal funding arrangement.

A main conclusion of the U.S.-based investigation during the design of the AEP/HG project is that U.S. interest in investment and management and operation transactions will be in large infrastructure projects, that is projects with a capital cost of between \$25 to \$50 million or larger. In addition to the size criteria, projects considered must be financially and operationally viable and meet environmental standards. Given the BOT mechanism or similar arrangement that would need to be in place to facilitate direct private investment in these projects, projects will most likely be in larger cities where it is possible to capture economies of scale capital works.

Though one step removed from the municipal or public authority, who is the main contracting agent with the private sector consortium building or operating a facility through the "take and pay" arrangement, the financial soundness of these authorities will play a large role in the investment decision. This project does not address pricing policies for urban services, but it is important to note that appropriate pricing policies are critical to manage the demand for and efficiently allocate resources to infrastructure services. To ensure the financial health of the sector, it is important that a policy of pricing these urban services be close to the real cost of providing them. USAID/Mission activities in the sector in Asia already have contributed significantly to improved pricing policies.

C. Market Readiness/Perception of Private Sector

Rapid economic growth estimated to steady at approximately 5% per year over the next decade in the region, accompanied by rapid urbanization are creating a strong demand for infrastructure services in water, wastewater and solid waste management. Estimated cumulative potable water service needs in Indonesia are calculated at \$9 billion. The government will finance \$5 billion, leaving \$4 billion unfunded. Wastewater and sewerage systems are practically non-existent in Indonesia and the Philippines (less than 1% of the population served). Municipal solid waste also needs attention. The amelioration of these services cannot be fully financed by the respective governments because of national borrowing capacity, thus creating a market for the U.S. private sector in BOTs for the foreseeable future. Meetings with governmental agencies in Indonesia and the Philippines confirm they welcome private sector investment in BOT arrangements. For example, Cebu City, Philippines faces a critical shortage of potable water. Only 35% of the households in the city are serviced by the water supply system. The mayor seeks to develop a new water source to produce an additional 100,000 cu.m./day. In Jakarta, municipal and industrial solid waste pose serious health problems, and the solid waste agency (BAPADAL) is looking to solve this problem through a BOT approach. Waste Management International of the U.S. is discussing this opportunity with the government. In contrast to the relatively small amount of U.S. sales of environmental equipment and goods to the ASEAN region now (estimated at only \$24 million annually), individual solid waste, wastewater and water supply BOT projects each range from \$25 million to \$200 million in size, with about 30% of that total value possible to be sourced in the U.S. through a U.S.-led BOT type contract.

A dozen key U.S. private sector engineering, construction and services companies interviewed during AEP/HG design efforts expressed keen interest in pursuing BOT projects and would like to know more about the BOT program being considered. Financial institutions like the IFC and risk insurers like OPIC are receptive to exploring BOT financing for municipal services. The general consensus is that U.S. technologies and services are as competitive as European or Japanese technologies and

services. The U.S. private sector is keenly interested in pursuing BOT opportunities in municipal infrastructure projects. However, the disadvantages perceived by the U.S. private sector are (1) up-front investment (project development costs), (2) understanding of how the Asian market functions, (3) lack of appropriate representation in Asia, (4) lack of support from U.S. governmental agencies, (5) currency convertibility and foreign exchange risks, (6) local government commitment and ability to meet cash flow requirements, and (7) the regulatory environment. AEP HG as described to these companies is seen as a bridge between the supply of U.S. goods and services and the demand by providing the up-front assistance in the form of guidance and interceding with local authorities to secure U.S. investment and by providing some risk assurance, especially with respect to local governments ability to meet their side of the contract performance terms.

D. Relevant Experience With Similar Projects

HG Programs in the Region to date have employed four mechanisms to stimulate additional urban infrastructure investments:

1. HG Sponsored, Direct Investment

The traditional HG mechanism is the U.S. Government guarantee of U.S. private financial loans to a host country government in exchange for the sovereign guarantee of the borrower made to the U.S. Government and the commitment of the borrower to fund HG eligible projects in local currency equivalent to the dollar value of the HG loan. Through this mechanism, a dollar HG loan yields a dollar equivalent host country investment, yielding the economic and social benefits to the urban poor benefitting from the one-for-one investment. The Housing Guaranty Loan program has been financing such infrastructure investments in Indonesia and the Philippines, and will also in the near term in Sri Lanka, India and Thailand. The equivalent in local currency of the HG loans presently produce a one-to-one investment level.

2. HG Sponsored, Policy Reform Aimed at Urban Services Finance and Management

In the Asia region, for several years, HG loans have had the feature of direct investment plus policy reform. There remains a one-for-one ratio of HG loan to borrower budget allocation to HG eligible investments, but the effects of the HG loan are magnified by policy changes in urban services financing and management. No direct measurement of the dollar value of the leverage has been made, but to the extent that the policy dialogue process agreed to by the borrower country in the program agreement increases the efficiency of urban services provision, increases the efficiency of central and local mechanisms that provide domestic financing for infrastructure, and stimulates the creation of other sources of financing, such as domestic private investment, the infrastructure investment value to HG loan value ratio is several times the traditional one-for-one ratio.

3. HG Sponsored, Development of Additional Public Sector Credit Programs

HG loans channeled through public lending programs for urban infrastructure leverage additional investment capital in two ways. The creation of the lending program, such as the Regional Development Account in Indonesia or the Municipal Development Loan Fund in the Philippines (the latter not associated with HG lending activities) encourages the central government and other donors

to channel funds through the same lending facility. These lending facilities create an atmosphere conducive to local government credit financing by establishing and enforcing lending criteria and providing incentives to local governments to improve their financial management practices. Where the local currency equivalent to the HG loans flow through a revolving loan program, as they will in the Regional Development Account in Indonesia, the ratio of equivalent infrastructure investment to dollar lent should be somewhat better than 1/1, since the repayment flows to the revolving loan will capitalize additional, future investments.

4. HG Sponsored, Development of Domestic, Private Investment

Usually through policy dialogue and technical assistance associated with HG loans, encouragement is being offered to stimulate host country private sector interest in investing in urban infrastructure. There are several possibilities that are being considered. One proposed during the original HG loan for urban services to Indonesia, but not yet implemented on an experimental basis, is to channel HG funds through a central credit facility (the RDA) and to sell private sector participation in the central loan fund. This can be through actual assignment of specific loan proceeds to private investors, who then bear the full risks of the local government borrower's meeting the loan terms. An alternative is assignment of specific loan proceeds, but with shared risks between the central government institution managing the loan facility and the private investor. A third alternative is selling participation shares in the loan fund in which the value of the shares is affected by the performance of the entire loan fund rather than the performance of specifically assigned loans.

Another alternative is policy dialogue and technical assistance associated with a HG loan to stimulate the development of municipal bonds or other debt instruments. This can be through use of HG loan funds to help form a secondary market for purchasing municipal bonds from the original investors in those bonds. A central lending facility could be both a broker to bring original bond purchasers and investors together and/or a buyer of last resort in the event there are no "secondary" buyers.

None of these mechanisms, to date, have particularly addressed U.S. private sector sales and investment in urban environmental infrastructure. Nor have other programs of the U.S. government focused on these municipal services from the point of view of stimulating U.S. sales and investments. This project, therefore, will introduce a new use of the HG loan program as a leverage to provide additional urban infrastructure and a new use of AEP technical assistance to develop the market with U.S. firms for municipal services in Asia.

E. Implementing Arrangements

Cities, municipalities or other local government units will be the actual entities to sign contracts with the BOT/BOO consortium. Cooperation of the central government agency that will participate in the HG leveraging, risk assurance mechanism will have to be a collaborating institution. In the Philippines, that will be the Department of Finance, Bureau of Local Government Finance who is responsible for the Internal Revenue Allotment to local government units. Even if the Local Water District is the direct agency responsible, as it would be in the Philippines for water supply sourceworks, the local city or cities would have to be the revenue guarantors, agreeing with the private contractor and the DOF to allow the necessary amount of their IRA allotments to be placed in an account in the Development Bank of the Philippines where it could be drawn against if necessary to assure contract performance.

In Indonesia, the implementing agency would be the Ministry of Public Works, Office of Research for Investments in Infrastructure (Pengkajian Investasi Sarandan Pasarana Pekerjaan), because of this office's role in promoting private sector investment in urban infrastructure. While the Ministry of Finance would be involved in the risk assurance mechanism if the GOI agrees as a mechanism a line of credit in the RDA. This, however, would not require that the MOF be the implementing agency.

A single U.S. contractor should be selected to provide through its own staff and local host country subcontracting the long-term resident staff, any short- and long-term local resident staff, and short-term staff in the United States and on TDY in the region. This will ensure a consistent approach to implementation, facilitate the regional aspects of the project, and minimize the management burden on Mission staff in the participating countries.

F. Project Support Requirements

AEP/HG will coordinate with other USAID/Missions' projects supporting decentralization, local government strengthening, municipal finance, and private sector participation in urban services projects. For this reason, management of the overall project should be in the region, with technical assistance implementation teams managed by staff in the Regional Housing and Urban Development Office. While RHUDO would have day-to-day management responsibilities, this would be undertaken in close collaboration with the USAID Missions. RHUDO also would coordinate with a Washington-based US AEP staff member assigned to coordinate with U.S. based activities.

G. Estimated Costs

\$25 million in new HG authority for the Philippines and \$5 million in grant funds for the AEP/HG technical assistance will be necessary to implement the program in two countries for the five years. In addition, resources already committed to on-going US AEP activities, such as the IFAS and the human and organizational resources development activities in the estimated amount of \$375,000 will need to be made available to AEP/HG (through financing the 25 trips to Asia and the 50 trips to the U.S. specified in the technical design).

II. Design Strategy

RHUDO/Jakarta and PRE/H will be responsible for the Project Paper (PP) design, with the assistance of the project committee based in AID/W. Additional assistance will be provided by the Regional Environmental Advisor based in RHUDO/Bangkok. In addition, RHUDO/Jakarta will maintain close collaboration with the Office of Private Enterprise Development in USAID/Indonesia; the Office of Natural Resources, Agriculture and Decentralization and the Office of Capital Projects in USAID/Philippines; and the Office of Private Sector Development in USAID/Sri Lanka as participants in the design process in the field. Technical support and analysis will be provided through an IQC to assist in the design activity, provided such support and analysis is consistent with grant financing provided by AEP in support of this PP design. Direct hire personnel will undertake the full responsibility for budget decisions and the analysis required to formulate budgetary and financial data, as well as for all design decisions regarding the project.

This PP will authorize additional housing guaranties in the Philippines; identify AEP-financed technical assistance and training required to support the project; and authorize additional AEP technical assistance and training resources, if required. Additional housing guaranties may also be

authorized for Sri Lanka, if agreed by all relevant parties that a FY 1993 authorization is appropriate. It is recommended that the Urban Infrastructure Technical Advisors and their support staff be hired as expediently as procurement allows through an institutional contract, using already obligated AEP grant resources. Expedient mobilization of these Advisors will support the project's design efforts by direct, field-based on-the-job inputs which can be incorporated into the design.

PID approval is expected in February, 1993. PP design work should begin in March, 1993. PP approval is expected by the end of July, 1993.

I. Environmental Threshold

The proposed AEP/HG program will provide housing guaranteed loans to specified Asian countries, initially the Philippines and, possibly Sri Lanka. The primary activity leveraged through this activity is capital finance provided by the host country governments, international financial institutions and the private sector for urban environmental infrastructure investments.

While A.I.D. will not directly select, design, locate or fund individual projects under the AEP Regional HG, as the HG will primarily serve as leverage to access the required financing packages, it will assure that all projects attributed to this project by the host countries will be in full compliance with the countries' environmental impact assessment processes. These processes will be similar to the U.S. EIA procedure in that an initial environmental examination (IEE) is performed on all government or private-funded construction activities and that all such activities found to pose a potentially significant threat to the environment are then required to have a full Environmental Impact Assessment (EIA) prior to beginning construction.

It is recommended that the proposed project receive a Negative Determination. (This determination also corresponds to the approved IEE for the Indonesia Municipal Finance for Environmental Infrastructure Housing Guaranty Program). Potential environmental impacts of investments funded under this project will be assessed through the host countries' environmental impact assessment process and monitoring and mitigation will be provided by the host countries, as required. The RHUDO will monitor compliance with this provision, in collaboration with country USAID/Missions, through its annual monitoring of investments made by the host countries under their HG Program Investment Plans. These annual reports will be provided to the Mission and Asia Bureau Environmental Officers.

J. Further Design and Policy Issues

1. GOI and GOP Risk Assurance Mechanisms

In order for the HG loan to leverage IFC and similar equity/debt participation by international financing institutions and to assure U.S. private investors that there is some assurance that host country local governments will be able to meet the contract performance terms, HG borrowing governments must agree to some form of reassurance. We have discussed in principle with the Government of the Philippines the use of IRA allotments, assigned by the local government unit with the cooperation of the Department of Finance to the Development Bank of the Philippines to be used for direct payment to the BOT contractor in the event of problems meeting cash flow requirements.

Discussions have not yet been held with the Government of Indonesia. The recommendation is to seek the GOI's establishing a line of credit in the Regional Development Account, equivalent in value to the HG loan associated with AEP/HG, that may be drawn down for payments to the private consortium in the event of local government's inability to meet cash flow payments.

Both of these, and similar mechanisms, do not provide 100% assurance. At most, private contractors can expect to have about 25% of the value of the capital investment assured through such mechanisms. This 25%, however, is sufficient according to discussions with the IFC to leverage their participation on a three or four to one ratio. The combination of the risk assurance mechanism and the participation of an institution such as the IFC we expect to be sufficient to involve the U.S. private sector.

Project success is predicated on the host country governments' agreeing to some form of risk assurance, up to the value of the HG loan, that will be convincing to private investors. Extensive discussions need to be held with host country's on the nature of these assurances.

2. Sector Characteristics

USAID/Philippines and other donors are supporting the policy in the water sector that local water districts be equivalent to private enterprises. Behaviorally, many local water districts are operating as private enterprises with the autonomy to hire and fire staff, set salaries, set policy and set and collect rates. However, the Philippine Supreme Court has ruled (1992) that local water districts are public enterprises, subject to public sector regulations on personnel, financial, procurement and other matters. While that has made no practical difference in the operations of many local water districts, it is possible that the Local Water Utilities Administration (LWUA) at some time in the future may enforce public sector regulations. USAID/Manila, presumably in collaboration with other donors, need to examine this issue and make a determination of the extent to which the AEP/HG project with private investment perhaps in a water sourceworks BOT, contracted with a local water district, would be inconsistent with the present Mission policy of refusing to support water sector activity unless local water districts are de jure private enterprises as well as de facto.

3. Implementing Agencies

While there have been preliminary discussions with the GOP on implementation issues (Department of Finance, Local Water Utilities Administration, and National Economic and Development Authority), no determination either in the Philippines or Indonesia has been made on the formal implementing agency. The Department and Ministry of Finance in the respective countries will be the HG borrowers. And local governments in each country will be the agencies with whom private BOT consortia sign contracts. There is as yet no final determination of what role such institutions as NEDA, LWUA, DOF and the Department of Interior in Local Government, if any, have in implementing the project.

Similarly, in Indonesia no determination has been made yet on the roles, if any, the Ministry of Finance, the Ministry of Public Works, and the Ministry of Home Affairs should play in implementation. The recommendation is that the Ministry of Public Works be the implementing agency because of its key role in infrastructure construction.

4. Economic and Financial Issues

More detailed economic and financial analyses are included as Annex E. For the Philippines, the additional public sector debt is the amount of the HG loan, presently estimated as \$25 million. This is not an important addition to public sector debt and does not affect the overall macroeconomic situation. For Indonesia, a separate Project Paper already has been prepared, discussed with the GOI, and is in the USAID/Indonesia approval process. The \$125 million in total new HG obligation is found in that Project Paper to be compatible with the GOI's policy on additional foreign debt and not to have a detrimental impact on the public sector accounts. Also in Indonesia, there are some limitations on private sector, foreign indebtedness, in order to keep the economy from overheating. The effects of additional private investment in Indonesia is compatible with the GOI's preferential treatment of investments in power, telecommunications, and water supply and waste management.

The financial issues raised by this project largely are risks to be evaluated and borne by the private sector, and therefore are presumed to be affected by market determination and willingness of the private sector to undertake the risks. A traditional financial feasibility analysis of the viability of the BOT/BOO projects has not been undertaken, therefore. However, financial issues related to the size of project necessary to attract private investors are considered in Annex F, and have been taken into account in project selection criteria in the project design.

By legislative mandate, the HG Program serves the urban poor. Projects which do not provide services to the urban poor at least equivalent in value to the amount of the HG loan will not be eligible for BOT/BOO project selection. This precludes small, "package-type" industrial waste treatment plants serving only industrial users, but otherwise is not a limiting factor. Because the projects will provide services to a broad range of population, in cities in which often more than half of the population is below the national or regional median income level, water supply, wastewater and solid waste treatment systems that serve the general community, and not just industry or high income areas, will easily qualify as the value of the investment generated by the HG loan will be several times the value of the actual HG loan.

5. Capacity of Local Governments to Participate in BOT/BOO Schemes

A key concern in all participating countries has to be the financial management capacity of the local governments who will execute BOT/BOO contracts. The realistic possibility of project success is enhanced by other technical and financial assistance activities directed to improving the financial management of local governments. On this score, the MFP and PURSE projects in Indonesia and the LDAP and DSUD projects in the Philippines have laid the groundwork and/or are carrying out complementary activities that will help ensure project success. In Sri Lanka a new project technical assistance activity is underway that will strengthen private participation in urban services (PPI). The AEP/HG project specifically recognize the financial and management capability of the local government units in the Prefeasibility Stage and uses that capability as one criteria for BOT/BOO project selection.

General sector financing issues also may affect ultimate project success. Annex F discusses the role of user charges and the effects on BOT/BOO project viability of significant subsidy of costs of water supply and solid waste. To the extent that local governments now subsidize the costs of these services, but are unaware of the true costs including both capital and operating costs, the BOT/BOO

proposals will provide a rude shock. Both Indonesia and the Philippines government policies call for significant cost recovery through user charges for water supply and solid waste, referring to these services as self-financing. A commercial proposal in the form of a BOT/BOO will contain no subsidy elements, and municipalities may or may not be willing to pay the true costs. If they are willing, they still may choose to subsidize categories of users, such as low-income households, if that is their policy, and charge other users higher costs or use general municipal revenues. The AEP/HG project will not address the cost recovery policies and practices in the participating countries. However, the project design does explicitly consider the extent of need for water and the financial practices of the local government unit in the BOT/BOO project selection. Local governments which are in great need of additional water supply, or face wastewater and solid waste problems that already have significant community support for resolution are the only ones likely to emerge as final project selections. In those communities, means for paying the actual commercial cost of the service are likely to be found.

6. Legal/Regulatory Framework

The presence/absence of a legal and regulatory framework for BOT/BOO schemes is an essential ingredient for project success. In Indonesia, the Philippines and Sri Lanka, there already are several BOT/BOO projects in various stages of preparation/negotiation, and legal frameworks are established or are being established in these countries. In all three countries USAID/Mission efforts are supporting the development of the legal and regulatory framework..

In the Philippines, the AEP/HG project to some extent can ride in the wake of the Philippines Assistance Project which has led considerable groundwork in policy dialogue with the GOP on BOT legal issues. Explicit BOT laws are in place, are being tested in several power and other BOTs, and weaknesses and remedies are being discussed. In Indonesia, several BOT schemes are in place or are being negotiated, relying on decrees and exceptions to provide the legal framework. This is a customary process in Indonesia prior to establishing more formal statutes. In addition, the PURSE project includes an explicit component to assist the GOI in the development of the legal and regulatory framework. The time frame is compatible with the project schedule laid out in the AEP/HG project design.

In Sri Lanka the GSL also is addressing the legal/regulatory framework. The GSL has created the Secretariat on Infrastructure Development and Investment (SIDI) to work with the PPI in promoting private investment, including BOT type schemes, in infrastructure. A Private Sector Investment Fund similar to the PSIDF in the Philippines is a component of the USAID/Sri Lanka and GSL efforts.

7. Assurance of Financing Availability

During discussion of the results of the design team's work in the Philippines, Mission staff suggested from related experience that unless there is a strong assurance that there are one or more financing institutions prepared to provide debt or debt and equity financing, it may be difficult to interest U.S. firms. While the design team did hold preliminary discussions with the IFC and ExIm Bank before the field work, certainly no commitments have been made. Therefore, a recommended activity during the next stage of design is more concrete discussions with the IFC and other potential sources of finance to see how strong a commitment can be secured. It also is relevant to note that the USAID/Philippines assisted Private Sector Infrastructure Development Fund in the Philippines, which will channel World Bank and Asian Development Bank funds for infrastructure investment, may be a key source of financing there if it proceeds as designed.

The Asian Environmental Partnership/Housing Guaranty Regional Project

ANNEXES

- A. Survey of US Environmental Technologies and US Private Sector's Interest in BOTs
- B. Leveraging Capital Financing for Water, Wastewater and Solid Waste Investments
- C. Transaction Targets of USAEP/HG Resources
- D. Collaboration with USAEP/HG and Regional Projects
- E. Economic Analysis
- F. Issues in Capital Investment in the Environmental Infrastructure Sector
- G. Indicative BOT Project Opportunities
- H. Technical Qualifications
- I. Regional Country Profiles: Thailand, Sri Lanka and India

Annex A: Survey of U.S. Technologies and U.S. Private Sector's Interest in BOT

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INTRODUCTION

The purpose of this paper is to assess U.S. environmental technologies and the feasibility of seeking U.S. private sector environmental firms' interest in participating in the development of, and investment in, build-operate-transfer (BOT) urban infrastructure projects. The urban environmental infrastructure projects analyzed include: municipal water, wastewater and solid waste in the Asia, initially in Indonesia and the Philippines and possibly Sri Lanka.

Interest by the U.S. private sector in BOT opportunities is very encouraging as is the in-country project availability. Findings and recommendations are drawn from first hand experience in the environmental infrastructure business sector and from discussions with U.S. engineering design/construction/operations representatives, financial institutions and bilateral funding agencies. This encouraging information, gathered first-hand from site visits and discussions with private, governmental and financial institutions in Indonesia and the Philippines is promising.

Section One - Background and trend in Infrastructure Projects, reviews the nature of and recent trends in the environmental infrastructure market in the United States, summarizes the range of views expressed by the various individuals and companies interviewed regarding interest in international business opportunities, and the perceived risks and constraints to be overcome.

Section Two - Market Opportunities, reviews environmental infrastructure BOT opportunities in water, wastewater and solid waste projects in the target countries and reactions to the BOT concept.

Few U.S. firms with capabilities in water, wastewater and solid waste management are present in the Asia and fewer have structured BOT-type projects outside the United States. Their responses to our survey indicate that there are firms in the U.S. private sector would be receptive to such opportunities, given that there would be some U.S. government involvement in the initial stages. Moreover, the better-placed firms and financiers suggest that the government's commitment to BOT-type arrangements and its ability and willingness to designate specific priorities for project development are the basic foundations they require in order to focus their attention on the target sectors. They welcome AEP/HG's plans to play a more active role, both in the policy arena and the sponsorship and early support of specific projects.

The AEP/HG Project comes at an opportune time, since: (a) the interest of U.S. firms in considering overseas opportunities in this sector is growing as a result of previous, positive and profitable experiences in overseas assignments; desire/need to grow, budget constraints and heightened competition domestically; (b) both the public and private financial institutions are mobilizing to support private sector investment in BOTs; and (c) a body of experience is beginning to develop in the specific sectors being targeted by AEP/HG in Asia and elsewhere.

1. BACKGROUND AND TRENDS IN INFRASTRUCTURE PROJECTS

Information contained in this section is drawn from interviews with several private U.S. firms, individuals (a detailed list can be found in Attachment 1), experts in water, wastewater and solid waste management, and relevant financial institutions. The key issues are:

- key industry characteristics of relevance to the AEP/HG project, and observations on its status in the U.S.;
- recurring or unique perceptions of international business opportunities and constraints; and
- various industry suggestions for the design of the AEP/HG project and similar efforts.

These discussions concurred in several areas, as well as providing several points of contention that provide important assumptions for the design recommendations of this project.

1.1 TRENDS AND BOT INTEREST

The water and waste management sectors in the U.S. consist of several thousand firms, collectively specializing in hundreds of areas as to the types of water and waste examined or handled; technology being applied; and services being provided. The general activities encompassed are: consulting, engineering, procurement, construction management, construction equipment manufacturing, operations management, maintenance and training. Project development and operations are often undertaken by consortia, with various firms contributing unique functional capabilities.

The most specialized engineering and operations management firms often collaborate with construction firms and equipment suppliers who are not necessarily specialists in the water or waste management sectors, including local firms in developing countries. Consulting and engineering firms also provide extensive training and supervisory support to operating entities, whether public or privately-owned, as well as to new project sponsors and investors that may or may not have had prior experience in these sectors or in specific technologies being introduced. Many of the larger firms involved in water, wastewater and solid waste projects, have extensive, if not predominant activities in other sectors, including power, civil and industrial engineering and construction.

Water and wastewater management firms are above all management intensive businesses selling services and know-how. According to some interviewees, the level of competence and sophistication varies widely, and even more so the ability of firms to field qualified staff for ambitious new projects, whether international or domestic.

Trends in the United States

Following significant profitability and expansion during most of the 1980s, and despite excellent future prospects in the aggregate U.S. market, a recurring theme in the interviews was that growth has slowed in the target sectors in the U.S. over the past two or three years. This is attributed to the recession and budget crises at all levels of government, as well as to growing competition and reduced profitability in some sectors. The pressure from recession and competition seem to provide a more promising context for AEP/HG efforts to attract U.S. engineering, construction and specialized water, wastewater and solid waste-related firms. There is more interest in work overseas than at any time since the recession of the early 1980s, which saw the emergence of the Privatization or BOT approach to international infrastructure project finance.

Regulatory and financial arrangements in the water and waste management sectors in the U.S. cover a broad spectrum, and considerable expertise has been accumulated over the years by firms in the industry and their legal and financial advisors. Some of these are:

- Expressions used to refer to projects in developing countries. Build-Operate-Transfer (BOT) and Build-Operate-Own (BOO), are arrangements quite common in the U.S. solid waste sectors. In a BOT project, where the private company will finance, develop and operate a facility on a turnkey basis, with or without the obligation to transfer any ownership interest they might have taken as part of the package to a municipality after a given period of time. These types of arrangements are far less common in the water and wastewater sectors. However, a different experience and record is seen with British and French companies who specialize in water and wastewater BOTs and BOOs.
- Some companies do not view the arrangement of private financing packages as an end in itself, but rather as a means to assist a client municipality (or foreign government) as well as win a contract or concession.
- A privately-owned project may well engage in revenue-sharing with a municipality as a strategy for overcoming the "NIMBY" (not-in-my-backyard), syndrome, particularly for solid waste/incineration projects.
- For projects undertaken on a lease or other contractual basis, using public sector financing, two common models are: (a) where the private company's mandate is periodically renewed by mutual consent (often referred to as "franchise"), and (b) where the mandate is granted for a fixed term and renewed by public tender (concession).
- When a privately financed or privately owned operation is governed by a long-term arrangement with a municipality, it is

often agreed that the rates will be revised once the major capital investment has been amortized.

- Billing arrangements for solid waste and wastewater services vary widely (including direct billing, water bills and taxes). Responsibility for revenue collection can rest with the private owner/operator (who in some cases may place a lien on the residences served, as in San Francisco), or with the municipality (even if the waste management service is provided by a private entity).
- Typically, voluntary and small-scale activities with low-value output, such as composting, are still viewed as belonging in the realm of the public sector.

There was significant private investment in the municipal sector during the 1970s and early 1980s, but several changes introduced by the 1986 tax law (investment tax credits and depreciation) have made it more difficult to mobilize private finance for public infrastructure projects, when compared with the traditional option of using tax exempt municipal and state securities. Government budget problems in the U.S., as well as potential advantages in terms of cost and operating efficiencies, have continued to promote interest in private financing and operation of infrastructure projects, thus developing a trend.

The trend also reflects: (a) the growing acceptance of private involvement by government entities and the public, particularly for the more complex and/or costly projects, (b) the growing experience in devising public-private business arrangements and rate structures that permit them to be run on a profitable commercial basis, and (c) the ever-higher comfort levels of operating companies and financial institutions in the permanence of federal, state and local government commitment to environmental regulation and enforcement.

It is readily admitted that most waste management activities owe their existence and prosperity to regulatory fiat and enforcement. They have also benefited from significant public sector capital investment and have enjoyed significant operating subsidies and protection. A prime example of the latter is the complexity, cost (up to 40% of the cost of a new sanitary landfill) and extremely slow pace of the permitting process. Delays of up to 8 years in completing the formalities for new solid waste facilities have helped existing operations generate extremely attractive profit margins, with gross margins well in excess of fifty percent, according to a key participant in the industry.

Other salient characteristics from discussion in the U.S. regarding this trend in the environmental sector are summarized below.

Marketing Solid, Industrial and Hazardous Waste

The core income of the solid waste industry continues to be collection, hauling and disposal of refuse through landfills or incineration. The vast majority of the members of the National Solid Waste Management Association are engaged essentially in these activities, and they also

constitute the prime acquisition targets of larger firms.

There was significant private investment in the mass burn waste-to-energy facilities during the 1970s and 1980s, and they continue to receive a great deal of attention in the industry and support from private investors and lenders. However, experience in some cases has proven that financial viability depends largely on the price of electricity in a given locality (which varies enormously, for example from 2-3 cents per kilowatt in some cities in Canada to 8-9 cents in parts of California). Indications show that the all-in cost of a typical facility (including financing costs) might be \$100 per ton, as compared to \$30-40 per ton for land filling and simple incineration. There has been concern in both the United States and Europe(1) about the possible adverse environmental impact from ash and particulate emissions produced by these facilities produce.

However, there is a notable consensus that the commercially-driven, as opposed to public contract-driven investment, in waste processing resource recovery or recycling (including methane gas-to-energy recovery) is still modest, not particularly profitable and of peripheral interest to large firms. The challenge is to identify high value end products and adequate markets: initiatives in industrial waste recovery, typically for further use as these industrial inputs have typically been the more successful to date(2).

1. The Institute for Local Self-Reliance reports that "the moratorium on new incineration plants in Sweden in 1984 to 1986...stimulated concern and guided research in the United State" and that within two years of becoming standard in Europe, "baghouses fabric and acid-gas scrubbers...were required in the United States by most state agencies and by the Federal government". Garbage in Europe: Technologies, Economics and Trends, ILSR, 1988.

2. There is comparatively little experience in the U.S. with composting, and the end-product is often sold below cost or given away, both in the U.S. and in Europe, where composting is more prevalent.

Marketing Water and Wastewater Management

Despite the recognized potential for achieving cost savings and shifting the financing burden to the private sector, a number of observers were not too enthusiastic about the scope for a major expansion of privately financed and/or operated water and wastewater management systems in the U.S. during the coming decade. There are very few privately-owned or operated sewerage lines, treatment or disposal systems. These have traditionally been and still are almost exclusively financed through federal and state grants (chiefly for upgrading existing facilities) and municipal budgets.

Perceived constraints raised include:

- Public sector reticence to cede control of sectors it has traditionally managed.
- Popular sensitivity to private management of vital public services.
- Labor union resistance.
- The ability of municipalities to raise lower-cost, tax-exempt financing (this does not preclude private operation).
- The very long term nature of investments in piping and other civil works (sewerage treatment plants are more likely to constitute a reasonable sector for private investment).
- Inherently less attractive scales of economy that make non-recourse financing and private equity investment difficult to obtain.
- High transaction costs involved in organizing an appropriate regulatory framework and business arrangement.

Even though municipalities do attempt to pass on the full cost of water and sewerage services to the consumer, the general consensus seems to be that private investors would be unable to generate an attractive return from building, owning and operating such facilities without introducing politically acceptable price increases. However, there are privatization examples for the AEP/HG Project to examine more closely, both in the U.S. and other countries like the U.K., France, Spain and Malaysia. Companies interviewed agreed that there is a significant role for the private sector to play on a contract basis, whether in the planning/ construction of the facilities and the training of municipal operators, or in providing a variety of operations management services.

1.2 OPPORTUNITIES AND CONSTRAINTS

From the interviews held with the U.S. private sector, it became clear that there was a diversity of opinion as to the pros and cons for pursuing BOT opportunities in Asia. Salient points of this dichotomy are described in the following sections.

Level of Awareness and Perceived Opportunities

A number of the very large general engineering and construction firms have been conducting international business extensively for a long time, but most agreed that the vast majority of firms, more narrowly specialized in waste management systems and operations, have hardly begun to examine the opportunities. Some suggested that most U.S. firms look overseas out of necessity, as a result of perceived market decline in the U.S. However, there is also a perception that overseas business is likely to be more profitable and offers strong growth potential, particularly against the industry-wide backdrop of financial constraints and stiffer competition.

The large engineering and construction firms maintain business development offices in Asia, while the few specialized waste management engineering firms and operators, active internationally, use their overseas presence for further business development and maintain dedicated personnel at headquarters. They have traditionally operated overseas on a contract basis for host governments and donor agencies, while providing working capital financing and performance bonds as needed. However, from the many opportunities they are considering at any given time, they are well aware of the growing demand for private financing packages for the underlying capital investments, and have both in-house project financing capabilities and strong relationships with private financial institutions.

Following the path which BOTs have taken for power generating facilities, over the past decade it was learned that there were only a handful of facilities with capacities of more than 10 MWs operating in developing countries. Nevertheless, private power generation projects are expected to account for at least half of all new developments in the U.S. in the 1990s, and a fast-growing proportion of such investments in the Philippines and Indonesia. Privately-financed and/or operated projects in water, waste-to-energy, recycling, and waste management are an even more recent phenomenon in the U.S. If similar projects follow the pattern of the energy sector, the development of private projects in these sectors by U.S. firms overseas may have a long gestation period without the strong stimulus and support from the U.S. Government, including USAID.

More significantly, all U.S. firms interested in overseas opportunities in water, wastewater and solid waste appear to be looking for high quality projects in areas where they are highly qualified and likely to be able to perform up to their reputation. This is of vital concern to this sector where the principal and most profitable private sector products are know-how and management services, irrespective of the source of financing.

Industry Concerns and Perceived Constraints

Concerns

There is a general consensus that authoritative and highly convincing government commitment to well-defined objectives and priorities is of primary importance, and that U.S. know-how could then help ameliorate specific problems and solution.

The next greatest concern is whether a technically adequate and politically stable regulatory environment (beyond project-specific arrangements and guarantees) is in place or that the firm commitment has been made to develop such a framework. This factor provides confidence there will be future business for a company that enters the sector early.

Another basic consideration is whether relevant authorities have sufficient management capacity to meet their responsibilities in the development of supervision of given projects to be built and/or operated by U.S. firms. The latter would also want to avoid situations where there is a significant risk that local operating entities would have insufficient operating funds or otherwise mismanage projects that the U.S. consortium has installed. If there is no continuing role, the potential negative impact to a firm's reputation is an important consideration.

Many firms expressed reluctance to enter any market where there is a strong likelihood that the government will want to influence private business arrangements and the resolution of disputes, for example, the allocation of roles, responsibilities and financial returns among foreign and local participants in a consortium.

As in the U.S., the international wastewater sector was seen as a particularly difficult one to pursue on a more or less commercial basis with private financing. There is a general consensus that consumers must be readied to pay for sewage infrastructure that they have lived without until now. Even if the private provider is paid strictly on the basis of a cost plus, or a fixed fee contractual arrangement with government, the underlying financial viability of the system rests on creating a revenue stream that ultimately involves billing or taxing thousands or millions of households. If at all feasible, this process, in all likelihood, must remain a government responsibility, or, at the least, a government-guaranteed process managed by the private sector provider.

In the area of resource recovery, the market risk is presumed higher in developing countries, if there is market at all. The waste stream is likely to be high in organic content, particularly in the light of informal sector scavenging activity, and therefore suitable for already low-value composting and methane gas production. However, many suggested that there may be unique, commercially viable opportunities in industrial waste recovery. Industrial processes are often highly inefficient in the developing countries and generate large volumes of marketable materials than the more sophisticated plants in the U.S.

There is also a general consensus that the foreign exchange transfer risk and exchange rate risk must be properly mitigated, if the firm is to provide long-term financing and services in exchange for long-term financial returns. Faced with serious foreign exchange transfer and debt service problems in one developing country, one large firm expressed a strong preference for local currency-denominated debt to local institutions. Strong confidence in the transferability of dividend payments and capital gains are also essential for any equity investment.

Constraints

U.S. companies also have some perceived internal and external constraints:

Internal Constraints

- Smaller companies in particular, have the technical know-how and management capabilities, but have little or no experience in developing country administrative, market and social environments, and in many cases have not or rarely worked outside of the U.S.
- Smaller firms have little scope to risk their own capital or absorb losses if they were faced with an opportunity to participate in a BOT-type project. Their top priority is profitable investment and growth in the domestic market.

- US. companies often require a faster return on investment than their competitors, and they express concern about shareholder and board sensitivity to potential losses from foreign subsidiaries. They must justify overseas financial and human resource investments as the means to generate high-return, low-risk opportunities.
- The larger firms express concern about the potential drain on their personnel and indicated a preference for markets with a services industry capable of providing turnkey support or experienced management and skilled labor resources.

External Constraints

U.S. technologies and services for municipal infrastructure, although more sophisticated due to U.S. design specifications, have no apparent disadvantage from those offered by other countries such as France, the United Kingdom or Japan. American technologies can also be easily adapted to local circumstances and requirements. However, U.S. technology, services and goods are at a certain, albeit some times self-imposed, disadvantage in the Asian market due to:

- Willingness and ability of U.S. companies to explore Asian market opportunities and follow through with market leads. Except for a few of the largest American-based multinational engineering, construction and equipment supply companies, most small -and medium- sized American firms do not know how to compete in Asian markets.
- Many do not have local offices, branches or agents who can develop long-term relationships with the influential people in the ministries or agencies who will review and decide on contract proposals.
- Many U.S. companies do not realize how long it takes to develop effective relationships and sense of trust needed to do business in Asia. Most U.S. companies' long-term view is determined by the quarterly results, while the Europeans and the Japanese, take a long-term --two to three years-- investment approach before expecting any returns.
- U.S. companies do not receive the same level of support from U.S. government agencies that foreign competitors receive from their governments in such areas as: facilitating trade missions; providing inside information; assigning embassy staff to companies to "walk them through" the marketing and bidding process, tying aid grants to U.S. procurement;

and restricting the use of loans or grants (such as the HG) to specific types of projects in which U.S. companies would have competitive advantages. The British, French and Japanese governments often give preference on each potential overseas contract to one or two of their companies (rotating among the major suppliers) and then work with that company to get contracts. The U.S. government, on the other hand, often keeps an "arms length" relationship with U.S. companies rather than promoting "national champions", as other governments do.

Summarizing general comments from the private sector on the issue of constraints, some companies indicated that few firms can offer all of the needed expertise in evaluating the status and requirements of a given sector at the national level or in a given locality, and reviewing all possible alternatives and producing a comprehensive sector development plan. As to the types of approaches that are likely to be the most effective, there was a widely shared consensus that any approach to a given problem that is not properly supported by local conditions (regulatory, social, financial) is bound to fail, whether in the U.S. or in any developing country.

2. MARKET OPPORTUNITIES FOR BOTs

Background

The BOT concept is responding to the global trend in meeting the market needs of environmental infrastructure. The BOT trend started to develop through the privatization concept, in which the private sector undertook the challenge of securing financing to provide traditional engineering, construction, and operating management services to municipalities for major infrastructure works. This trend was precipitated by local governments' inability to secure sufficient financing for all municipal infrastructure needs because of national borrowing constraints in combination with growth in industrial output which encouraged urban expansion and congestion without the appropriate infrastructure to accommodate its many needs. As a consequence, industry has expanded at the expense of the environment. However, as GNP per capita grew, people also began to demand better living conditions and a cleaner environment. This demand by the citizenry for a better living environment has left the newly industrializing countries demanding environmental improvements without access to traditional funding.

One possible alternative for solving this problem is to tap the U.S. private sector for direct investments in municipal infrastructure projects. However, major municipal infrastructure projects in water and waste management have a gestation period of two to three years and require significant up-front investment, i.e., project identification and development, feasibility studies, followed by securing adequate financing terms that would be acceptable to the recipient municipality. Commercial terms are not competitive when measured against the concessionary loan terms provided by European or Japanese competitors, obtained from their respective governments. To improve or put U.S. companies on an equal footing, assistance from the U.S. government is critical, at least at the inception period.

2.1 Market Demand

Municipal water and waste management (wastewater and solid waste) infrastructure needs outstrip country borrowing capabilities and lending agencies resources. As an indication of market size in water and wastewater in Indonesia, the World Bank and ADB have selected 10 projects to be financed at a cost of approximately \$2.5 billion. In the Philippines, they identified 14 projects in the same sector for an estimated value of \$321 million, illustrated in the following tables.

The Government of Indonesia estimates that to provide piped potable water to 85% of its cities, it will require a capital investment of approximately \$9 billion. The GOI will be financing water projects for an estimated \$3 billion. The combined financial resources of GOI and the multi-lateral development banks will cover approximately 55% of the required \$9 billion. The shortfall of approximately \$4 billion will have to come from elsewhere; ideally the private sector. Comparable opportunities also exist in the Philippines.

The development of formal, private sector participation in urban environmental infrastructure is in its early stages. U.S. export of environmental products to the Asian region during the first half of 1990 accounted for approximately \$24 million of which 23% were distributed between Indonesia and the Philippines. The disparity of U.S. exported goods and the demand illustrated above, clearly indicates that this is a very young market which holds a promising future for the U.S. private sector willing to take a certain risk. As indications of the growing interest in infrastructure investments, two current examples of joint venture projects on a BOT concept basis are underway:

- Accord was reached for a bulk water supply at Umbulan Springs, East Java, between the consortium composed of Northwest Water Plc., McDonald Plc., and CDS. When complete this \$180 million project will provide water for Surabaya, Gresik, Sidoarjo and Pasuruan, a metropolitan area of approximately 5.5 million people.
- A major agreement is near between Waste Management International and the GOI for the operation and management of an industrial landfill and treatment facility.

If Indonesia and the Philippines attain their projected in both GDP and urban population, over the next five years, it is certain that infrastructure needs will accelerate, as well as the opportunities for U.S. firms.

Annex B: Leveraging Capital Financing for Water, Wastewater and Solid Waste Investments

Most municipalities in the Asia region lack access to the amount of "upfront" capital financing for water, wastewater and solid waste infrastructure facilities. While especially true for water and wastewater, where the investment requirements are quite large, it also characterizes environmentally sound solid waste disposal practices, relative to the size of most municipal budgets. Municipalities typically either/or both are perceived as poor credit risks and do not have available sources from which to acquire debt financing for investments. Total level of public indebtedness also severely constrains the region's central governments' access to credits as a potential source of financing municipal investments in this sector.

Five mechanisms allow additional urban infrastructure investments based on the HG program.:

1. HG Sponsored, Direct Investment

The traditional HG mechanism is the U.S. Government guarantee of U.S. private financial loans to a host country government in exchange for the sovereign guarantee of the borrower made to the U.S. Government and the commitment of the borrower to fund HG eligible projects in local currency equivalent to the dollar value of the HG loan. Through this mechanism, a dollar HG loan yields a dollar equivalent host country investment, yielding the economic and social benefits to the urban poor benefitting from the one-for-one investment. The Housing Guaranty Loan program has been financing such infrastructure investments in Indonesia and the Philippines, and will also in the near term in Sri Lanka, India and Thailand. The equivalent in local currency of the HG loans presently produce a one-to-one investment level. For every \$1 million in HG loan, the equivalent \$1 million in eligible infrastructure is produced in the borrowing country.

2. HG Sponsored, Policy Reform Aimed at Urban Services Finance and Management

In the Asia region, for several years, HG loans have had the feature of direct investment plus policy reform. There remains a one-for-one ratio of HG loan to borrower budget allocation to HG eligible investments, but the effects of the HG loan are magnified by policy changes in urban services financing and management. No direct measurement of the dollar value of the leverage has been made, but to the extent that the policy dialogue process agreed to by the borrower country in the program agreement increases the efficiency of urban services provision, increases the efficiency of central and local mechanisms that provide domestic financing for infrastructure, and stimulates the creation of other sources of financing, such as domestic private investment, the infrastructure investment value to HG loan value ratio is several times the traditional one-for-one ratio.

3. HG Sponsored, Development of Additional Public Sector Credit Programs

HG loans channeled through existing, or newly created through the policy dialogue process, public lending programs for urban infrastructure leverage additional investment capital in two ways. The creation of the lending program, such as the Regional Development Account in Indonesia or the Municipal Development Loan Fund in the Philippines (the latter not associated with HG lending activities) encourages the central government and other donors to channel funds through the same lending facility. These lending facilities create an atmosphere conducive to local government credit financing by establishing and enforcing lending criteria and providing incentives to local governments to improve their financial management practices. Where the local currency equivalent to the HG loans flow through a revolving loan program, as they will in the Regional Development Account in Indonesia, the ratio of equivalent infrastructure investment to dollar lent should be

somewhat better than 1/1, since the repayment flows to the revolving loan will capitalize additional, future investments. However, the net present value of that ratio still is unlikely to be much better than perhaps 1.1/1 because of the length of the repayment period.

4. HG Sponsored, Development of Domestic, Private Investment

Usually through policy dialogue and technical assistance associated with HG loans, encouragement is being offered to stimulate host country private sector interest in investing in urban infrastructure. There are several possibilities that are being considered. One proposed during the original HG loan for urban services to Indonesia, but not yet implemented on an experimental basis, is to channel HG funds through a central credit facility (the RDA) and to sell private sector participation in the central loan fund. This can be through actual assignment of specific loan proceeds to private investors, who then bear the full risks of the local government borrower's meeting the loan terms. An alternative is assignment of specific loan proceeds, but with shared risks between the central government institution managing the loan facility and the private investor. A third alternative, or variant on the second, is selling participation shares in the loan fund in which the value of the shares is affected by the performance of the entire loan fund rather than the performance of specifically assigned loans.

Another alternative is policy dialogue and technical assistance associated with a HG loan to stimulate the development of municipal bond or other debt instruments. This can be through use of HG loan funds channeled through a central lending facility which are used to form a secondary market for purchasing municipal bonds from the original investors in those bonds. The stage of development of the capital markets in most of the countries in the region is not presently conducive to the long-term financing required for urban infrastructure investments. Investors have too many opportunities for relatively high yielding, short-term debt and equity shares to become interested in the long-term yield from municipal infrastructure debt instruments, and there typically are no secondary markets sufficiently strong to lead investors in municipal bonds that they could sell their investments before the bonds mature. A central lending facility could be both a broker to bring original bond purchasers and investors together and/or a buyer of last resort in the event there are no "secondary" buyers.

Any of these uses of the HG loan program to stimulate private domestic investments yields a ratio of infrastructure investment to HG loan value greater than one-for-one.

5. HG Sponsored, Direct U.S. Private Sector Investment in Urban Infrastructure

The specific leveraging focus of the AEP/HG program is to use HG loan funds, the program agreement and technical assistance activities to create conditions that bring U.S. private sector investment into urban environmental infrastructure. Under the previous mechanisms, there is no necessary relationship between the HG leveraged investments and the U.S. private sector, although U.S. firms conceivably could become involved through successful participation in competitive bidding for construction projects. HG funds, or their local currency equivalent, are not now tied to mandatory purchase of U.S. goods and services. Even were there direct tie requirements, it is unlikely that any more than a maximum of U.S. goods and services equivalent in value to the HG loan would be purchased, because the conditionality could not likely be tied to the additional borrower country investments, either governmental or private, over and above the HG loan.

The AEP/HG program seeks leverage in two respects. It will produce additional funding in urban environmental infrastructure beyond present borrower capacity to invest either public sector or domestic private sector funds. This additionality, in other words, should produce benefits of urban environmental infrastructure beyond any of the first four mechanisms described above. The second leverage aspect of the AEP/HG is the U.S. private sector participation. Through the program agreement negotiated with the HG, borrower countries will create mechanisms that will mitigate a portion of the perceived risk of municipal default to a U.S.-led BOT/BOO venture. An illustration of such a mechanism is an agreement among the U.S. private consortium, the local government unit with whom the BOT/BOO contract will be signed, and the central government (Department of Finance and likely Development Bank of the Philippines in the case of the Philippines) in which the Internal Revenue Allotment due to the local government will be assigned or held in something similar to escrow, up to the amount of the HG loan, to meet cash flow terms of a BOT/BOO contract with a U.S.-led consortium. This resort would come into play only if the local government unit was unable at any point in time to meet the "pay and take" provisions agreed to in the BOT/BOO contract. The HG loan indirectly, through the program agreement, guarantees a portion of the BOT/BOO cash flow, and this is restricted only to ventures led by U.S. firms in which the U.S. had a majority of the equity participation in the venture.

With this "assurance" or "risk insurance" in hand, the private consortium could go to various sources of financing to put together the financial package. The IFC has indicated that this type of risk assurance should leverage their participation in a ratio of three or four to one. That is, with assurance of up to say \$12.5 million in cash flow, the IFC indicates general willingness to finance a total investment from \$37.5 million to \$50 million. This leverage factor is consistent with findings of the Philippines Assistance Program in the development of the Philippine Private Sector Infrastructure Development Fund. IFC participation typically requires that the total investment package be at least 30% equity with the remaining 70% debt financing, and the IFC can take up to 25% of the equity participation. Thus, a U.S. consortium would have the comfort of the assurance of a portion of the cash flow, the comfort of the risk sharing afforded by the equity and debt participation of an institution such as the IFC and such other inducements and attractions as it might negotiate with the local government unit (such as the right to develop a section of municipally-owned land for commercial purposes).

Since the characteristics of the BOT/BOO projects that would be considered in the first place are highly financially and technically viable in the first place, there is no inherent reason why the HG leverage is finitely limited to this one to three or four ratio. There is a risk of default from the participating local government unit, but this risk is not 100%. Therefore, it is conceptually possible to imagine the host country central government and local governments providing such assurance for more than one project, or for an even larger project than the illustration, on the assumption that illustratively the risk of default is only 20%. With a 20% risk of default, the leveraged assurance theoretically could be provided five times, so that the ultimate leverage achieved is on the order of 15 to 20 times the value of the HG loan. This should be taken as indicative only, in that every project would have to be examined on its own technical and financial merits, and greater or lesser risk assurance may be required depending on those circumstances.

The fifth mechanism is what we have created for the AEP/HG program. Among the other four mechanisms, neither the direct application of the equivalent in local currency of HG loans nor the mobilization of private domestic savings have any particular tie to the participation of the U.S. private sector in the water, wastewater and solid waste sector in the borrowing country. Nor, given the stage

of development of the private capital markets in the region, is domestic savings likely to provide in the near term a sizable amount of investment in water, wastewater and solid waste.

An alternative to private, domestic savings is international, particularly U.S., private investment in the sector. In particular, the addition of a U.S. trade promotion objective to the HG program seeks to encourage U.S. private sector involvement.

The primary present obstacles to U.S. private investment in the water, wastewater and solid waste sector are lack of market awareness and marketing strategies on the part of U.S. firms and the perceived risks associated with those investments. U.S. firms are accustomed to the technical and construction risks associated with infrastructure projects, but the financial risks of the ability of municipal governments in Asia to meet the cash flow requirements of a large, private infrastructure investment are perceived as too great to attract U.S. firms, despite the presence of a few firms such as Northwest Water Ltd. (Great Britain) and Degremond (France) in the region.

Lack of market awareness and marketing strategies is addressed in the AEP/HG program by the use of AEP funds for technical assistance, described in Annex _____. The cash flow risk management is the province of the HG program.

The HG program strategy is for the central government of the borrowing country, in exchange for the HG funds, to develop a partial credit guarantee to municipal authorities involved in water, wastewater and solid waste investment projects with U.S. firms. With some assurance that municipalities can meet the cash flow requirements of a private investor/consortium producing water, wastewater or solid waste services, municipalities may secure the financial involvement of U.S. firms beyond the amount of the actual HG loan itself.

One such mechanism could be the issuance of a line of credit, equivalent in value to all or part of a HG loan, for the exclusive use of municipalities only if they experience temporary difficulty in meeting the cash flow requirements to meet the terms of a contracted project with a U.S. firm or consortium, or a consortium in which U.S. financial participation is significant (yet to be defined). The Government of Indonesia, for example, could issue a line of credit in the Regional Development Account that could only be used to meet cash flow requirements in paying the contract terms of a privately built and operated (Build/Operate/Transfer or Build/Operate/Own) infrastructure facility (drinking water treatment plant, wastewater or sludge treatment plant, solid waste landfill or other disposal facility). The Government of the Philippines could issue a credit guarantee up to the value of the HG loan for a similar purpose. These types of line of credit or credit assurances provide a degree of risk assurance to the private consortium, and the credit assurance provides the consortium with better access to sources of debt and equity capital for investment in the infrastructure facility.

For example, with such a credit assurance in hand, U.S. firms could approach the IFC and/or other financial institutions for their participation in the BOT/BOO investment. IFC staff have indicated in discussions with the AEP/HG design team that such a credit assurance would leverage funds greater than the actual value of the credit assurance, something along the lines of a 4/1 IFC participation. That is, the IFC would provide debt and equity financing of up to \$4 for every \$1 of assured credit to the municipality engaging in a BOT/BOO contract with a private consortium. Thus, a U.S. consortium under this arrangement could approach the IFC for \$100 million in financing for a \$25 million credit assurance from the central government of the country borrowing \$25 million through the HG program.

The IFC requires a 30% equity participation in such an arrangement, and would take up to 25% of that equity participation for itself. Thus, the private consortium would be required to take up to a \$22.6 million equity participation, the IFC would take up to \$7.4 million in equity, and finance the remaining \$70 million in a \$100 million BOT/BOO.

The municipal role would be as the entity contracting with the private consortium for the construction and operation of the facility. The municipality might take some part of the equity in the project itself, typically providing the land on which the facility would be built. The nature of the contract with the private consortium is some type of guarantee by the municipality to purchase a specified quantity of drinking water at a specified price per cubic meter, or a specified quantity of wastewater, sludge or solid waste at a specified unit price. That guaranteed contract flow is assured through a combination of the municipality's own ability to generate revenues through user charges, taxes and other revenues available to the municipality plus the partial (about one fourth of the project investment) guarantee through some central government facility (as part of the HG loan).

In this fashion, if \$10 million in HG funds are the vehicle for securing an equivalent \$10 million in central government, line-of-credit guarantee to a municipality (or other local authority), an actual \$40 million project investment may be possible (based on the IFC's estimate of the value to the IFC of the partial credit guarantee). The additionality (the amount of private investment over and above the actual value of the HG loan) and the fact that the additional investment would occur sooner than if reliance is exclusively on domestic public or private sector funds are the two prime benefits to the HG borrower country.

To the U.S. private sector, the benefits are due to the use of various forms of AEP and other assistance programs to involve them early in the process of development of an infrastructure project, so that the project becomes a "U.S. project" and the use of the mechanism of the HG program to secure some of the financial risks.

BOT/BOO mechanisms are not appropriate for "high-risk" projects or local government units. Even with the partial assurance provided by a central credit line to the municipality, the municipality must have the demonstrated capacity to generate its own revenues through local taxes and/or user charges, or the demonstrated ability to channel central government grants or revenue sharing to meet the contract payments to the BOT/BOO consortium. Projects with high technical (construction) risks and weakly managed municipalities will not be suitable for a private consortium investment, nor would such financial institutions as the IFC participate in high risk projects, although it will undertake more risk than typical private financial investors. Hence, the link to IFC financing will be important in early projects with Asian municipal governments simply because of the lack of experience with private sector collaboration.

The following exhibit demonstrates conceptually the feasibility of private production of water, wastewater and solid waste infrastructure. It illustrates three kinds of costs associated with service production. The central core are the costs associated with construction and operation of a production facility such as a water treatment plant or a sludge treatment facility. The upper section represents the cost of capital financing for the construction; public sector capital costs are shown as less than the capital costs if the private sector arranges for the financing. This is due to the ability of the public sector to use its sovereign guarantee to obtain lower interest rates. For the private sector to arrange the financing, an additional increment in financing costs is necessary. Thus, private sector participation through a BOT/BOO is likely to be more expensive than public sector production, if it is

assumed that the public and private sectors are equally efficient in the actual construction and operation of the facility.

The lower section of the exhibit illustrates costs that are associated with less than fully efficient construction and operation. There it is argued that the competitive operation of the market forces the private sector to be more efficient than the non-market conditions of the public sector in construction and operation. In addition, because the public sector is unable to obtain sufficient credit to accomplish the level of needed infrastructure investment, the additional investment brought by the private sector may allow facilities to reach sizes associated with greater economies of scale, hence more efficient than the present public sector alternatives.

As the exhibit illustrates theoretically, it is possible for the BOT/BOO arrangement to be less costly to users than similar public systems, if the BOT/BOO consortium is more efficient in its management of the construction and operations costs, and/or if the BOT/BOO arrangement generates economies of scale. This is illustrated in current conditions in the region by the fact that the poor in urban areas typically pay far more, sometimes 25 to 40 times more, for water than middle and upper income families. This is due to the lack of access to piped water systems that reach middle and upper income areas (or private, on-lot and small development deep wells) which forces the poor to buy water from vendors. Larger public systems extended to the urban poor may be overall lower in unit cost of production. Thus, the use of BOT/BOO schemes in the absence of public sector financial capacity, may be able to provide larger quantities of water, wastewater or solid waste service at the same or lower cost per unit than present systems, even accounting for the profit factor and the higher costs of capital to private service producers.

[exhibit not printed yet]

Annex C: Transaction Targets of AEP/HG Resources

In urban environmental infrastructure, there are three main ways U.S. goods, services and capital can play an active role in increasing the stock of infrastructure in Asia as well as increasing U.S. market share and penetration of the sector. These three levels of transaction are: investment (equity), management and operation (contracting), and direct sales.

1. Investment

BOT/BOO models serve as suitable vehicles to tap sources of private US equity finance for capital investment in environmental infrastructure. A more complete explanation of BOT/BOO investments is in Annex F. These arrangements aim almost exclusively at new projects. They establish a new private sector company/consortium that finances, constructs, owns and operates the infrastructure facility. A BOT project is likely to be of interest mainly to construction companies, consulting engineers, equipment suppliers and management companies. If the project sponsor is a long-term investor (financial investor only) rather than a supplier (suppliers can often recover equity investment during the construction period through supplier contracts and construction) he or she probably will prefer the BOO format. A BOO format is simpler and requires less complicated negotiations and in general fewer contractual arrangements than a BOT format.

The US equity investment pool of possible investors for BOT projects in the water and waste water sector is not large, but the firms who are likely to take up equity positions are industry leaders. They are mostly firms interested in the capital construction, design and management activities of project development, not operation and management. US based solid waste management firms, however, have wider experience in management and operation of the solid waste sector as well as in design and construction management of facilities. The firms necessarily will be large as they will need to raise equity finance on the strength of their own commercial viability more than on the specific project investment, although the participation of the International Finance Corporation (IFC) or other similar, development-oriented financing organization as a debt and equity investor potentially eases the U.S. firms' total reliance on their own sources. A project needs to be financially promising, but more than that, equity investors are motivated by a variety of other interests such as establishing market share, employing surplus staffing and other resource capacity and so forth.

It must be borne in mind that debt financiers are indifferent as to type of project as long as the rate of return and risk profile are acceptable. Possible debt financiers identified for large infrastructure projects include the IFC (who is willing to take equity risk as well) and specific fund mechanisms like the Private Sector Infrastructure Development Fund which is being set up in the Philippines. A similar type of fund also has been designed for Sri Lanka. Debt financing will simply seek out the highest return on capital given the specific array of project options.

A survey of potential US investors interested in taking an equity position in BOT projects indicated that the projects have to be large, ie. over \$50 million (for water and wastewater, and lesser for solid waste facilities and management), to make design and capital construction activities overseas worthwhile. The type of municipal projects that would interest investors would include source works (water supply head works), water and waste water treatment plants, solid waste transfer stations and sanitary landfills. These types of projects include single delivery contracts, for example bulk water supply, water treatment or waste water treatment in terms of "pay and take" type contracts with cities, municipalities or other local government units.

The BOT format also addresses problems of financing projects in countries with constraints on their

access to international financing and either weak or overextended domestic capital markets for longer term borrowing, i.e., over 7 years. The BOT financing structure is a "limited recourse" structure which means that there is no direct, unconditional guarantor for servicing of project loans. Recourse is limited to the project company and its assets, including the real estate, plant and equipment, and contractual rights. An example of the contractual rights is the use of a particular water source for a number of years and other guarantees and assurance. Normally, the debt financing lenders' only recourse for non-payment by project company is in the contractual documents. Annex B describes how the HG program can be used to provide a degree of additional "comfort" to the BOT investors through the contractual arrangements with the municipality or local government end user.

To estimate the U.S. participation in the type of BOT project proposed, consider the typical water, wastewater and solid waste project for the municipal sector. The typical capital investment profile for a water or wastewater facility is:

1. Design	5% of total costs
2. Mechanical & electrical	45%
3. Civil works	50%

Sanitary landfills and waste management costs are skewed differently as land acquisition becomes a significant factor. Incineration and resource recovery project profiles are similar to those in water and wastewater projects.

Approximately 50% of mechanical and electrical goods and services in projects in this sector can be found in the local market, providing that the local market is sufficiently advanced to meet the necessary technical criteria. The other 50% of these goods and services can be sourced in the U.S., or 22.5% of total costs. A U.S. led consortium likely would include a U.S. contractor for all of the design work, adding another 5% to the total U.S. participation. Most of the actual civil works labor would be procured locally as would most of the materials. U.S. participation would be as general contractor and management, approximately 5% of the civil works or another 2.5% of total costs. Thus, a water treatment plant estimated to cost US\$100 million would have approximately 30% U.S. goods and services (design, equipment and construction management) while the approximate balance of 70% likely would be local content. This represents the U.S. participation in the capital investment portion.

Aside from the initial capital investment, additional U.S. participation would be the U.S. operations managers and the U.S. share of the profits from management and operations over the life of the BOT. Thus a \$100 million capital project could produce approximately \$30 million in initial U.S. sales and investment, along with a cash flow for costs and profit for system operation during the life of the BOT.

2. Management and Operation

From the US water and waste water sector, most activity likely will center on equity investment participation with subsequent transactions in design and construction management. The profile of the US water and waste water sector does not lend itself to operational management on an international scale. The U.S. solid waste industry, however, is much more vertically integrated in terms of design, operation and management of entire solid waste systems including collection, treatment and disposal. These firms also participate actively in co-generation and resource recovery schemes. For example, a large U.S. multinational firm currently is in a joint venture in Indonesia for the design of collection and treatment systems for toxic wastes where it expects to have the

management contract for the system once it is working.

3. Direct Sales (Exports)

Both investment schemes and managing and operations contracting arrangements, as described above, can result in US exports of both goods and services. Direct equipment sales are also likely in specialized sectors such as instrumentation. One specific example is the US direct export sales of aerators to a small but expanding company in Indonesia who is developing package waste water treatment plants. However, the ability of U.S. firms to achieve large, direct sales of equipment and supplies is limited without U.S. participation in the entire package of design, construction and operation.

ANNEX D

Technical Co-operation Activities of the AEP/HG Program and Environmental Projects in Asia

1. Purpose

The purpose of this annex is to establish the following:

What is the scope of the AEP(Asean Environmental Partnership)/HG(Asia Urban Environmental Infrastructure Program) program and why is it unique among the various established programs in the regions?

How will the AEP/HG program use the various tools and resources available under their respective programs?

How will the AEP/HG Program work with the established and developing programs in the region?

2. The Components and Scope of The AEP/HG Program

The AEP/HG program is the joining of forces of two major regional USAID projects. These are the Housing Guaranty Loan Program (HG) Housing Guarantee Loan program and the United States Asian Environmental Partnership (AEP). The individual components of the AEP/HG are briefly described below:

The Asian Urban Environmental Infrastructure Program (HG)

The HG program has a specific focus on environmental infrastructure which is defined to include investment in water, waste water and solid waste sectors. A main mandate of the program is to support long-term financing for environmental infrastructure projects. The HG program is also mandated to serve populations that are below median income. This further narrows the scope of the program loans to support investments that are most likely directed toward municipal services rather than industrial or commercial enterprises.

HG-financed urban environmental activities are underway in Indonesia. There are proposed HG authorization for the Philippines and Sri Lanka. There are currently discussions in Thailand, pending resumption of AID programs. India is also a possibility for HG support. (See Annex I)

In summary the HG program is a capital financing program aimed at supporting municipal investments in water waste water and solid waste management for the five Asian countries identified above.

The US -Asia Environmental Partnership (AEP)

The AEP was formally set up a year ago in January 1992 as a comprehensive effort to bring together US industry, over twenty US Government agencies, and a number of non-governmental organizations with international counterparts in 31 Asian countries. The prime focus of this partnership is to promote a basic policy of environmental improvement in Asia by facilitating the flow of US investment and technology through market based and market driven activities.

The AEP is organized into four components. These are Technology Cooperation, Environmental and Energy Infrastructure, Environmental Fellowship Program and the Regional Biodiversity Conservation Network. Resources and activities from the first three of these components are expected to interact most actively with the HG program with the Environmental and Energy Infrastructure module taking the lead. These three components of the AEP are set out below with their major activities, their direct co-operating agreements and agencies with which they are coordinating.

US-AEP Program	Co-operating Agreement	Coordinating Agencies
<u>Technology Co-operation</u> Business Representatives Information Services (AEBIS) Co-operation with NASDA programs	NASDA	DOC/FCO DOC/TIC EIP PITO Asia Society IESC ADB (Rep)
<u>Environmental and Energy Infrastructure</u>		
IFAS (Infrastructure Finance Advisory Service) Infrastructure Project Information IPPF (Infrastructure Project Promotion Fund)		DOC/TDA SBA EXIM OPIC DOE PRE/HG ADB
<u>Environmental Fellowship Program</u>		
US/Asian short term fellowship & exchanges - short term 1-4 months - direct/reverse exchanges	Asia Foundation USETI WEC	EPA

3. Combined Components of the AEP/HG Program

The combination of the AEP/HG resources provides a unique program within the spectrum of regional USG programs. The HG provides the focus on the specific sectors within the environment - water, waste water and solid waste management - as well as narrowing the activity to aim at municipal level services for these sectors. The capital financing aspect of the HG will increase leverage of the newly emerging USAEP International Project Promotion Fund (IPPF) and will complement its investment risk strategies to promote US investment in environmental infrastructure projects. The HG program with USAID/Missions have worked extensively with devolution and decentralization and bring an understanding of the ties to public and private institutions responsible for those services.

A strength of the USAEP is its comprehensiveness and its ability to access a range of US resources across the spectrum of trade and business activities, training and market information in environmental priority areas that will lead to increased trade opportunities. This access activity can be viewed in terms of a set of "tools" that can assist in the development of infrastructure projects that are focused on HG priorities, eg. environmental infrastructure at the municipal level.

The linkages of the AEP and HG programs can be demonstrated in the development of environmental infrastructure projects. Project development is initiated at the in-country field level by the Urban Infrastructure Technical Advisors (UITA) (See Annex H). These individuals are in a position to identify and promote likely municipal based investment in environmental infrastructure. In the transaction identification and promotion stage, the direct linkages that the UITA has with AEP partnership and the use of its "tool" box will facilitate this effort. Examples of this co-ordinated effort include:

Information exchange and access to the US environmental business community. -

The UITA will be able to access the USAEP local business representatives and their in-country offices as well as use the information services links of the USAEP to access the American business community in terms of appropriate investors and products that may be available and suitable. For example, the use of AEBIS.

Provision of fellowships, trade missions and reverse trade mission opportunities, training and specific environmental technical assistance -

As number of activities can be accessed by the UITA to help facilitate the identification and securing of US transaction opportunities. For example, the USEPA (Environmental Protection Agency) Office of International Activities has undertaken a program under auspices of the AEP (EPA-USAEP) to provide fellowship and training opportunities, technical assistance and information on US technologies and services. All these programs are aimed at improving environmental management in Asia. EPA will provide three principal activities, as follows: fellowships and training where nominated international fellows will travel to the US to participate in EPA's regional lab program for four to six weeks; participation of Environmental Action Teams for in-country technical assistance to work on particular environmental assessments; and access to technological and supplier information through the use of EPA's various data bases such as the National Small Flows Clearinghouse (NSFC).

The AEP also has direct fellowship and exchange opportunities that can be accessed through its specific co-operating agreements with the Asia Foundation, USETI, and WEC. The TIER would be able to facility direct links between municipal decision makers for courses and training on pertinent environmental problems. For example USETI is offering a two week course in Solid Waste Disposal Management (Landfill design and management) in late 1993.

Once a single or set of transactions have been identified, the UITA can facilitate the investment project or direct sales contract through several USAEP co-tv agencies. One of the most direct mechanisms is through the US Trade and Development Program (TAP), under the Department of Commerce, which provided funding for US firms to carry out feasibility studies, consultancies and other planning services related to major projects. TAP also provides assistance for definitional missions or pre-feasibility studies that can The regional program in Asia-Pacific has support studies in Thailand, the Philippines and Indonesia. The 1993 budget for the region is estimated at about US\$40 million.

Country based programs that have funds for feasibility studies for private sector initiatives in infrastructure projects include the Privatization Project (PESO) in the Philippines and the Private Provision of Urban Services Project (PURSE) in Indonesia.

For direct sales contracts, the Export-Import Bank of the United States (Eximbank) provides financing assistance for US capital equipment and services that are normally financed on a term of more than one year. Eximbank offers financing in the form of a direct loan to a public or private buyer abroad, loan to a financial intermediary who then on lends to an international buyer, or the guarantee of a private credit to a foreign buyer.

Once investments are in train, say in the construction of a capital project, there are several agencies co-tv with the USAEP that offer insurance programs designed to encourage private investment in developing countries. The Overseas Private Investment Corporation (OPIC) covers for example investment risks for inconvertibility, expropriation and for political risk.

The main equity financing facility under the AEP umbrella currently identified is the HG. The leveraging scheme envisioned under this program is set out in Annex B. The equity facility of the Asian Development Bank is another source of this type of financing. The AEP will have a representative at the ADB in Manila who should be able to facilitate investment activities. Other sources of equity financing for infrastructure projects include the International Financing Corporation (IFC) and of course private commercial banks.

The following chart sets out how the various co-coordinating programs under the USAEP umbrella, as described above, work together and are employed at various stages of the project cycle.

Major Project Cycle Activities:	Players:
Transactions Identification	
Investment	AEP/HG Reps
Management & Operations	
Direct Sales	AEP Reps
Feasibility Studies	TDA (PURSE - Indonesia)
Direct Sales	EXIM (Export Financing)
Project Financing	Political Risk/ Risk Insurance
Equity	OPIC, HG, IFC, ADB (Equity Facility)
Debt	IFC, Private Banks
----- Debt only	Country governments, IBRD, ADB HG

4. Activities of the AEP/HG within the Current Range of Environmental and Trade Promotion

Projects in Asia

There are a range of projects and programs regionally based and individual country based that support the basic policy of environmental improvement in Asia by facilitating the flow of US investment and technology through market based efforts. Most of these activities are in the early stages. Some activities have been operating for several years, such as the Private Investment and Trade Opportunities (PITO) project, and others have been so recently initiated that some of the operational programs of the projects are still in the design and trial phase. The latter includes the Environmental Improvement Program (EIP) and the AEP itself.

Table 1 displays the wide range of projects and programs that have been developed in the general areas of trade promotion and environmental policy. They are arrayed in a table that sets out the time frame of the project, its sector focus, activities that it is programmed to undertake such as policy and/or training and information on field staffing.

Six Asian regional based projects have been identified. The US AEP, as discussed earlier in the text, is a wide ranging, umbrella program with a goal to support "partnerships" among the various programs and activities already underway in Asia and to promote new linkages especially with the US private sector and Asian counterparts. The specific linkage with the regional HG program is for direct and enhancement of capital finance for municipal infrastructure projects in water, waste water and solid waste activities and TA to support this effort. The municipal focus and the ability to provide capital resources makes the AEP/HG project a unique addition.

The other regional projects identified include:

The Environmental Improvement Project (EIP)

The EIP will have 5 field staff assigned to the ASEAN region and based initially in the Philippines. The project is targeted mainly at industrial pollution. Its task areas include assessment of legal and regulatory framework for environmental policies, market based instruments for pollution prevention and identification of waste minimization policies. The activities of the project include policy and institutional development, technical assistance and training and technology commercialization and investment promotion.

The Environmental Pollution Prevention Project (EP3)

The EP3 is a centrally funded USAID project headquartered in Washington DC. Within its scope of work it covers both urban and industrial pollution but at this early stage in the project its areas of concentration appear to be in identification of industrial pollution "hot spots", eg. tanning, food processing, textiles, pulp and paper, etc., and the development of mitigation strategies to deal with these problems. Considerable focus is on provision of technical assistance missions and training.

The Private Trade and Opportunities Project (PITO)

The PITO project target countries are the ASEAN region. It has 5 representatives in the field. PITO's main objectives are US trade promotion in the region. It has an active information gathering facility and sees its role as networking with private and public sector in the region and providing information on general trends - not so much on specific projects. It can however help specific individuals. It spends considerable resources organizing trade missions and reverse trade missions. It works closely with the US ASEAN Council.

Environmental Protection Agency (EPA-USAEP)

This is a subprogram funded under USAEP which provides fellowship and training opportunities, technical assistance and information on US technologies and services. It has one representative in Asia and will cover all Asian countries under the AEP, it will initially concentrate on Indonesia, Singapore and Thailand. EPA will provide three principal activities, as follows: fellowships and training where nominated international fellows will travel to the US to participate in EPA's regional lab program for four to six weeks; participation of Environmental Action Teams for in-country technical assistance to work on particular environmental assessments; and access to technological and supplier information through the use of EPA's various data bases.

Table I also identified several country specific projects for Philippines and Indonesia with which the AEP/HG may interact. For Indonesia, two projects have been identified. These include the PURSE (private Sector Provision of Urban Services) Project and the Natural Resources Management (NRM) Project. The PURSE Project include an active agenda to promote private sector investment in urban environmental infrastructure which is extremely complimentary to the AEP/HG that can provide capital financing for these investments. The NRM project is also complementary as it has some focus on urban environment and urban environmental management.

In the Philippines, the AEP/HG has enormous complementarity with the Philippine Assistance Program Supports (PAPS) Project which supports public and private development initiatives. In particular the technical assistance component of the CCPAPS (Coordinating Council of the Philippines assistance Program) is forging new ground in the development of the Private Sector Infrastructure Development Fund (PSIDF) which will be able to fund urban environmental infrastructure. The Privatization Project (PESO) is expected to continue its work in privatization and divestiture of government-controlled corporations (GOCCs) and is expected to finance the majority of USAID-assisted privatization studies and transactions over the next few years. Of particular interest is the focus of the project on the private provision of public services. There may be some overlap with the Philippines Industrial Management Project however this is a specific industrial pollution based project and the main emphasis of the AEP/HG is on municipal services and pollution.

Table 1

Range of Environmental and Trade Promotion Projects in Asia

Projects	Sector Focus	Time Period	Target Countries	Policy LT TA	Training ST TA	Reps. in Asia	H.Q. in Asia
Regional							

Annex E: Economic Analysis

1. Macro-economic Perspective

The Philippines

Currently the Philippine economy appears poised to regain the momentum of economic growth achieved during the 5 years (1986-1990) after February, 1986. This period showed an average growth in GDP of about 4.5% a year. 1990's downturn following this five year growth period was fueled by external disruptions including the lead up to the Gulf War and a generally weak international economy compounded by the Philippine's own natural disasters including Mt. Pinaubo. This led to a stagnant economy in 1991 with almost no growth. Estimates for 1992 indicate that GDP was about 1 percent. World Bank statistics indicate that the real growth in GDP during the period 1990-1992 was 0.5 percent. This performance is well below other regional ASEAN economies, where the average growth in GDP is around 6 percent.

Given the 1990-1992 slump, the economy is now on a sounder economic base than a year ago, and the country appears on a more stable course after the election of President Ramos in June, 1991. Foreign exchange reserves are at suitable levels and inflation is in single digits. Further the country has undergone a large debt restructuring exercise through the World Bank, IMF and other major creditors. Previously rescheduled commercial bank, direct public and publicly guaranteed external debt has been restructured with longer payment periods and lower interest rates. Given these positive movements, the World Bank has estimated that real GDP would recover to around 5-6 percent per year over the next 5 years. While the 1993 target of 4.5% GDP growth may be difficult, due to energy shortages, the IMF is cautiously optimistic that the Philippines will come close to that GDP target.

Part of the rationale behind this growth scenario is that, unlike previous expansions which were stymied by balance of payments problems, this expansion should be sustainable because a significant amount of new investment will be undertaken by the private sector with pre-identified financing - such as BOT schemes or similar. In this way current accounted deficits for essential infrastructure are offset by matching equity and loan flows.

The recently published "Development Vision and Framework, 1993 -1998" by the National Economic Development Authority set out the major strategies to be undertaken in the medium term. These are (1) human development and (2) international competitiveness. The latter will to some extent depend on investor confidence and investor effectiveness to make sure that investments are productive. In this regard the needs for infrastructure investments to support growth, especially private sector generated, are high given the low investment levels of the past decade. There can be no real sustained manufacturing growth without these investments. The Philippines intends to support the needed infrastructure investments with direct private foreign capital.

The Philippines must continue to employ sound financial policies to attract investment capital. Clearly capital will concentrate where its return is highest. Particularly competitive markets for investment are China and the newly emerging countries of Indochina, for example Vietnam. For example, further exchange rate appreciation must be avoided to maintain any reasonable export competitiveness.

The Philippines recently has completed a debt conversion program which has reduced the stock of external debt. The restructuring of commercial debt has resulted in improvements in the terms, including longer grace and repayment periods and lower interest rates. The HG compares favorably

with other international lending agency loans in terms of its 10-year grace period and its long maturity -- 30 years. It is likely that dollar credits secured under the HG loan will be used to retire more expensive debt.

Indonesia

Indonesia has shown a consistently average growth rate of at least 5% per year in GDP from 1975 to the present. This is a remarkable achievement taking into account the severe external shocks the country suffered during the 1983-1988 period mainly due to the decline in international oil prices and the general world economic downturn. Further Indonesia has continued to decrease its reliance on oil/LNG exports. In 1981 about 82% of exports (by value) were oil/LNG however by 1991 this percentage has fallen to 36%. Between 1989 and 1991 economic growth was almost 7 percent a year. In the medium term Indonesia aims at keeping economic growth at this relatively high rate of between 5 to 6% per year. If this momentum is sustained, it will result in a per capita income of about US\$ 1,000 per year and put Indonesia firmly in the middle income country status. Current per capita income is estimated at just under US\$600.

Indonesia has pursued a comprehensive policy of economic deregulation and diversification that has supported this robust economic growth. Sound fiscal, monetary and exchange rate policies have created a positive climate for private investment and have promoted productivity. As a result of opening up of the Indonesian economy during the mid-1980's has led to an upsurge in export oriented direct foreign investment. In 1986 about 38% of approved investments were export oriented and this proportion climbed to about 70% in 1991. In 1991 over 60% of the total new investment projects were sourced in the Asia's newly industrialized countries, eg. Korea, Taiwan, Hong Kong and Singapore. Indonesia provides these countries with a low cost export base to service their traditional export markets while these countries turn to more higher value exports.

The government has tried to contain the overheating of the economy by maintaining a tight monetary policy to slow domestic borrowing and contain inflation. Government policy has also mandated the maintaining of a competitive exchange rate that should continue to ensure the expansion of manufactured (non-oil) exports. In 1991 the GOI took prudent action to deal with rapid growth in foreign borrowing planned by public and quasi-public related enterprises to finance a number of very large, capital intensive projects that would have worsened the current account deficit (currently about 5% of GNP). In September of 1991 the GOI formed the Commercial Offshore Loan Team (COLT) to coordinate approaches to international capital market. The COLT deferred a number of large infrastructure projects in October 1991 however these have now come back on stream. The mechanism still monitors annual ceilings for commercial borrowings.

Indonesia is aware of the critical role infrastructure plays in sustaining the dynamism of its current manufacturing export growth. Strengthening physical infrastructure is recognized as an important policy to sustain the momentum of development and economic growth. Transport, telecommunications, power and water have all been recognized as essential investments if Indonesia is to maintain a vigorous pace of growth, specifically in the export sector, and achieve middle income status. Service indicators for the water sector show that Indonesia is somewhat behind the average for a range of middle income Asian countries. For example in Indonesia the average number of household connected to a municipal water supply is 30%, for selected middle income countries the percentage is much higher at 50%. Likewise, in looking at commercial demand met from municipal supplies only 12% is provided in Indonesia while 60 percent is the average for selected middle income countries. These statistics indicate that Indonesia has to make considerable investment in

water and waste water infrastructure services to bridge the gap between the demand for and the supply of services.

2. Economic Evaluation

The Case for Environmental Infrastructure

There are three main economic arguments for investing in environmental infrastructure. First, the lack of appropriate infrastructure limits the pace and spread of economic growth by creating production and distribution bottle necks. The provision of an adequate supply of efficient infrastructure promotes the production of goods by lowering industrial and commercial production costs. This is a prime consideration in many ASEAN countries who put "export competitiveness" high on the national policy agenda. The lack of sufficient municipal sources for example of water supply forces firms to meet their own capital, operating and maintenance costs of what likely are inefficient units. The persistent use of point source supplies, such as private wells or on-lot septic systems, loses any "economies of scale" that could be captured from municipal systems that would serve a wide consumer base.

A second argument for the creation of environmental infrastructure is that the lack of timely environmental infrastructure investment leads directly to environmental degradation. In both the water supply and waste sectors inadequate infrastructure can lead to permanent degradation of the resource, which highly discounts future beneficiaries in favor of current consumption. For water supply, excessive groundwater extraction has led to permanent environmental damage such as saline intrusion, land subsidence, and depletion of aquifers. Lack of waste water facilities compounds water supply problems by effectively reducing the supply of available "potable" water and increasing the cost of supplies by the more costly treatment requirements.

A third reason for an emphasis on environmental infrastructure is that inadequate infrastructure has significant negative effects on environmental health and social welfare. In fact improved public health was one of the main reasons that significant strides were made in public sanitation in the US at the turn of the century. The link between improved drinking water and sanitation facilities is well established. Further a lack of municipal facilities often affects mainly the lower income groups who are often forced to pay a premium for basic services. Vended water prices are often 20 times more than those of municipal systems.

The Case for Private Provision of Public Infrastructure

There are two main economic benefits for involving the private sector in the provision of public service infrastructure. These are: (1) additionality or the addition to the capital stock of infrastructure that would be constructed over and above that funded through direct public funds and (2) efficiency gains through management resources and faster response time in the private sector that create and maintain economies in operating infrastructure.

Given the public sector's current inability to fund a number of necessary infrastructure projects, significant benefits are being lost because of the forgone returns by not undertaking investments. This is particularly true in environmental infrastructure projects such as water and waste water because of "economies of scale" arguments. These projects demand large investments to capture savings that are often lost in piecemeal approaches, eg. providing a septic tank and well to every household because of the lack of municipal services.

The additionality concept in the project is clearly demonstrated through the expected leveraging of the USAID resources by an expected three- or four-fold. In previous HG allocations spending say \$10 million or local currency equivalent for traditional water or waste water projects would create an equal amount of infrastructure by value. Setting up a mechanism that could provide a degree of "comfort" to potential private debt and equity investors by using HG resources in a risk mitigation strategy in a capital investment project could increase the size of the investment say to \$40 million (see Annex B for discussion of leveraging).

The second assumption is that under private provision, maintenance will be done more efficiently than the traditional public sector owned and operated approach. A number of studies by the World Bank and others shows that there is greater efficiency of operations by the private sector over the public sector. This is of course taken on a case by case basis and is often a function of how much financial autonomy is afforded the public sector agency in making its own financing decisions.

Annex F: Issues in Capital Investment in the Environmental Infrastructure Sector

The purpose of this annex is to set out general issues in capital investment strategies for the environmental infrastructure sector. Build, Operate and Transfer (BOT) and Build, Operate and Own (BOO) financing mechanisms for infrastructure as well as concession arrangements are discussed. Examples of current world wide experience in these methods are also given.

I. Profiles of Environmental Infrastructure Investments

Historically water and wastewater facilities have been financed almost exclusively by public investment however rapid growth in urban demand and limits of public sector indebtedness has forced institutions to look to new and innovative ways of financing, for example BOT or concession arrangements. Further the environmental infrastructure investments tend to be municipality based unlike other public services like power and telecommunications which tend to be organized at a national level. The local municipalities' inability to raise up front capital investment funds when compared to large national utilities is problematic for the sector (See Annex B).

The investment characteristics of water supply, wastewater and sewerage projects are that these projects are highly capital intensive due to the sizing of facilities and the intent to capture economies of scale. The investment requirements are "lumpy" with heavy front loaded costs. It is unlikely that urban infrastructure facilities are built for the immediate demand but are sized to service a demand based on longer term projections. This leads to a certain amount of over capacity in the initial years of operation.

The investment profile of public utilities is of low risk with a medium to low return on investment. Low risk is founded in the lack of competition in the water supply "market", a public sector monopoly. This is balanced on the return side by limited growth potential and lack of diversification. The attraction of equity investors to the sector will be fairly specialized because of the long return period. It is important to know the size and scope of opportunities to ascertain whether foreign as well as domestic investors will be attracted.

Willingness of foreign investors to take part will depend on the profitability of the specific investment as well as the overall country investment risk. Government guarantees and investment incentives may play a part in attracting suitable partners. Contracting and leasing options also may involve international as well as domestic interest. Country risk, government guarantees and length of the contracting period are important considerations for these options.

Traditionally, water and waste water services have been the operated and owned by government agencies at national, regional or municipal level. With the introduction of the private sector, the public sector remains a significant player but this role is changes from one of providing a service to one of managing and overseeing the service delivery. Further, the interface between the consumer and the private sector raises the profile of the public sector as a regulatory and oversight authority. This is of prime importance in providing water supply and wastewater services because of the sector's nature as a natural monopoly and the resulting lack of consumer choice.

It is after all the presence of competition that provides the incentive to maintain quality and minimize costs which is the prime reason and condition that underlies the efficiency of the private sector. Since the water supply and waste water sector is a natural monopoly and competition in day-to-day operations is not practical, effective public regulation or oversight can not be over emphasized. The process of regulation should protect the consumer from exploitation because of lack of choice.

2. BOTs and BOOs

Build-operate-transfer (BOT) and build-operate-own (BOO) arrangements as currently organized and funded are fairly recent innovations in financing traditional public sector infrastructure.¹ With both BOTs and BOOs, private interests build and operate project from scratch. In fact build is the operative word. With BOTs however, assets are transferred to the public authority after a specified contract period and under the latter, assets remain in with the private sector entity.

In typical BOT and BOO arrangements, the capital works are built, owned and operated by the private investor. In the BOT, the private investor operates the facility for a period of years, say between 15 and 30 and then transfers the fixed assets back to the public authority at a future date. This concession period provides an opportunity for the private sector to recoup capital investments. Most private investors however want to realize an investment within a 15 year period. BOO operates in the same way at the outset however assets are not transferred. Both models ensure investors an adequate rate of return on capital invested.

BOTs and BOOs are highly innovative and highly complex schemes. The more successful BOTs that emerge and that can serve as models for other attempts, the faster this type of financing will act serve as a conduit for private sector investment. The principles need to be refined through experience and this will take time. Efforts to negotiate BOT's and BOO's have been plagued by regulatory and legal issues and the lack of guarantees for private investors.

In a BOT-BOO project, international lenders would typically expect the construction and project performance risks to be guaranteed by the developers and operators. These arrangements would be expected to be very carefully negotiated between parties. Of course very large private firms are capable of financing projects entirely from their own resources or on the strength of their own guarantees. It is still likely however that international lenders such as the World Bank will be involved, not necessarily for the financing and risk-sharing they provide, but for the pressure they could potentially bring to bear on the government to meet contractor obligations.

There are several examples of successful BOTs and BOOs in the water supply sector. The most notable successes to date have been in Asia. Up to three successful BOTs have been arranged in Malaysia. These include sites at IPOH, Sabah and for the island of Labuan. The Umbulan Springs proposal for the development of a large spring and pipeline to Surabaya is a classic BOT arrangement; Semarang also seems poised to negotiate a bulk water supply BOT (see Annex G). To date almost all the investment in water supply BOTs have focused on source development and treatment systems, not distribution systems. All have included the element of a "take-or-pay" contract where the purchaser, in most cases the municipality, assumes the commercial risk through the contract. The construction risk and performance risk are usually borne by the BOT company.

A BOT for wastewater treatment and reuse by industries has been successfully implemented in Vallejo, Mexico. The system rehabilitation was totally financed by private sector who are the main users of the plant. The local government's arrangement with the private sector was to provide the distribution system

¹ Some economic historians argue that large infrastructure development projects developed during the colonial era, such as the Suez Canal, displayed the main elements of BOTs in terms of private sector financing and public private risk sharing.

linking the industries to the treatment plant.

3. Concessions

Concessions are more comprehensive than BOTs/BOOs. Concessions involve elements of BOTs/BOOs in terms of extension of existing systems but are more comprehensive in that they include the complete operational and financial responsibility of the existing system as well as the new works. Concessions are sometimes referred to as long term leases. In these situations, capital investment is common and extensions to the system are seen as a logical adjunct to operating the existing capital assets. The capital assets are however owned by the municipalities not the private sector investor. The concessionaire has wide ranging powers for the complete operating and financial control of the water supply and wastewater system. BOTs and BOOs can be considered a sub-set of concessions.

The most exciting development in concession operation and financing for water supply is currently under negotiation for Buenos Aires in Argentina. The entire city's water supply for over 10 million people will be turned over to a concession arrangement currently in competition with three separate bidders headed by consortia of various European water supply companies from France, the United Kingdom and Spain. Several local Venezuelan companies are also part of these consortia. Government officials took this step to involve the private sector because the current public sector arrangements were not able to cope with increased demand on the system and because of severe system inefficiencies. Issues being dealt with within the private sector arrangement include over-staffing. The number of water supply authorities' employees are expected to drop over 30 percent from 9000 to just over 6000.

A concession for urban water supply services in Cote d'Ivoire was recently arranged following 25 years of experience with lease contracts. Under this arrangement, the current operating company, SODECI, is responsible for all new investments in urban water supply in the country. The company now receives no operating subsidies and all new investments are totally self-financed.

4. Financing Issues

Debt financiers are indifferent as to type of project as long as the rate of return and risk profile are acceptable. As will be discussed below, equity participation in water supply and wastewater projects are most likely directed investments based on a particular vested interest of the private sector participant.

The BOT/BOO models serve as suitable vehicles to tap sources of private finance for capital investment in water and waste water. These arrangements are aimed almost exclusively for new projects and they establish a new private sector company that owns finances, constructs and operates the investment. A BOT project is likely to be preferred structure for equipment suppliers, construction companies, consulting engineers and management companies. If the project sponsor is a long-term investor rather than a supplier (suppliers can often return equity investment during the construction period through supplier contracts and construction) he or she will probably prefer the BOO format. A BOO format is simpler and requires less complicated negotiations and in general fewer contractual arrangements than a BOT format.

The BOT format is also designed to address problems of financing projects in countries with little or no access to international financing and weak domestic capital markets for longer term borrowing, e.g. over 7 years. The BOT financing structure has been labeled a "limited" recourse structure which means that there is no direct unconditional guarantor for servicing of project loans. Resource is limited to the project

company and its assets, including the real estate, plant and equipment, contractual rights - say the use of a particular water source for a number of users and other guarantees and insurance. The lenders' only resource for non-payment by project company is in the contractual documents.

Non-recourse financing is common among privately owned projects in developing countries but many of these projects are in the industrial, manufacturing, oil and gas or mining sector. This is because goods produced by such "non-infrastructure" projects can be sold in a competitive world market in foreign currency. This makes financing much easier to organize and cheaper. Water and wastewater as products are not commercial goods and are not, except in extreme cases, exportable in bulk.

Non-resource lenders would expect revenues streams to be guaranteed by the government in agreements with the private developers and operators, in contrast to relying mainly on cash flows based on billings. Some private investors and international commercial lenders however seem uncomfortable with projects that rely on government budget allocations for revenues and debt service to be maintained. Projects that offer cost recovery directly from target users maybe preferred. In potential BOTs for municipal water supplies that involve a "take or pay" agreement with the local water enterprises, financiers and investors are not looking for guarantees of the revenue stream of the consortium that will produce the bulk water for sale, they want "comfort" or a government guarantee of solvency for the purchaser of the water, the regional water enterprise.

As explained earlier, equity contributors or sponsors such as construction companies or equipment suppliers usually have specific vested interests in investing in water supply or waste water BOT/BOOs. The long payback period on equity, specific nature of the business and the lack of the ability to spread risk over other parts of the business within the new company, the lack of ability to "sell" shares easily in the initial years of operation all point to the specific nature of equity investors commitment.

Lenders and creditors, the debt financiers, are assumed not to have a vested interest in water supply projects. Their funds are fungible across a range of projects. Senior lenders must be convinced of the ability of the project to remain financially viable and assure repayment. To this end a number of financial mechanisms/instruments have been developed by BOT/BOO companies to protect lenders. One such mechanism is the "escrow account" which is established and maintained by an independent agent. Funds to support the special escrow account come directly from project revenues. The escrow account is usually a cushion for senior debt service and may maintain 6 to 12 months of debt repayments. Benefit trusts may also be established that makes lenders beneficiaries of various contracts that the BOT/BOO company enters into, eg. insurance contracts. Default guarantees may also be established which reserves the right for lenders to take over the company and bring in new management, operators, etc. in case of financial or technical defaults. This would be before the company defaults or is declared bankrupt.



Annex G. Indicative BOT Project Opportunities

Previous work in preparation for the PURSE project in Indonesia identified several BOT type project opportunities that indicate the type of project and nature of the market. The Nusa Dua, Bali project now underway is a joint venture activity of two Indonesian firms and the local PDAM. This is a small enclave type project with a total value of about \$24 million. The Umbulan Springs-Surabaya water source development project valued at approximately \$180 million is a multi-party venture of British and Indonesian firms. The Batam water supply project to source water for Singapore and the Indonesian Island is a \$480 million venture from a Singaporean private group, the GOI and Riau provincial authorities.

During the AEP/HG design, several indicative projects were identified, not with the intent necessarily of carrying out these actual projects, but with a view to identifying market potential and the feasibility of the project design. Solid Waste activities in Indonesia were discussed with a U.S. firm already working in Indonesia (Waste Management International), a water supply BOT currently being negotiated for Semarang, Indonesia, and a water supply project for Cebu City, Philippines.

1. Solid Waste Management and Disposal

Waste Management International, a U.S. owned company, has established an office in Jakarta to develop the solid waste handling and disposal market. Their initial focus is on industrial and hazardous wastes as they see that market developing very quickly as regulatory pressures increase. They are reluctant to enter into municipal solid waste hauling because typical landfills and other disposal facilities are below standards acceptable to WMI. However, if there is opportunity for WMI to design, develop and operate a "properly engineered" sanitary landfill, they would be interested in the project. Their reservations have to do with lack of familiarity with municipalities in Indonesia, and the region generally, as the "buyers" and concern for assurances on contract performance by municipalities. In addition, they indicate unwillingness at this stage of development of a new market to finance upfront the design and feasibility studies such an operation would require.

2. Semarang Water Supply

PT Matra Indonesia is negotiating a BOT to pump water from an existing source, treat and deliver to the Semarang PDAM system. The PDAM is responsible for serving 1.2 million people. Present source capacity is 1,600 liters/second. The BOT proposes an additional 2,250 liters per second, purified river water. The source is a World Bank financed dam and a 40 kilometer canal, both already in place. Because the canal also serves as an irrigation source, the maximum limit for water supply is 3,500 liters per second. The total estimated investment cost of the project is \$110 million. About 35% of the investment is equity and 65% debt financing.

There are two British firms in the consortium, one Northwest Water and one unnamed. The BOT provides for 23 years operation by the consortium, and the estimated period for equity recovery is 10 years. The present pricing structure is Rp 250 for households, Rp 3,000 for commercial and industrial users, and Rp 2,000 for harbor uses. These prices reflect a January 9, 1993, increase. The BOT consortium proposes to sell the bulk water at less than the present average cost, although the exact figure is confidential. Year 1 operation will provide 1,500 liters/second, increasing to 2,250. Treatment plant design includes plans permitting expansion up to a maximum of 4,000 liters/second.

The BOT includes several variations. If all the debt financing comes from Indonesian sources, the price quoted is higher. A mix of foreign and domestic debt financing will result in a lower price. As

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part of the BOT, the consortium has proposed to provide free technical assistance and training to the PDAM to reduce unbilled water loss. Right now, 46% of the Semarang PDAM system is unaccounted for. Technical leakage due to 80 year old pipes and non-technical "leakage" due to poor administration are the contributors. The BOT does not propose to fix leaky pipes, but will locate leaks and provide the TA and training to assist the PDAM in reducing technical leakage. In addition, TA and training will focus on improved administration. All the TA and training is part of the price per liter quoted in the BOT. An additional feature is a proposal to rehabilitate the existing treatment plant at no cost, in exchange for half the additional water that would be treated.

Since negotiations are underway, most of the issues being discussed are confidential. However, the problem of getting some assurance for the cash flow was cited as a key point in the negotiations. The President of PT Matra confirmed that the GOI will not "guarantee" but is willing to discuss various other forms of central government involvement without using terms like guarantee.

3. Cebu City/Metropolitan Area Water Sourceworks

The Metropolitan Cebu Water District serves the metro area made up of three cities -- Cebu City, Lapu Lapu (Mactang Island) and Mandaue. The present production of 85,000 cu.m. per day serves about one-third of the population. About 65% of the water is charged; 100% of the customers are metered. The 35% unaccounted for water is mainly leakage; most customers pay the tariff. About 30 kilometers of distribution lines were inherited by MCWD from the Osmena Water Company dating back to the early 1900s.

Ground water is the sole source of supply at present. MCWD extracts about 80,000 cu.m/day, and private household and commercial wells extract about the same amount additional. The total extraction from these two sources exceeds the ability of the aquifers to replenish, and salt water and contaminated water is beginning to intrude.

There are three potential sources of new supply. A dam on the Balambang River was designed in 1978. It is on the western side of the island, and would require about 8 kilometers of tunneling through the mountains. The project was never considered further because of the cost. A second dam site is only about 7 kilometers away, but its potential volume is lower, and there are political problems with developing it. The third option is a scheme to pipe water from Bohol Island, about 30 kilometers away, from a river with "unlimited" capacity (relative to foreseeable needs). A U.S. firm made a presentation to the city on January 28, 1993, about the prospect for using "floating" (partially submerged -- about 100 feet down) fiberglass piping.

Present MCWD prices average 14 pesos cu.m., about 7 pesos cu.m. production/treatment costs and 7 pesos cu.m. distribution costs. This average represents a range from 7 pesos for households to 20 pesos for commercial customers. Full capital cost amortization is included in these costs. Capital amortization is about P 45 million annually; operating costs are about P 200 million annually. Water purchased from vendors is 50 pesos cu.m. or over three times the prices charged by MCWD. Most water vended is sold to low income households.

A request already has been made to the U.S. Trade and Development Agency for financing for a full feasibility study. There has been no response to date. Under Philippine BOT law, contract performance can be part of BOT contract guarantees, but financial performance (guaranteed profit) cannot. MCWD has a BOT team formed to deal with prospective private BOT consortia. The Mayor of Cebu City is prepared to back a BOT contract entered into by the MCWD, and indicates that the need is so great that tariff increases are not an obstacle.



Annex H: Descriptions of Qualifications and Responsibilities for Technical Advisors

The primary responsibility for the individual taking charge of this assignment will be to promote and foster trade of U.S. environmental goods and services by identifying early on and developing water, wastewater and solid waste infrastructure projects under a build-operate-transfer (BOT)-type mode and through direct sales. The successful promotion of BOT projects will require extensive interaction among the TA Team, U.S. governmental agencies, U.S. based companies and the local public and private sectors of the host country. The sale of goods and services directly or through agents/representatives will include all those which will make significant contributions towards preventing and abating urban environmental degradation. Part of the direct sales of goods and services will come from the successful implementation of a sound BOT project.

Urban Infrastructure Technical Advisor (UITA) (most likely American expatriate)

Experience - Ten years experience in the U.S. business development, management, financing and/or operations in the municipal environmental services field with emphasis on private sector roles. Knowledge of banking and financial mechanisms are desirable. Working experience in, and knowledge of, the public and private sectors in ASEAN countries, particularly in infrastructure projects (water, wastewater and solid waste), setting up agencies, identifying potential joint venture partners, and facilitating the establishment of branch/representative offices in the host country, is required.

Working experience with USAID and/or its programs is a plus.

Education - Minimum of B.A. and a graduate degree or equivalent work experience in economics/finance/management from accredited university(ies) is required.

Languages - Fluency in English is a must. Knowledge of an appropriate language in the region is a plus.

Skills - Entrepreneurship with skills dealing in interpersonal and culturally diverse settings is essential. Good communication, administrative and managerial skills to oversee a small staff and interface with regional US AEP representatives, U.S. based agencies and companies, and host country institutions are essential.

Environmental Services Advisor (most likely a host country national)

Experience - Working knowledge of at least ten years in the organization, financing and implementation of water, wastewater and solid waste services in the host country. Private sector experience, or experience with public/private sector collaboration is essential. Good verbal command of English is essential. Writing skills in English is desirable.

Education - B.A./B.S. required.

Skills - Effective communication skills and ability to work with public sector decision-makers and private sector chief executive officers and other high level managers is a must.

General Scope of Work for TA Team

The placement of a team of expert expatriates with marketing/ promotion/financing skills in the selected countries and a local counterpart with knowledge of organization of the sector, decision-making process in municipal water, wastewater and solid waste services are of paramount importance for the success of the project.

The first objective of the team (TA and local assistant) will be to become intimately familiar with local governmental structures (central and regional/provincial), regulations and priorities related to environmental matters, private sector environmental business attitude and concerns. Side-by-side with the first objective they will analyze sector priorities, i.e. water, wastewater, etc., and identify municipalities which have the most urgent needs. Credit worthiness of the key municipalities will be analyzed and those matching need and financial soundness will be canvassed to determine which project is most likely to be prioritized on a local as well as national level.

While this effort is underway, an educational program as to the objectives of the US AEP-HG Program and how it will help US based companies become more competitive will be developed and will be presented to a roster of US companies willing to pursue municipal projects on a BOT basis either by themselves or in consortium with other companies. A list of US firms can be obtained the extensive data base files kept by the FCS and/or US AEP.

After the careful project selection, a series of fact finding visits will be made to the municipality to identify the decision maker(s) as well as the influential members of the community, establish dialogue, and begin promoting the BOT concept. Continue building personal relationships with the decision maker and the community's influential members while bringing this project to the attention of interested US companies.

Organize a fact finding trip for key host country key staff to visit existing BOT facilities in the US and to companies which are interested in bidding on this project, under the aegis of US AEP training program. During this visit, invitations to the US companies would be made by the guests to come and visit the project site. This visit should lead to a memorandum of understanding between the US AEP-HG and the municipality.

To determine the viability of the project a comprehensive feasibility study would be undertaken, financed by TDA or other agency funds. The grant study will be used as an incentive for the US

companies to participate in the BOT process. If the feasibility study indicates that the BOT project is viable technically and financially a letter of intent will be exchanged between the municipality and the TA's office and bid documents would be prepared by the firm which had prepared the feasibility study.

Bid documents would be issued to the short list, three to five (3-5), US companies or consortia. Municipality representatives will be involved in the selection of the best proposal.

Once a selection of the best proposal is made, project financing will be arranged through the US AEP-HG office and with the assistance of the TA Team. The financial arrangement will cover and include components described in the financing section of this study: leveraging of the HG guarantee, IFC equity and loans, private sector equity and borrowing, OPIC Equity Fund and Guarantee, etc.

ANNEX I

USAEP/HG Regional Country Profile - Thailand

I. Background/Problem

Development of urban infrastructure in Thailand has not kept pace with substantial population growth, rapid urbanization and the exceptional surge of service (tourism) sector growth. As a result, deteriorating urban infrastructure is beginning to negatively affect Thailand's economy and has added to the growing health problems of the urban population.

Beach resorts and other tourism sites are being destroyed by failure to invest in wastewater treatment and solid waste disposal. Bangkok is a city of 8 million people without wastewater treatment facilities; and few of the other 132 towns and cities in Thailand have wastewater treatment facilities, adequate water supply, good solid waste management practices, or the means to monitor air and water quality.

The serious health problems that water contamination, air pollution and unsanitary solid and hazardous waste disposal have created are well documented. Studies show that children are particularly affected by the high lead content in the air in Bangkok (with loss of IQ points in the cohort 1-7) and by water borne diseases.

Based on Royal Thai Government (RTG) estimates for wastewater treatment plants in Bangkok and 125 other cities, investment in waste water treatment alone would be in the range of Bht.70,000 million (Dols 2.8 billion). Changes in institutional relationships at the national and local level and improvement in municipal and provincial governments' capability to manage and finance the provision of environmental infrastructure are necessary if urban environmental infrastructure development is going to catch up with increased demand. Failure to make the necessary changes and investments now will have long-term adverse consequences for the environment and sustainability of development.

II. Project Goal and Purpose

The goal of the project is to reduce urban environmental degradation and alleviate key urban environmental constraints to economic growth through and national policy action plan and measurable environmental improvements.

The purpose of the project is to support the Royal Thai Government (RTG) initiatives aimed at sustainable solutions to environmental infrastructure shortages and increase U.S. business participation in supplying urban environmental infrastructure and pollution abatement technology, goods and services. Subsidiary purposes are to:

- design and implement a sustainable system for financial priority investments in urban environmental infrastructure and pollution abatement;
- enhance municipal creditworthiness and reduce central government subsidies; and
- improve the regulatory framework and public action aspects of urban environmental quality management.

III. Relationship of Project Goal and Purpose to:

A. Host Country Strategy/Program

The RTG has identified both urban and rural environmental protection and restoration as a major theme in its Seventh National Economic and Social Development Plan (1992-1996). Investment funds set aside in the Seventh Plan for infrastructure will increase by 148% over the Sixth Plan--almost double the 76% increase experienced between the Fifth and Sixth Plans. A major environmental objective is to reduce solid waste and wastewater pollution in the Chao Phraya River, coastal areas, tourist destinations, and any areas which face sewage problems or contamination of untreated water used for consumption.

The Plan identifies four principal guidelines to achieve these objectives, namely:

- enforce the "Polluter Pays" principle for pollution control;
- improve relevant organizations, roles, and laws concerning environmental administration conducive to urban environmental development;
- mobilize investment to reduce pollution and establish a system to protect the environment. Similarly, the RTG may either enter into joint venture programs or grant concessions to the private sector in the establishment of such a system; and
- set up tripartite organizations consisting of the government, private enterprise, and the community to control, supervise, and conserve urban environmental quality.

B. USAID/Thailand Strategy

In accordance with USAID's Advanced Developing Country (ADC) Strategy, USAID/Thailand recognizes the importance of Thailand's need to expand human capital, broaden and deepen financial markets, and manage the environment if it is to sustain economic growth into the 1990's. The U.S.-Thai Development Partnership Project (493-0350) has been developed by USAID/Thailand to address these mutual concerns.

The goal of the U.S.-Thai Development Partnership is sustained, broad-based and environmentally sound Thai economic development supported by expanded private, public and professional relations between Thai and U.S. organizations. As the Partnership Project is implemented, attempts will also be made to expand and upgrade the quality and quantity of labor force skills and technological capacity required to maintain international competitiveness and the spread of equity. Specific emphasis, however, will be placed on the Partnership Project's two main objectives which are to assist Thailand to:

- identify and implement sustainable solutions to environmental infrastructure shortages which, if not addressed, will constrain economic growth and adversely affect equity; and
- slow the spread of Human Immunodeficiency Virus (HIV) infection by supporting Thai capacity to identify and implement solutions to the human and economic costs of the looming impact of the AIDs epidemic.

The proposed AEP/HG Program will strengthen the Partnership Project's ability to address the project's first objective which is to identify and implement sustainable solutions to environmental infrastructure shortages.

IV. Expected Results/Monitoring Indicators

A. Urban Infrastructure Investment

Negotiated actions aimed at increasing the amount of public and private sector resources for urban environmental investment include RTG establishment of criteria for infrastructure lending and incentives for the private sector to lend for and invest in environmental infrastructure. RTG cooperation in this regard is of paramount importance if U.S. environmental firms are to have confidence in their own plans to invest in and/or manage urban environmental projects in Thailand.

To usher in greater U.S. urban environmental trade activity, a RTG action plan may include the establishment of an escrow account to provide debt-service support for municipalities based on local improvements in revenue generation. With increasing self reliance among local authorities in income generation and cost recovery, this RTG support could be phased out over a period of years.

The RTG may also choose to establish a grant-loan program which would target a particular group of municipalities for lending, e.g., those with greater financial capability, and continue a program of grants for small, less well-endowed municipalities. In BOT-type projects, the RTG would act as a guarantor of the municipalities' financial capability to fully comply with the conditions in the BOT contract.

Commercial banks and finance companies may be encouraged to establish a discount mechanism so that private lenders can sell loan paper.

Other actions may involve adjustment in lending incentives, such as allowing the loans to meet the banks' reserve requirement and establishing competitive lending rates.

On the demand side, creditworthiness of municipal borrowers can be enhanced by increasing local revenue generation through improving the collection of fees for services, property taxes, and other local fees. A series of actions, such as improved collection management for services, and better assessment and collection of property taxes, might be included in the agenda. If the municipality borrows, these revenues could leverage many times the amount of capital generated locally. This would allow a municipality to invest more in environmental infrastructure and also demonstrate its capacity to pay for contracted services with private companies and BOT-type projects.

B. U.S. Private Sector Involvement

Apart from promoting U.S. technical assistance in this area, certain services or opportunities for U.S. businesses and entrepreneurs would be made available for specific support to allow these entities and developers to become involved in the urban environmental improvements this program promotes. A series of related actions would identify specific service provision opportunities compatible to both municipal development needs and private sector capability to provide those services:

- facilitate U.S. private sector interventions that will demonstrate alternative technician, administrative and financial solutions to problems faced by Thai agencies in the provision of environmental infrastructure.
- facilitate the removal of barriers to both Thai and U.S. private sector participation, and to promote policy and legislative changes more conducive to private initiatives;
- provide critical inputs needed to relieve constraints to the development of environmental infrastructure systems, such as provision of technical assistance to municipalities in the generation of revenues required to cover costs of environmental infrastructure; and

- improve access and exposure by Thai agencies to U.S. expertise and technology for the implementation of sustainable solutions to environmental problems.

V. Institutions Involved/Counterparts/Implementing Agency

Key counterparts and beneficiaries of this project will most likely be the following:

- Office for Urban Development, Department of Local Administration, Ministry of Interior;
- Department of Public Works, Ministry of Interior;
- Office of Environmental Policy and Planning, Ministry of Science, Technology and Environment
- Office of Fiscal Planning, Ministry of Finance
- National Economic and Social Development Board
- Municipal Government; and
- U.S. and Thai Private Sector Firms.

VI. Issues Affecting Project Selection and Further Development

A. Potential Project Opportunities

The Mission has already identified specific opportunities in which HG financial and AEP grant assistance are likely to increase the demand for U.S. environmental technology, goods and services. An example of one capital support opportunity is described below.

Phuket Municipality and Beach Front Wastewater Treatment System.

Phuket needs an effective wastewater management system including physical plant operations and maintenance capability to prevent further environmental damage to one of Thailand's major tourist attractions. A U.S. firm assessed a turnkey solution to Phuket's wastewater problem which could serve as a prototype to solve similar problems in other locales. The same firm is now well situated to bid on the \$30 million tender which, if included as RTG eligible expenditures, could be attributed to the HG program.

In addition, USAID/Thailand will request AEP resources to support and strengthen the HG program and provide technical assistance to the RTG in:

- developing a sustainable credit facility for financing environmental infrastructure and pollution abatement;
- drafting standards and regulations which would enable and encourage U.S. and Thai private sector participation in the production, financing, or management of urban services;
- training for municipal officials to strengthen local revenue generation and management of operations and services; and
- twinning arrangements with U.S. cities to solve specific urban infrastructure problems.

B. Social Considerations

Successful projects/activities in the area of urban environmental infrastructure and services will have potentially significant positive impacts on social concerns. On the other hand, continued failure to provide adequate investment in urban environmental infrastructure will result in serious health and equity problems. Not only are the health consequences severe but they will disproportionately impact the poor.

C. Economic Considerations

The RTG restricts its foreign currency borrowing to \$2.5 billion per fiscal year. USAID/Thailand will need to negotiate with the Ministry of Finance to include an estimated annual tranche of \$20 million in the RTG's scheduled borrowings for the next five fiscal years. In terms of jobs and productivity, increased investment in urban environmental infrastructure will undoubtedly create a positive multiplier effect in the construction, commerce, service and utility sectors of the local economies.

D. Financial Considerations

A reliable revenue stream (perhaps guaranteed by the central government) is needed to induce commercial lenders to make loans to local authorities or for U.S. private companies to borrow for large BOT or related capital expenditures on the basis of contracts with local authorities. The RTG has approved legislation allowing local authorities to collect user service fees for wastewater treatment.

The use of service fees for solid waste collection and for drinking water are standard practice. However, in most cases, the fees collected are mixed with general revenues; no direct link is made between the cost of providing the services and the charges. Participating local authorities will need to put in place a system of collecting user service charges, and to account for them, as well as to take other measures to increase general revenues.

E. Linkages to Other Projects

(See Section III. B)

F. AID Support Requirements and Capability

AEP grant assistance would place an advisor in country to broker potential U.S. private sector participation in providing urban environmental technology, goods and services. A management support contract will provide short-term technical assistance and training.

USAID/Thailand and RHUDO/Bangkok staff will manage the HG program on a day to day basis. Therefore, the net workforce implications for USAID/Thailand are negligible.

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ANNEX I

AEP/HG Regional Country Profile - Sri Lanka

I. BACKGROUND/PROBLEM

The Promotion of Private Infrastructure (PPI) Project was approved and signed in September 1992. It authorizes US\$7,000,000 in grant funds over a four year period to assist the Government of Sri Lanka to develop a market to attract private sector financing for safe water, sanitary waste disposal facilities, roads and transportation, power plants, telecommunications facilities, and industrial estates. The Project will finance technical assistance and training, and feasibility studies. The host country contribution is estimated to be \$2.5 million.

The Project was designed with four components:

- (1) Private Infrastructure Network Component;
- (2) Public Awareness Component;
- (3) Marketing Component; and
- (4) Private Sector Window Component.

Component 4 involves strengthening private sector finance for infrastructure. The Amendment to the PPI would approve the use of US\$50 million in Housing Guaranty resources to further the objectives of Component 4. HG resources will be used as incentives to make appropriate policy changes to increase private finance for infrastructure. It would also generate local currency which would provide partial funding for environmental infrastructure projects identified under the Project.

The amendment will also make available USAEP resources to help fund long-term project management, environmental technology transfer between the U.S. and Sri Lanka and other support functions.

The PPI Project responds to the following problems:

- * Sri Lanka's economic progress is severely limited by failing and outdated infrastructure; and
- * The GSL lacks the financial resources and institutional capacity to provide essential infrastructure, and donor assistance levels are not adequate to fund such projects.

The private sector (including foreign investors) has demonstrated interest in some BOO and BOT infrastructure projects and the GSL has demonstrated its interest in and commitment to private provision of infrastructure. It has created the Secretariat on Infrastructure Development and Investment (SIDI) to carry out the Project and will provide for local and international financial participation in the Project through the establishment of an independent infrastructure project fund.

II. Project Goal and Purpose

The PPI goal and purpose remain unchanged. The goal of the Project is to modernize economic infrastructure in six primary sectors: power, water supply and treatment, telecommunications, transportation, waste management and disposal, and industrial estates/facilities.

The project purpose is to assist the GSL to develop a market for private financing and management of economic infrastructure.

The sub-purpose of the project is to encourage and support US trade and investment in Sri Lanka's infrastructure development activities.

The PPI project provides for the design and development of a Private Sector Window to enhance the private sector's ability to attract long-term financial support, defray or mitigate the costs and risk of developing feasibility studies required for BOO/BOT projects, and engage in developing unsolicited proposals to overcome infrastructure difficulties and identify investment opportunities.

The Window is expected to begin to address three problems that represent major constraints to the private sector:

- * lack of capacity on the part of the local financial market to provide long-term financing for infrastructure projects;
- * lack of incentive for the local and foreign private sector to risk their time and effort to shoulder the entire burden of project identification and feasibility studies without prospect for compensation of award; and
- * lack of legitimate opportunity or window for the private sector to utilize its entrepreneurial resources and energy to identify unique approaches to infrastructure investment opportunities without formal procedures to process proposals.

Component 4 supports the develop of the "Private Sector Infrastructure Development Fund" (PSIDF) which will allow the private sector access to official development assistance and serve as a catalyst in promoting private infrastructure projects; assist in overcoming the shortage of available long-term financing in Sri Lanka and the difficulties of accessing foreign long-term financing; and alleviate the fiscal burden on the GSL to provide counterpart funds as required in government to government financing of infrastructure.

The PSDIF is expected to provide only 20-30 percent of the financing for any given project, with the rest coming from equity and private financing sources. Funding for the PSDIF is expected to come from HG loans, ADB, IBRD and other bilateral donors.

Only an estimated \$10 million per annum was projected to come from local private sources. Most private finance for the first projects identified under PP is expected to come from external sources. The policy agenda which will be supported by HG resources will be used to help speed up the development of local markets.

III. How HG Resources will be Used

Housing Guaranty Loans will expand upon and strengthen the Project's objectives under Component 4. They will be used to promote appropriate policy change which will help expand local and external private finance for environmental infrastructure. They will also provide some of the resources, through the PSIDF needed to finance early projects.

HG resources will be disbursed when actions are taken to improve the environmental for private finance of infrastructure. Discussions will be held with the GSL on a series of measures and

actions which would improve the environment for private finance of infrastructure. Agreement will be reached on which measures would be most effective and feasible within the short and medium term.

Some examples of possible items which might be included in the action plan are measures to:

- * establish appropriate tariff structure for solid waste collection, water supply and treatment and other urban services. This would improve the revenue stream for projects and increase available resources for environmental infrastructure.
- * reduce disincentives or create incentives for bond issues for infrastructure. This would probably involve banks rather than municipalities at this time.
- * share or mitigate risk of local investors and financiers who would like to be involved in infrastructure projects.
- * lengthen the term of loans. Currently no long-term (8-10 years) are available in the market.

Based on the agreement reached with the GSL on these or other measures, and annual evaluation will be carried out on the progress made on enacting those measures. Authorizations to borrow HG resources would be based on those evaluations.

4. How USAEP funds will be used

USAEP resources will be earmarked primarily to fund HG project management. This and other uses are summarized below:

- * Funding for feasibility studies to be undertaken in support of the creation and implementation of the Private Sector Infrastructure Development Fund (PSIDF).
- * Funding to sponsor study tours to the United States to expose Sri Lankan city officials and business leaders to U.S. environmental technology.
- * Funding for Trade Missions from the United States to Sri Lanka.
- * Funding for one long-term advisor to assist in the implementation of the HG loan component and to manage USAEP interests in the project.

USAEP/HG Regional Country Profile - India

I. Background/Problem Statement:

By the year 2010, India's total population is conservatively expected to reach 1.1 billion people, of which 460 million (41%) will live in urban settlements.

The need for potable water distribution, sewage and solid waste disposal, power distribution and transport networks has far exceeded the supply capacities of government with consequent adverse impact on the urban environment. Infrastructure is heavily subsidized and poorly targeted to the lower income households. Cost recovery is insufficient.

It has been estimated that upto the year 2001, an investment of approximately Rs. 40,000 crores (approx. \$1.4 billion) in basic infrastructure will be required if the deficiencies in existing level of services are to be met, and all section of urban populations have to be provided an access to a modicum of basic urban services. India has undertaken a series of new economic policies to attract additional capital, and improve the efficiency and effectiveness of its industrial and financial sectors. However, key element which is missing is a financial sectors system to promote long term debt and in particular infrastructure investment. Urban environmental infrastructure is an essential requirement for a fast growing economy but India lacks systems for financing the long term investments.

II. Project Objectives

The objective of the project is to broaden and deepen private investment in India's long-term debt market with emphasis on the development of a commercially viable urban environmental infrastructure finance system, the beneficiaries of which will include below median income families.

The policy agenda of the Urban Environmental Infrastructure Finance program will include:

- o developing a commercially viable long-term environmental infrastructure finance system,
- o facilitating privatization of municipal services and land development,
- o improving local government's capacity to plan, maintain, operate and recover cost of urban environmental infrastructure and services,

The program will support/provide increased funding for promoting utilization of US expertise in technology and services in the form of technical assistance and training.

III. Relationship to Country/Mission Strategy

The project directly supports USAID's program objective to improve India's financial and regulatory environment. It is also supports Asia Bureau's privatization goal and Private Enterprise Bureau's goal of improving national economics by increasing investment in urban environmental infrastructure. The project also supports GOI's objective/program of policy reform i) to improve urban environment through increased investment in urban infrastructure; ii) increase resources for and efficiency of urban environmental infrastructure services through privatization of municipal services and; iii) mobilize resources from capital markets by developing a commercially viable infrastructure finance system.

IV. Project Description

Housing Guaranty (HG) funds will be used to broaden and deepen India's long-term debt market by creating financial instruments suited for the expansion of urban environmental infrastructure and services.

Such instruments include project-based revenue bonds for local governments to expand needed urban infrastructure and services such as water and sewer systems; and corporate bonds for private companies to build, own, operate and/or transfer similar facilities in cases of privatization of municipal services. The Housing Guarantee will be used to raise overseas funds for a portfolio of such revenue and corporate bonds, and to leverage this financing by attracting matching funds from domestic capital markets. Once the investments are functional and have demonstrated track record, the HG capitalized portfolio will be sold to investors and the original amounts reloaned to create additional infrastructure bonds. This replication process will promote the long-term growth of urban environmental infrastructure investment, the development of a secondary market for bond issues, and the sustainability of the project.

The HG program is intended to have a demonstration effect. Two to four municipalities in one of two states will be selected to participate. Selection variables will include, among others yet to be identified, the willingness to demonstrate the impact of three primary policy reforms: 1) the development of a commercially viable infrastructure finance system; 2) the increase of private sector participation in the delivery of municipal services and land development; and 3) the improvement of capacity of local governments to plan, operate, maintain and recover the costs of basic urban services.

Additional AEP resources will be used to support training and technical assistance to the local governments, the HG funds borrower, and other institutions to be involved in issuance of environmental infrastructure bonds/debt instruments. This will include increased activity promoting utilization of U.S. technology and technical assistance/training expertise in the area of urban environmental services.

V. Funding Sources

- o Housing Guaranty (HG) funds of about \$125 million.
- o AEP grant funds of \$2 to \$5 million over seven years to supplement Mission DA grant funds for TA & T.

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