

**REQUEST FOR PROPOSALS**

**TECHNICAL ASSISTANCE FOR TECHNOLOGIES FOR  
INDUSTRIAL WATER DISCHARGE REDUCTION IN SÃO PAULO**

Submission Deadline: **1:00 pm LOCAL TIME**

**FRIDAY, MARCH 19, 2010**

Submission Place: Fátima Carrara  
Manager, Departamento de Cooperação Internacional  
Companhia Ambiental do Estado de São Paulo  
Av. Professor Frederico Hermann Jr., 345  
São Paulo, SP 05459-900  
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SEALED PROPOSALS SHALL BE CLEARLY MARKED AND RECEIVED PRIOR TO THE TIME AND DATE SPECIFIED ABOVE. PROPOSALS RECEIVED AFTER SAID TIME AND DATE WILL NOT BE ACCEPTED OR CONSIDERED.

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## **Section 1: INTRODUCTION**

The U.S. Trade and Development Agency (USTDA) has provided a grant in the amount of US\$683,000 to the Companhia Ambiental do Estado de São Paulo (the "Grantee") in accordance with a grant agreement dated September 15, 2009 (the "Grant Agreement"). USTDA will fund the costs of a Technical Assistance ("Technical Assistance") for the proposed Technologies for Industrial Water Discharge Reduction in São Paulo Project ("Project") in Brazil ("Host Country"). The Grant Agreement is attached at Annex 4 for reference. The Grantee is soliciting technical proposals from qualified U.S. firms to provide expert consulting services to perform the Technical Assistance.

### **1.1 BACKGROUND SUMMARY**

In 1968, the state government of São Paulo created CETESB (which translates into English as the State of Sao Paulo Environmental Company). CETESB monitors environmental quality (air, ground and water) for over 100,000 activities in São Paulo. The company has approximately 2,000 employees, a network of 50 local monitoring agencies spread throughout the state, and maintains over \$232 million in assets and \$140 million in sales as of fiscal year-end 2007.

In São Paulo, local industries are generating an excessive volume of wastewater due to the use of outdated industrial processes. As the state's regulator of water quality and industrial discharge, CETESB is seeking to investigate new technologies that will minimize water consumption, reduce industrial wastewater generation and lead to cleaner methods of industrial production. Compliance will be promoted through CETESB's environmental licensing renewal process, and this undertaking will be an important component of a broader program designed to decrease the use of raw materials, reduce water and energy consumption, and lessen waste generation and atmospheric emissions.

### **1.2 OBJECTIVE**

The objective of the Technical Assistance is to identify indicators, emission factors and measures of Cleaner Production and assess their technical, financial, economical, environmental and regulatory viability, as well as the impacts associated with its development

The Terms of Reference (TOR) for this Technical Assistance are attached as Annex 5.

### **1.3 PROPOSALS TO BE SUBMITTED**

Technical proposals are solicited from interested and qualified U.S. firms. The administrative and technical requirements as detailed throughout the Request for Proposals (RFP) will apply. Specific proposal format and content requirements are detailed in Section 3.

The amount for the contract has been established by a USTDA grant of US\$683,000. **The USTDA grant of US\$683,000 is a fixed amount. Accordingly, COST will not be a factor in the evaluation and therefore, cost proposals should not be submitted.** Upon detailed evaluation of technical proposals, the Grantee shall select one firm for contract negotiations.

#### **1.4 CONTRACT FUNDED BY USTDA**

In accordance with the terms and conditions of the Grant Agreement, USTDA has provided a grant in the amount of US\$683,000 to the Grantee. The funding provided under the Grant Agreement shall be used to fund the costs of the contract between the Grantee and the U.S. firm selected by the Grantee to perform the TOR. The contract must include certain USTDA Mandatory Contract Clauses relating to nationality, taxes, payment, reporting, and other matters. The USTDA nationality requirements and the USTDA Mandatory Contract Clauses are attached at Annexes 3 and 4, respectively, for reference.

## **Section 2: INSTRUCTIONS TO OFFERORS**

### **2.1 PROJECT TITLE**

The project is called Technologies for Industrial Water Discharge Reduction in São Paulo Project.

### **2.2 DEFINITIONS**

Please note the following definitions of terms as used in this RFP.

The term "Request for Proposals" means this solicitation of a formal technical proposal, including qualifications statement.

The term "Offeror" means the U.S. firm, including any and all subcontractors, which responds to the RFP and submits a formal proposal and which may or may not be successful in being awarded this procurement.

### **2.3 DEFINITIONAL MISSION REPORT**

USTDA sponsored a Definitional Mission to address technical, financial, sociopolitical, environmental and other aspects of the proposed project. A copy of the report is attached at Annex 2 for background information only. Please note that the TOR referenced in the report are included in this RFP as Annex 5.

### **2.4 EXAMINATION OF DOCUMENTS**

Offerors should carefully examine this RFP. It will be assumed that Offerors have done such inspection and that through examinations, inquiries and investigation they have become familiarized with local conditions and the nature of problems to be solved during the execution of the Technical Assistance.

Offerors shall address all items as specified in this RFP. Failure to adhere to this format may disqualify an Offeror from further consideration.

Submission of a proposal shall constitute evidence that the Offeror has made all the above mentioned examinations and investigations, and is free of any uncertainty with respect to conditions which would affect the execution and completion of the Technical Assistance.

## **2.5 PROJECT FUNDING SOURCE**

The Technical Assistance will be funded under a grant from USTDA. The total amount of the grant is not to exceed US\$683,000.

## **2.6 RESPONSIBILITY FOR COSTS**

Offeror shall be fully responsible for all costs incurred in the development and submission of the proposal. Neither USTDA nor the Grantee assumes any obligation as a result of the issuance of this RFP, the preparation or submission of a proposal by an Offeror, the evaluation of proposals, final selection or negotiation of a contract.

## **2.7 TAXES**

Offerors should submit proposals that note that in accordance with the USTDA Mandatory Contract Clauses, USTDA grant funds shall not be used to pay any taxes, tariffs, duties, fees or other levies imposed under laws in effect in the Host Country.

## **2.8 CONFIDENTIALITY**

The Grantee will preserve the confidentiality of any business proprietary or confidential information submitted by the Offeror, which is clearly designated as such by the Offeror, to the extent permitted by the laws of the Host Country.

## **2.9 ECONOMY OF PROPOSALS**

Proposal documents should be prepared simply and economically, providing a comprehensive yet concise description of the Offeror's capabilities to satisfy the requirements of the RFP. Emphasis should be placed on completeness and clarity of content.

## **2.10 OFFEROR CERTIFICATIONS**

The Offeror shall certify (a) that its proposal is genuine and is not made in the interest of, or on behalf of, any undisclosed person, firm, or corporation, and is not submitted in conformity with, and agreement of, any undisclosed group, association, organization, or corporation; (b) that it has not directly or indirectly induced or solicited any other Offeror to put in a false proposal; (c) that it has not solicited or induced any other person, firm, or corporation to refrain from submitting a proposal; and (d) that it has not sought by collusion to obtain for itself any advantage over any other Offeror or over the Grantee or USTDA or any employee thereof.

## **2.11 CONDITIONS REQUIRED FOR PARTICIPATION**

Only U.S. firms are eligible to participate in this tender. However, U.S. firms may utilize subcontractors from the Host Country for up to 20 percent of the amount of the USTDA grant for specific services from the TOR identified in the subcontract. USTDA's nationality requirements, including definitions, are detailed in Annex 3.

## **2.12 LANGUAGE OF PROPOSAL**

All proposal documents shall be prepared and submitted in English and Portuguese.

## **2.13 PROPOSAL SUBMISSION REQUIREMENTS**

The **Cover Letter** in the proposal must be addressed to:

Fátima Carrara  
Manager, Departamento de Cooperação Internacional  
Companhia Ambiental do Estado de São Paulo  
Av. Professor Frederico Hermann Jr., 345  
São Paulo, SP 05459-900  
Brazil

Phone: (55) 11 3133-3607

**An Original in English, 6 copies in Portuguese, and one (1) digital copy of your proposal must be received at the above address no later than 1:00 pm (local time), on March 19, 2010.**

Proposals may be either sent by mail, overnight courier, or hand-delivered. Whether the proposal is sent by mail, courier or hand-delivered, the Offeror shall be responsible for actual delivery of the proposal to the above address before the deadline. Any proposal received after the deadline will be returned unopened. The Grantee will promptly notify any Offeror if its proposal was received late.

Upon timely receipt, all proposals become the property of the Grantee.

## **2.14 PACKAGING**

The original and each copy of the proposal must be sealed to ensure confidentiality of the information. The proposals should be individually wrapped and sealed, and labeled for content including "original" or "copy number x"; the original in English, 6 copies in Portuguese, and one (1) digital copy should be collectively wrapped and sealed, and clearly labeled.

Neither USTDA nor the Grantee will be responsible for premature opening of proposals not properly wrapped, sealed and labeled.

#### **2.15 AUTHORIZED SIGNATURE**

The proposal must contain the signature of a duly authorized officer or agent of the Offeror empowered with the right to bind the Offeror.

#### **2.16 EFFECTIVE PERIOD OF PROPOSAL**

The proposal shall be binding upon the Offeror for ninety (90) days after the proposal due date, and Offeror may withdraw or modify this proposal at any time prior to the due date upon written request, signed in the same manner and by the same person who signed the original proposal.

#### **2.17 EXCEPTIONS**

All Offerors agree by their response to this RFP announcement to abide by the procedures set forth herein. No exceptions shall be permitted.

#### **2.18 OFFEROR QUALIFICATIONS**

As provided in Section 3, Offerors shall submit evidence that they have relevant past experience and have previously delivered advisory, feasibility study and/or other services similar to those required in the TOR, as applicable.

#### **2.19 RIGHT TO REJECT PROPOSALS**

The Grantee reserves the right to reject any and all proposals.

#### **2.20 PRIME CONTRACTOR RESPONSIBILITY**

Offerors have the option of subcontracting parts of the services they propose. The Offeror's proposal must include a description of any anticipated subcontracting arrangements, including the name, address, and qualifications of any subcontractors. USTDA nationality provisions apply to the use of subcontractors and are set forth in detail in Annex 3. The successful Offeror shall cause appropriate provisions of its contract, including all of the applicable USTDA Mandatory Contract Clauses, to be inserted in any subcontract funded or partially funded by USTDA grant funds.

#### **2.21 AWARD**

The Grantee shall make an award resulting from this RFP to the best qualified Offeror, on the basis of the evaluation factors set forth herein. The Grantee reserves the right to reject any and all

proposals received and, in all cases, the Grantee will be the judge as to whether a proposal has or has not satisfactorily met the requirements of this RFP.

## **2.22 COMPLETE SERVICES**

The successful Offeror shall be required to (a) provide local transportation, office space and secretarial support required to perform the TOR if such support is not provided by the Grantee; (b) provide and perform all necessary labor, supervision and services; and (c) in accordance with best technical and business practice, and in accordance with the requirements, stipulations, provisions and conditions of this RFP and the resultant contract, execute and complete the TOR to the satisfaction of the Grantee and USTDA.

## **2.23 INVOICING AND PAYMENT**

Deliverables under the contract shall be delivered on a schedule to be agreed upon in a contract with the Grantee. The Contractor may submit invoices to the designated Grantee Project Director in accordance with a schedule to be negotiated and included in the contract. After the Grantee's approval of each invoice, the Grantee will forward the invoice to USTDA. If all of the requirements of USTDA's Mandatory Contract Clauses are met, USTDA shall make its respective disbursement of the grant funds directly to the U.S. firm in the United States. All payments by USTDA under the Grant Agreement will be made in U.S. currency. Detailed provisions with respect to invoicing and disbursement of grant funds are set forth in the USTDA Mandatory Contract Clauses attached in Annex 4.

### **Section 3: PROPOSAL FORMAT AND CONTENT**

To expedite proposal review and evaluation, and to assure that each proposal receives the same orderly review, all proposals must follow the format described in this section.

Proposal sections and pages shall be appropriately numbered and the proposal shall include a Table of Contents. Offerors are encouraged to submit concise and clear responses to the RFP. Proposals shall contain all elements of information requested without exception. Instructions regarding the required scope and content are given in this section. The Grantee reserves the right to include any part of the selected proposal in the final contract.

The proposal shall consist of a technical proposal only. A cost proposal is NOT required because the amount for the contract has been established by a USTDA grant of US\$683,000, which is a fixed amount.

Offerors shall submit one (1) original in English, 6 copies in Portuguese, and one (1) digital copy of the proposal. Proposals received by fax cannot be accepted.

Each proposal must include the following:

- Transmittal Letter,
- Cover/Title Page,
- Table of Contents,
- Executive Summary,
- Company Information,
- Organizational Structure, Management Plan, and Key Personnel,
- Technical Approach and Work Plan, and
- Experience and Qualifications.

Detailed requirements and directions for the preparation of the proposal are presented below.

#### **3.1 EXECUTIVE SUMMARY**

An Executive Summary should be prepared describing the major elements of the proposal, including any conclusions, assumptions, and general recommendations the Offeror desires to make. Offerors are requested to make every effort to limit the length of the Executive Summary to no more than five (5) pages.

## **3.2 COMPANY INFORMATION**

For convenience, the information required in this Section 3.2 may be submitted in the form attached in Annex 6 hereto.

### **3.2.1 Company Profile**

Provide the information listed below relative to the Offeror's firm. If the Offeror is proposing to subcontract some of the proposed work to another firm(s), the information below must be provided for each subcontractor.

1. Name of firm and business address (street address only), including telephone and fax numbers.
2. Year established (include predecessor companies and year(s) established, if appropriate).
3. Type of ownership (e.g. public, private or closely held).
4. If private or closely held company, provide list of shareholders and the percentage of their ownership.
5. List of directors and principal officers (President, Chief Executive Officer, Vice-President(s), Secretary and Treasurer; provide full names including first, middle and last). Please place an asterisk (\*) next to the names of those principal officers who will be involved in the Technical Assistance.
6. If Offeror is a subsidiary, indicate if Offeror is a wholly-owned or partially-owned subsidiary. Provide the information requested in items 1 through 5 above for the Offeror's parent(s).
7. Project Manager's name, address, telephone number, e-mail address and fax number .

### **3.2.2 Offeror's Authorized Negotiator**

Provide name, title, address, telephone number, e-mail address and fax number of the Offeror's authorized negotiator. The person cited shall be empowered to make binding commitments for the Offeror and its subcontractors, if any.

### **3.2.3 Negotiation Prerequisites**

1. Discuss any current or anticipated commitments which may impact the ability of the Offeror or its subcontractors to complete the Technical Assistance as proposed and reflect such impact within the project schedule.
2. Identify any specific information which is needed from the Grantee before commencing contract negotiations.

### 3.2.4 Offeror's Representations

If any of the following representations cannot be made, or if there are exceptions, the Offeror must provide an explanation.

1. Offeror is a corporation [*insert applicable type of entity if not a corporation*] duly organized, validly existing and in good standing under the laws of the State of \_\_\_\_\_. The Offeror has all the requisite corporate power and authority to conduct its business as presently conducted, to submit this proposal, and if selected, to execute and deliver a contract to the Grantee for the performance of the Technical Assistance. The Offeror is not debarred, suspended, or to the best of its knowledge or belief, proposed for debarment, or ineligible for the award of contracts by any federal or state governmental agency or authority. The Offeror has included, with this proposal, a certified copy of its Articles of Incorporation, and a certificate of good standing issued within one month of the date of its proposal by the State of \_\_\_\_\_.
2. Neither the Offeror nor any of its principal officers have, within the three-year period preceding this RFP, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a federal, state or local government contract or subcontract; violation of federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, violating federal or state criminal tax laws, or receiving stolen property.
3. Neither the Offeror, nor any of its principal officers, is presently indicted for, or otherwise criminally or civilly charged with, commission of any of the offenses enumerated in paragraph 2 above.
4. There are no federal or state tax liens pending against the assets, property or business of the Offeror. The Offeror, has not, within the three-year period preceding this RFP, been notified of any delinquent federal or state taxes in an amount that exceeds \$3,000 for which the liability remains unsatisfied. Taxes are considered delinquent if (a) the tax liability has been fully determined, with no pending administrative or judicial appeals; and (b) a taxpayer has failed to pay the tax liability when full payment is due and required.
5. The Offeror has not commenced a voluntary case or other proceeding seeking liquidation, reorganization or other relief with respect to itself or its debts under any bankruptcy, insolvency or other similar law. The Offeror has not had filed against it an involuntary petition under any bankruptcy, insolvency or similar law.

The selected Offeror shall notify the Grantee and USTDA if any of the representations included in its proposal are no longer true and correct at the time of its entry into a contract with the Grantee. USTDA retains the right to request an updated certificate of good standing from the selected Offeror.

### **3.3 ORGANIZATIONAL STRUCTURE, MANAGEMENT, AND KEY PERSONNEL**

Describe the Offeror's proposed project organizational structure. Discuss how the project will be managed including the principal and key staff assignments for this Technical Assistance. Identify the Project Manager who will be the individual responsible for this project. The Project Manager shall have the responsibility and authority to act on behalf of the Offeror in all matters related to the Technical Assistance.

Provide a listing of personnel (including subcontractors) to be engaged in the project, including both U.S. and local subcontractors, with the following information for key staff: position in the project; pertinent experience, curriculum vitae; other relevant information. If subcontractors are to be used, the Offeror shall describe the organizational relationship, if any, between the Offeror and the subcontractor.

A manpower schedule and the level of effort for the project period, by activities and tasks, as detailed under the Technical Approach and Work Plan shall be submitted. A statement confirming the availability of the proposed project manager and key staff over the duration of the project must be included in the proposal.

### **3.4 TECHNICAL APPROACH AND WORK PLAN**

Describe in detail the proposed Technical Approach and Work Plan (the "Work Plan"). Discuss the Offeror's methodology for completing the project requirements. Include a brief narrative of the Offeror's methodology for completing the tasks within each activity series. Begin with the information gathering phase and continue through delivery and approval of all required reports.

Prepare a detailed schedule of performance that describes all activities and tasks within the Work Plan, including periodic reporting or review points, incremental delivery dates, and other project milestones.

Based on the Work Plan, and previous project experience, describe any support that the Offeror will require from the Grantee. Detail the amount of staff time required by the Grantee or other participating agencies and any work space or facilities needed to complete the Technical Assistance.

### **3.5 SECTION 5: EXPERIENCE AND QUALIFICATIONS**

Provide a discussion of the Offeror's experience and qualifications that are relevant to the objectives and TOR for the Technical Assistance. If a subcontractor(s) is being used, similar information must be provided for the prime and each subcontractor firm proposed for the project. The Offeror shall provide information with respect to relevant experience and qualifications of key staff proposed. The Offeror shall include letters of commitment from the individuals proposed confirming their availability for contract performance.

As many as possible but not more than six (6) relevant and verifiable project references must be provided for the Offeror and any subcontractor, including the following information:

Project name,  
Name and address of client (indicate if joint venture),  
Client contact person (name/ position/ current phone and fax numbers),  
Period of Contract,  
Description of services provided,  
Dollar amount of Contract, and  
Status and comments.

Offerors are strongly encouraged to include in their experience summary primarily those projects that are similar to or larger in scope than the Technical Assistance as described in this RFP.

#### **Section 4: AWARD CRITERIA**

Individual proposals will be initially evaluated by a Procurement Selection Committee of representatives from the Grantee. The Committee will then conduct a final evaluation and completion of ranking of qualified Offerors. The Grantee will notify USTDA of the best qualified Offeror, and upon receipt of USTDA's no-objection letter, the Grantee shall promptly notify all Offerors of the award and negotiate a contract with the best qualified Offeror. If a satisfactory contract cannot be negotiated with the best qualified Offeror, negotiations will be formally terminated. Negotiations may then be undertaken with the second most qualified Offeror and so forth.

The selection of the Contractor will be based on the following criteria:

**1. Firms' specific experience related to the assessment of cleaner production technology for a wide spectrum of industrial outfits with an emphasis on reduction of water use and wastewater generation: (25 points maximum)**

- 1.1 The firm's overall experience: (up to 15 points)
- 1.2 The firm's overseas experience: (up to 10 points)

**2. Adequacy of proposed work plan and methodology in responding to the TOR: (25 points maximum)**

- 2.1 Knowledge of proposed work and understanding of service: (up to 10 points)
- 2.2 Appropriateness of proposed methodology and workplan: (up to 15 points)

**3. Qualifications and competence of the assignment's key staff: (25 points maximum)**

- 3.1 Team Leader's experience in similar projects: (up to 5 points)
- 3.2 Project Engineer's experience in similar projects: (up to 5 points)
- 3.3 Mechanical Engineer's experience in similar projects: (up to 5 points)
- 3.4 Industrial Engineer's experience in similar projects: (up to 5 points)
- 3.5 Economist / Financial Analyst's experience in similar projects: (up to 5 points)

**4. Past performance: (25 points maximum)**

- 4.1 Six relevant and verifiable projects: (up to 25 points)
- 4.2 Five relevant and verifiable projects: (up to 20 points)
- 4.3 Four relevant and verifiable projects: (up to 15 points)
- 4.4 Three relevant and verifiable projects: (up to 10 points)
- 4.5 Two relevant and verifiable projects: (up to 5 points)

Fátima Carrara, Manager, Departamento de Cooperação Internacional, Companhia Ambiental do Estado de São Paulo, Av. Professor Frederico Hermann Jr., 345, São Paulo, SP, 05459-900, Brazil  
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## B - BRAZIL: TECHNOLOGIES FOR INDUSTRIAL WATER DISCHARGE REDUCTION IN SÃO PAULO

POC Nina Patel, USTDA, 1000 Wilson Boulevard, Suite 1600, Arlington, VA 22209 3901, Tel: (703) 875-4357, Fax: (703) 875-4009. TECHNOLOGIES FOR INDUSTRIAL WATER DISCHARGE REDUCTION IN SÃO PAULO. The Grantee invites submission of qualifications and proposal data (collectively referred to as the "Proposal") from interested U.S. firms which are qualified on the basis of experience and capability to assist the Companhia Ambiental do Estado de São Paulo to investigate new technologies that will minimize water consumption, reduce industrial wastewater generation and lead to cleaner methods of industrial production. The objective of the Technical Assistance is to identify indicators, emission factors and measures of Cleaner Production and assess their technical, financial, economical, environmental and regulatory viability, as well as the impacts associated with its development. The U.S. firm selected will be paid in U.S. dollars from a \$683,000 grant to the Grantee from the U.S. Trade and Development Agency (USTDA).

A detailed Request for Proposals (RFP), which includes requirements for the Proposal, the Terms of Reference, and a background definitional mission report are available from USTDA, at 1000 Wilson Boulevard, Suite 1600, Arlington, VA 22209-3901. To request the RFP in PDF format, please go to <https://www.ustda.gov/USTDA/FedBizOpps/RFP/rfpform.asp>. Requests for a mailed hardcopy version of the RFP may also be faxed to the IRC, USTDA at 703-875-4009. In the fax, please include your firm's name, contact person, address, and telephone number. Some firms have found that RFP materials sent by U.S. mail do not reach them in time for preparation of an adequate response. Firms that want USTDA to use an overnight delivery service should include the name of the delivery service and your firm's account number in the request for the RFP. Firms that want to send a courier to USTDA to retrieve the RFP should allow one hour after faxing the request to USTDA before scheduling a pick-up. Please note that no telephone requests for the RFP will be honored. Please check your internal fax verification receipt. Because of the large number of RFP requests, USTDA cannot respond to requests for fax verification. Requests for RFPs received before 4:00 PM will be mailed the same day. Requests received after 4:00 PM will be mailed the following day. Please check with your courier and/or mail room before calling USTDA.

Only U.S. firms and individuals may bid on this USTDA financed activity. Interested firms, their subcontractors and employees of all participants must qualify under USTDA's nationality requirements as of the due date for submission of qualifications and proposals and, if selected to carry out the USTDA-financed activity, must continue to meet such requirements throughout the duration of the USTDA-financed activity. All goods and services to be provided by the selected firm shall have their nationality, source and origin in the U.S. or host country. The U.S. firm may use subcontractors from the host country for up

to 20 percent of the USTDA grant amount. Details of USTDA's nationality requirements and mandatory contract clauses are also included in the RFP.

Interested U.S. firms should submit their Proposal in English and Portuguese directly to the Grantee by 1:00pm (local time), March 19, 2010 at the above address. Evaluation criteria for the Proposal are included in the RFP. Price will not be a factor in contractor selection, and therefore, cost proposals should NOT be submitted. The Grantee reserves the right to reject any and/or all Proposals. The Grantee also reserves the right to contract with the selected firm for subsequent work related to the project. The Grantee is not bound to pay for any costs associated with the preparation and submission of Proposals.

**DEFINITIONAL MISSION  
FINAL REPORT**

**DEFINITIONAL MISSION: BRAZIL –  
ENVIRONMENTAL SECTOR OPPORTUNITIES**

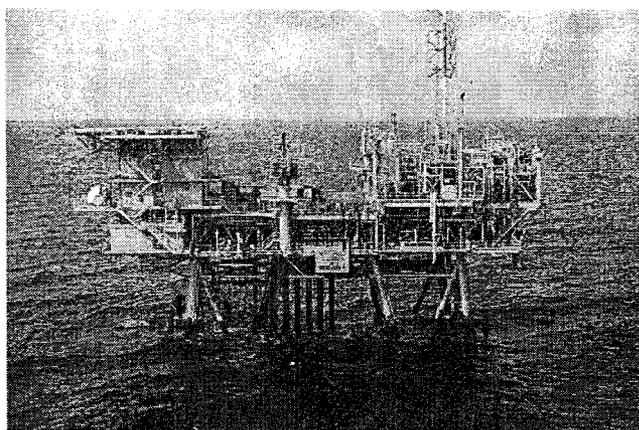
**USTDA – CO2008510016**

**U.S. Trade and Development Agency**

**Attn.: Ms. Gabrielle Mandel, COTR**

**1000 Wilson Boulevard, Suite 1600, Arlington, VA 22209-3901**

**Phone 703-875-4357 Fax 703-875-4009**



Submitted by:

**AJGB International, Inc.**

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## **The U.S. Trade and Development Agency**

The U.S. Trade and Development Agency (USTDA) advances economic development and U.S. commercial interests in developing and middle income countries. The agency funds various forms of technical assistance, early investment analysis, training, orientation visits and business workshops that support the development of a modern infrastructure and a fair and open trading environment.

USTDA's strategic use of foreign assistance funds to support sound investment policy and decision-making in host countries creates an enabling environment for trade, investment and sustainable economic development. Operating at the nexus of foreign policy and commerce, USTDA is uniquely positioned to work with U.S. firms and host countries in achieving the agency's trade and development goals. In carrying out its mission, USTDA gives emphasis to economic sectors that may benefit from U.S. exports of goods and services.

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THIS REPORT WERE INTENTIONALLY SKIPPED**

## COMPANHIA DE TECNOLOGIA DE SANEAMENTO AMBIENTAL (CETESB)

Project Sponsor: CETESB

Project Sponsor Representative in Charge: Fernando Cardozo Fernandes Rei, Director-  
President

Project Title: Definition of Specific Pollution Load and Flow of Industrial Activities for  
CETESB Clean Production Program in the State of São Paulo

Proposal Type: Feasibility Study (FS)

### A2. EXECUTIVE SUMMARY

#### A2.1 Background

CETESB was created by State Decree No. 50079 on July 24, 1968 as the government agency responsible for controlling, monitoring, and licensing pollution generating activities. Its fundamental task is to preserve and recover the quality of water, air and soil. CETESB operates 35 regional offices in the State of São Paulo with manpower of 1,956 officials of which 1,134 hold university degrees. The remaining staff are composed of specialized technicians duly trained in their line of service.

Cleaner Production (CP or CPT) is one of the key environmental regulatory management tools promoted by CETESB. CPT aims at reducing the use of raw material, water and energy consumption levels to minimize waste generation and atmospheric emissions. CPT is also introduced as a means to increase productivity and associated production cost savings.

As part of its environmental regulatory role, CETESB created a CP unit in 1996 that develops incentive mechanisms to support and encourage industries and businesses to adopt CP practices. CP's incentive mechanisms include providing technical support to environmental permitting activities, sponsorship of related training, and promoting the industrial sector's participation in the environmental chambers forum which facilitates discussion on current environmental issues and their potential solutions. As a result of its CPT efforts, several industries have implemented CPT methods ([http://www.cetesb.sp.gov.br/Tecnologia/producao\\_limpa/xsuccess.asp](http://www.cetesb.sp.gov.br/Tecnologia/producao_limpa/xsuccess.asp)).

CETESB environmental permitting is called "environmental licensing" and encompasses the full array of regulatory compliance procedures in industrialized nations (<http://www.cetesb.sp.gov.br/licenciamentoo/index.asp>). The CETESB environmental licensing responsibility is carried out by 324 professionals distributed among the 35 regional offices.

In 2007, CETESB renewed 10,921 environmental licenses. In an effort to streamline the environmental licensing process, CETESB is implementing the "Sistema de Licenciamento Simplificado – SILIS," a program that reduces the regulatory process from 90 days to 15 days for low pollution generators. DM discussions with CP unit officials reveal that CETESB continues to serve the regulated community with greater opportunities for environmental regulation compliance. Additionally, it is also striving to encourage greater industrial sector participation in CPT

## **A2.2 FS Proposals**

CETESB requests USTDA technical assistance to assess the potential for industrial wastewater discharge reduction through the replacement of obsolete industrial processes with environmental friendlier CT. This action has economic developmental implications because lower industrial wastewater generation translates into lower treatment costs and environmental permitting fees. In addition, less industrial wastewater generation implies less toxic substances management.

## **A2.3 Developmental Priority and Sponsor's Commitment**

CETESB is planning on using the proposed USTDA technical assistance to obtain wastewater generation performance indicators on different categories of industries. This information will help create the regulatory instruments that will introduce legal wastewater reduction requirements through the environmental licensing renewal process to industries that discharge an excessive volume of wastewater. CETESB presumes that as a result of stricter wastewater discharge limits, industries will be inclined to switch to less polluting technology or processes. Saving in water use and wastewater treatment could have an important economic impact on industrial production cost. CETESB indicated a high interest in carrying out the proposed action due to its environmental and economic developmental importance.

## **A2.4 U.S. Export Potential**

It is assumed that as a consequence of the proposed action, a variety of industrial outfits will seek consulting services and the replacement of obsolete machinery, which would provide the opportunity for U.S. export of services and equipment.

The business potential is relatively high because the State of Sao Paulo is responsible for 41% of Brazil's industrial Gross Domestic Product (GDP). A planning level assessment conducted as part of this DM shows that the U.S. export potential in CPT could range between US\$10 and US\$31 million dollars per year during the period 2010 – 2019.

## **A2.5 Implementation Financing**

Three financial sources may be available to the industries interested in CPT. One is the existing Pollution Control Program (PROCOP) being administrated by CETESB for the support of industries pursuing the implementation of pollution prevention projects. Another source of funding may be the Nossa Caixa State Bank under the terms of an agreement between CETESB and BNDES. The financial resources of the licensee or its commercial banks may be a third financial source for CPT projects.

## **A2.6 Qualifications of Project Sponsor's Team**

CETESB has proven technical and regulatory capability in carrying out the implementation of CPT in a voluntary program spearheaded by professionals that are at the forefront of the environmental licensing process. The team proposed for the execution of the recommendations that could result from the requested USTDA technical assistance is the same team that has demonstrated a high capacity for successfully introducing CP to various industries. Consequently, this DM finds compelling reasons for supporting the qualification of the Project Sponsor's team for the implementation of work associated with this potential USTDA FS.

## **A2.8 FS Terms of Reference**

Terms of reference to evaluate the technical, financial, economic, environmental, and regulatory feasibilities and the developmental impacts associated with the proposed action are provided in Appendix L2. The DM estimates that the completion of the FS will take approximately twelve months. The recommended USTDA FS budget is \$682,450.

## **A2.9 Recommendations**

The information provided by CETESB shows a project worthy of USTDA consideration for its potential infrastructure, human capacity building and technology transfer developmental impacts. Implementation of CPT projects provides ample opportunity for the acquisition of U.S. made technology which, in turn, enhances employment opportunities as well. CPT usually provides for increased productivity and this should help in creating more affordable goods for consumers. In summary, the potential environmental and economic benefits that could originate from the implementation of the CETESB proposed action meet USTDA technical assistance criteria. Therefore, this DM finds the funding of this project warranted.

## B2. PROJECT DESCRIPTION

### B2.1 Background

In 1973, the state government of Sao Paulo created and constituted the publicly held company "State Company for Technology and Basic Sanitation and Water Pollution Control, CETESB." Since then CETESB has achieved international recognition as a Latin American leader in the environmental sector.

CETESB has strived to ensure compliance with water, air and soil quality standards and related regulations in the State of Sao Paulo. As part of its core activities, CETESB promotes and ensures environmental quality in the State of Paulo. One of the medullar policies of CETESB is to foster actions to prevent environmental pollution by promoting clean production technologies (CP or CPT). CETESB has provided support to industries for the implementation of cleaner production measures.

Another one of CETESB key operational policies is the administration of environmental licensing for regulating water quality discharge from industries in accordance with State Decree 47.397/2002 ([www.cetesb.sp.gov.br](http://www.cetesb.sp.gov.br)). As part of the environmental licensing process, CETESB inspects and collects industrial wastewater samples for analysis at its resourceful water quality analytical laboratories. CETESB is considering the introduction of Clean Production Requirements as part of the environmental license.

According to Joint Resolution SMA/SERHS No. 1 of February 23, 2005, of the State Secretaries of the Environment and Energy and Water Resources and Sanitation, the procedures for environmental licensing and water resources use are priorities. The environmental license is defined as the administrative action that establishes the conditions, restrictions and measures of environmental control that are to be complied with by any entities in the process of siting, installing, expanding or operating any activity that uses environmental resources and is considered a source or a potential source of contamination. The environmental licensing regulations provide ample institutional legal resources for issuing technical requirements for potential environmental polluters.

A review of a recent industrial environmental license issued to a large industrial outfit (Petróleo Brasileiro S.A., PETROBRAS) shows that CETESB explicitly requires that the licensee maintain control over liquid waste streams including water quality monitoring requirements for effluents. The CETESB licenses recommend the implementation of a Plan to Reduce the Use of Water. Nonetheless, the frequency of water quality sampling and analysis required by CETESB environmental licenses is less strict than the requirements in the U.S. Environmental Protection Agency (USEPA) National Pollution Discharge Elimination System (NPDES) permits. DM discussions with CETESB officials indicate most industries do not use automatic samplers and flow meter devices for monitoring their compliance requirements.

On their part, industries have carried out voluntary water use reduction programs with significant positive results. One of these programs was implemented by the Brazilian Chemical Industries Association (ABIQUIM) in the early 2000s. The results of the ABIQUIM water use reduction program are summarized in Table B2.1 and show a 40% reduction in water use and 25% reduction in the generation of industrial wastewater. The ABIQUIM example illustrates that a potential for reduction of industrial wastewater generation exists in Brazil.

**Table B2.1 ABIQUIM Water Use Reduction Program Results<sup>†</sup>**

Indicator	1999	2002	% of Reduction
Water Use m <sup>3</sup> /ton of Production	11.81	7.14	40
Wastewater Generation m <sup>3</sup> /ton of Production	4.26	3.18	25

<sup>†</sup>: La Producción mas Limpia y el Consumo Sustentable en América Latina y el Caribe, Programa de las Naciones Unidas para el Medio Ambiente (PNUMA), 2004.

## B2.2 Proposed Action

CETESB surmises that industries in the State of Sao Paulo, the most industrialized state in Brazil, are generating an excessive volume of wastewater due to the use of out of date industrial processes. Consequently, it is interested in lending support to an investigation that will identify cleaner technology for reducing industrial wastewater generation.

CETESB has presented a request to USTDA for technical assistance that involves assessing the potential for industrial wastewater discharge reduction through the replacement of obsolete industrial process with more environmental friendly technology, Cleaner Technologies (CT).

The DM discussions with CETESB revealed that there are potential benefits associated with switching to more environmental friendly, cleaner industrial production technologies. Among the advantages of switching to less water consuming industrial production processes are:

- Lower industrial wastewater discharge rates which imply lower wastewater treatment cost. Additionally, it also implies potentially less chemical use for wastewater conditioning, less toxic sludge to manage and less energy consumption;
- Lower permitting fees because in the State of Sao Paulo per State Law No. 12.183/05 and Regulatory Decree No. 50667/06 licensees pay a liquid waste discharge fee based on the actual flow rate discharged to the environment;
- The potential for reducing water consumption which translates in to lower industrial production costs;
- The potential for less toxic substance management and consequently a less risky industrial production operation;
- A friendlier work environment and improved community relationships; and
- Less strict licensing requirements and the possibility for less frequent license renewals as CETESB may extend the duration of the environmental license by 30% to industries that reduce wastewater generation.

CETESB is planning on using the proposed USTDA technical assistance to obtain wastewater generation performance indicators on different categories of industries. This information will help create the regulatory instruments necessary to introduce legal wastewater reduction requirements to industries that discharge an excessive volume of wastewater through the environmental licensing renewal process. CETESB presumes that as a result of stricter wastewater discharge limits, industries will be inclined to switch to less polluting technology or processes.

It is presumed that as a consequence of the proposed action, a variety of industrial outfits will seek consulting services and the replacement of obsolete machinery, which would provide the opportunity for U.S. export of services and equipment.

The business potential is high because Sao Paulo, with only 3% of the land and 22% of the population in Brazil, produces 34% of the GDP, in addition to 41% of the industrial GDP. Table B2.2 below shows the number of industries in Sao Paulo by category (main production activity).

Table B2.2 Industries in the State of Sao Paulo<sup>1</sup>

Type Industrial Activity (Industrial Sectors)	Number of Industrial Activities
Alimento/Bebidas	8,553
Borracha/Plástico	8,661
Cauro/Calçados	9,688
Diversos	3,379
Editorial e Gráfica	5,780
Extractivas	1,756
Fumo	22
Madeira	3,230
Material de Transporte	1,754
Material Elétrico	5,124
Mecânica	10,056
Metalgurgica	15,759
Minerais não Metálicos	8,222
Mobiliário	6,464
Celulose / Papel	2,067
Química	6,565
Textil	3,729
<b>Total</b>	<b>100,809</b>

<sup>1</sup>: Information provided by CETESB

The CETESB proposal involves the following activities:

1. Selection of the set of industries to be included in the study;
2. Development of a sampling program for the characterization of the pollution load discharged<sup>2</sup> by each of the industries selected in terms of contaminants concentration and flow rate, including an analysis of pollution load temporal variations;
3. Identification of industrial wastewater discharge for each type of industry investigated based on the utilization of Clean Production Technology;
4. Comparison of industrial performance in terms of current pollution load discharge to Clean Production Technology industrial wastewater discharge and the definition of performance indicators for each industrial outfit studied;
5. Definition of industrial performance standards for each type of industry in terms of wastewater pollution load based on technical criteria that could be included as requirements for the renewable of environmental licenses;
6. Identification and documentation of the main strategies being employed by foreign environmental agencies to successfully implement Clean Production Technologies for the reduction of water use and industrial wastewater discharge; and
7. Development and specification of a computerized procedure for coupling the Clean Production Technology strategy for the reduction of industrial wastewater discharge to the SIPOLWEB system (see Appendix B2.2) currently under development by CETESB for environmental licensing.

<sup>2</sup> Raw industrial wastewater (influent to industrial wastewater treatment plants)

## C2. PROJECT SPONSOR'S CAPABILITIES AND COMMITMENT

The DM discussions with CETESB revealed that industries rely on end-of-the-pipe wastewater treatment control systems for compliance with environmental license requirements. CETESB indicated its commitment to assist industries in adopting cleaner production processes that could result in less water use and reduced wastewater discharge. Further, CETESB indicated its commitment to the implementation of technical recommendations that could originate from the requested USDA technical assistance. As mentioned previously in this report, CETESB is recognized as a leader in the environmental regulatory field in Brazil and beyond. Its reputation has been earned as result of the number of advanced initiatives that it has successfully carried out, including innovative approaches for assisting industries with financing alternatives for implementing regulatory compliance improvements.

CETESB has experience in assisting industries in implementing cleaner production programs such as the voluntary Pollution Prevention (P2) Program. CETESB plans on using its environmental licensing regulatory power to facilitate the industries' consideration of the economic benefits of environmental friendlier production technologies. Consequently, this DM assessment concludes that CETESB has demonstrated its capability in managing the implementation of the recommendations that could result from the requested technical assistance.

Additionally, as discussed in Section D2 below, CETESB's latest agreement with the Banco Nacional de Desenvolvimento Econômico e Social (BNDES) provides assurance that funding for industrial projects associated with the requested assistance will be available.

## D2. IMPLEMENTATION FINANCING

The Programa de Controle de Poluição (PROCOP), the currently under negotiation BNDES-CETESB Business Agreement and the industries' own resources are potential sources of project financing that will be available to industries carrying out the replacement of technology associated with reduction of water use and wastewater generation.

### D2.1 PROCOP

PROCOP was created in 1980 to assist with the implementation of the State of São Paulo's environmental policies. PROCOP is composed of a line of credit to finance specific business and industry projects (Programa de Financiamento ao Control, PFC) and a program of technical assistance aimed at strengthening the technical and operational capacity of CETESB (Programa de Assistência Técnica (PAT).

PFC favors projects that incorporate the cleaner production concept. The financing of projects follows a hierarchy that lists pollution prevention at the top followed by recycling. Loan financial conditions for these types of projects are more favorable than for projects that involve treatment and disposal. PFC financed a wide range of projects including civil, electric and mechanical improvements and industrial equipment.

Entities interested in applying for PCF financing submit their projects to CETESB for technical analysis and approval and to the Banco do Estado de São Paulo (BANESPA) for assessment of their financial situation. Loans under the PROCOP's PFC are provided by BANESPA.

BANESPA was recently acquired by the Bank of Santander, Spain's largest private bank. In a meeting with BNDES Environmental Manager Eduardo Bandeira de Mello, the DM asked about the potential impact of the new ownership at BANESPA. Mr. Mello indicated that it does not appear that there will be a

change in PROCOP-BANESPA policy. Table D2.1 shows the typical PROCOP financial terms for pollution prevention and recycling projects.

**Table D2.1 PROCOP' PFC Financial Terms for Pollution Prevention and Recycling Projects**

Loan Conditions	Small Businesses (billing up to \$4 million Real <sup>†</sup> )	Medium to Large Businesses
Repayment Period	To be determined on a case by case basis	To be determined on a case by case basis
Maximum Loan in % of the Total Capital Investment	85%	85%
Annual Finance Rate, %	TJLP <sup>‡</sup> + 4.5 %	TJLP <sup>‡</sup> + 4.5 % to 5%
Payments Due	Quarterly	Quarterly
Loan Guarantees (% of Loan)	125%	125%

<sup>†</sup>: US\$ 2.6 million at the current exchange rate (1 Real = US\$0.67).

<sup>‡</sup>: TJLP é Taxa de Juros de Longo Prazo fixada pelo Conselho Monetário Nacional, definida como o custo básico dos financiamentos concedidos pelo BNDES.

A Taxa de Juros de Longo Prazo - TJLP tem período de vigência de um trimestre-calendário e é calculada a partir dos seguintes parâmetros:

I - meta de inflação calculada pro rata para os doze meses seguintes ao primeiro mês de vigência da taxa, inclusive, baseada nas metas anuais fixadas pelo Conselho Monetário Nacional;

II - prêmio de risco

Final financing rate is close to prevailing inflation rate but never smaller.

## D2.2 BNDES

CETESB and BNDES are in the process of signing a cooperation agreement that would allow the financing of industrial projects for compliance with environmental requirements. BNDES is a public financing institution that contributes to the improvement of environmental management and social development. It provides special support to projects that aim at protecting the environment and sustainable development.

One of the objectives of the agreement is for CETESB to obtain the support of BNDES to implement projects that pursue sustainable economic development. According to discussions with CETESB, the Banco Nossa Caixa, a bank of the State of São Paulo, will act as the financing agent for the program.

This is a new agreement that is still being negotiated. The DM had access to a draft of the agreement which showed that the responsibilities of the participating entities include the allocation of financial resources for the execution of the objectives of the agreement and the resolution of socio-ambiental issues. Conversations with Mr. Mello of BNDES reveal that Banco Nossa Caixa will have BNDES financial support for industrial projects in need of a loan to improve their environmental compliance situation.

The DM assessment concludes that financial support will exist for industries interested in cleaner production technology.

## E2. U.S. EXPORT POTENTIAL

Assessing the U.S. export potential for the program at hand is a complex and challenging undertaking because it is virtually impossible to infer with a degree of certainty the types and number of industries that will undergo upgrading of their production processes. Our research shows that U.S. technology provides the backbone of the large petrochemical industrial complexes (this was confirmed in conversations with a

former PETROBRAS employee). Other industries manufacturing chemical and related products also employ a significant amount of U.S. made equipment. However, there are several industrial sectors for which is not possible to surmise, at this time, the potential level of U.S. equipment use. A preliminary investigation shows that mechanical equipment made in Germany are also used extensively in Sao Paulo.

Taking into account that imports from the U.S. total 15.52% (US\$24.6 billion) of Brazil's total imports and that the total annual Brazilian industrial sector environmental market is currently estimated at US \$300 million dollars, a very rough assessment of the potential U.S. export has been prepared. Furthermore, it is assumed that only 5% to 15% of the total capital investment in equipment and machinery that complies with cleaner production environmental license requirements will originate from the U.S.

There are roughly 100,000 industries in the CETESB database system. A percentage of these industries will be required to switch to cleaner production technology in order to meet environmental license renewal requirements. The number of industries up for environmental license renewal during the period 2010 – 2019 is shown in Table E2.

Information obtained by KUPS for DM CO04523249 shows that a typical BANESPA industrial loan results in US\$0.5 million in U.S. exports. This figure appears within the range anticipated for the replacement of production trains at a large number of industries within all industrial sectors; therefore it is used to estimate the range of U.S. export potential, see Table E2.

Table E2 shows the lower and upper bounds of the U.S. export potential for the period 2010-2019. These were estimated based on the assumptions stated above and assuming that 10% of the industries up for Environmental License renewal in each of the next ten years will switch to cleaner production technology.

**Table E2 U.S. Export Potential**

Year	Number of Industries up for Environmental Licensing (does not include new licenses) <sup>†</sup>	U.S. Export Potential per Industry <sup>‡</sup> , in US\$ Million	U.S. Export Potential, in US\$ Million (Lower Bound, 5% U.S. Export Potential)	U.S. Export Potential, in US\$ Million (Upper Bound, 15% U.S. Export Potential)
2010	5,286 <sup>†</sup>	0.5	13.21	39.64
2011	5,094 <sup>†</sup>	0.5	12.73	38.20
2012	4,300 <sup>†</sup>	0.5	10.75	32.25
2013	1,970 <sup>†</sup>	0.5	4.9	14.77
2014	3,900 <sup>‡</sup>	0.5	9.75	29.25
2015	4,000 <sup>‡</sup>	0.5	10	30
2016	4,100 <sup>‡</sup>	0.5	10.25	30.75
2017	4,200 <sup>‡</sup>	0.5	10.5	31.5
2018	4,300 <sup>‡</sup>	0.5	10.75	32.25
2019	4,400 <sup>‡</sup>	0.5	11	33
Totals			103.84	311.61

<sup>†</sup>: Data provided by CETESB, does not include 7,500 new environmental licenses issued per year.

<sup>‡</sup>: Data reported by KUPS International (USTDA DM CO045523249)

<sup>‡</sup>: Assumed

## F2. FOREIGN COMPETITION AND MARKET ENTRY ISSUES

This DM assesses that Brazilian consultant companies will continue playing an important role in providing consulting services to industries in need of technical advice for switching to cleaner production methods and technology. This DM anticipates that most of the potential exports would originate in the form of products, equipment and machinery not manufactured in Brazil.

Because of its historical business relations, some of the São Paulo industries, especially the older ones, utilize and are influenced by European production processes. On the other hand, current trend appears to be leaning toward the manufacturing of products that resemble American goods and commodities.

Many European manufacturers have the technological know-how and ability to produce most of the major industrial components needed by industries switching to cleaner technology production. Based on our research of the market forces in Brazil it is clear that German and Japanese companies are major competitors. For example, our conversation with local representatives of water recycling systems shows that there is strong competition from the following foreign companies:

- Norit of Holland ([www. Norit.com](http://www.Norit.com))
- Kubota of Japan (<http://www.enviroquip.com/products/MBR/Kubota.php>)
- Siemens of Germany (<http://www.water.siemens.com/en/Pages/default.aspx>)

Siemens is currently embarked in a strong marketing effort to provide MBR and other water systems for a large Petrobras wastewater recycling project in the State of Parana.

In the end, most exports will be subject to industry preferences on equipment and machinery systems for reducing their water use and wastewater generation. As discussed above, several European and Japanese companies are working to create a stronghold for their water reuse technology. According to the DM research, these companies are investing heavily in the marketing of their technologies in Brazil and around the globe. However, the manufacturing of products similar to U.S made products should have an influence in the industrial processing methods and the manufacturing technology selected by Brazilian industries.

## G2. DEVELOPMENTAL IMPACT

### G2.1 Infrastructure

The technical assistance requested by CETESB offers positive developmental impacts related to water, wastewater and power infrastructure, human capacity building and technology transfer. The following is a summary of the anticipated developmental impacts.

Inclusion of Cleaner Production requirements in the CESTESB Environmental Licensing requirements would necessitate the procurement of equipment, machinery and related infrastructure. As such, industrial projects carried out as a result of the requested technical assistance have the potential for creating further economic development. According to discussion with CETESB officials, decreasing industrial water demand and reducing industrial wastewater discharge will have a positive impact on aquifers and waterways. Reducing water supply demand will decrease the risk for groundwater over-exploitation and saline intrusion along the coastal zone.

## **G2.2 Human Capacity Building**

Planning, design, construction, and operation of Cleaner Production Technology for industries in the State of São Paulo will certainly create technological knowledge and expertise that is not currently available in Brazil. Consulting services will be needed for planning and designing Cleaner Production systems. Industry personnel may need to be trained for the operation of Cleaner Production systems. Additionally, local construction companies and specialty contractors such as electrical and electromechanical contractors will participate in construction activities. These projects will provide training opportunities for technicians and professionals who could later use their expertise in other projects elsewhere in Brazil and the surrounding region.

## **G2.3 Technology Transfer and Productivity Improvements**

The industrial projects that may generate from CETESB's technical assistance are classical examples of technology transfers that offer multiple benefits to the sponsor's community. As discussed above, the projects will provide the technological means for cleaner production that typically result in enhanced productivity. Additionally Cleaner Production systems are generally power efficient and this, in itself, is a positive economic developmental impact. The added power-efficiency feature should translate into business growth and enhanced productivity.

## **H2. IMPACT ON THE ENVIRONMENT**

Carrying out measures aimed at reducing industrial water consumption and decreasing the volume of industrial wastewater should result in positive environmental impacts. Less water withdrawals from sources of fresh water offer significant environmental benefits because water resources will not be tapped and river flows and aquifer storage conditions will be less compromised. Reduction in industrial wastewater treatment has both environmental benefits and economic advantages as less wastewater management, in many cases, implies less power utilization. Additionally, less wastewater discharges to the environment is beneficial to maintaining water quality at receiving bodies of water.

This DM cannot find deleterious environmental impacts resulting from the proper implementation of CETESB cleaner production regulatory policy. In fact, to the contrary, it would appear a commendable effort taken on behalf of the industries for the sake of the environment.

## **I2. IMPACT ON U.S. LABOR**

The prospective technical assistance is for a feasibility study aimed at assisting industries in the implementation of cleaner production programs that should result in less water use and a reduction in industrial wastewater generation. It does not include direct assistance in establishing or expanding production of any commodity in Brazil. The prospective USTDA technical assistance promotes U.S. made cleaner production technologies and could include water reuse technology, equipment and services, which, in turn, create new demands for U.S. made products and services.

This new demand for U.S. equipment and services would have a net positive impact on the U.S. trade balance because the expansion of equipment and machinery for cleaner production and related environmental equipment would most likely increase employment in the U.S.

Marketing and technical personnel from the U.S. would be required to travel to Brazil in order to materialize the business transaction associated with the sales. However, it does not appear that U.S. based manufacturers or service providers would need to relocate outside the U.S. for an extended period of time to meet the demands created by the proposed USTDA technical assistance. Some of the products manufactured in Brazil using cleaner production technology manufactured in the U.S. could reach the U.S. market as they do today, except that they may be produced at a lower cost and thus increase their affordability.

The DM considers that USTDA funding of the prospective technical assistance will not contradict any of the clauses of the Foreign Operations, Export Financing and Related Program Appropriations legislation.

## J2. QUALIFICATIONS

Given the technical assistance objectives, the DM recommends that the FS be conducted by an expert U.S. company that meets the selection criteria outlined below. Furthermore, it is assumed that the company selected will have demonstrated qualifications, experience and the required capability to carry out these projects.

1. Firms' specific experience related to the assessment of cleaner production technology for a wide spectrum of industrial outfits with an emphasis on reduction of water use and wastewater generation: 25 points maximum
  - 1.1 The firm's overall experience: 15 points
  - 1.2 The firm's overseas experience: 10 points
2. Adequacy of proposed work plan and methodology in responding to the TOR: 25 points maximum
  - 2.1 Knowledge of proposed work and understanding of service: 10 point
  - 2.2 Appropriateness of proposed methodology and workplan: 15 points
3. Qualifications and competence of the assignment's key staff: 25 points maximum
  - 3.1 Team Leader's experience in similar projects: 5 points
  - 3.2 Project Engineer's experience in similar projects: 5 points
  - 3.3 Mechanical Engineer's experience in similar projects: 5 points
  - 3.4 Industrial Engineer's experience in similar projects: 5 points
  - 3.5 Economist / Financial Analyst's experience in similar projects: 5 points
4. Past performance: 25 points maximum
  - 4.1 Six relevant and verifiable projects: 25 points
  - 4.2 Five relevant and verifiable projects: 20 points
  - 4.3 Four relevant and verifiable projects: 15 points
  - 4.4 Three relevant and verifiable projects: 10 points
  - 4.5 Two relevant and verifiable projects: 5 points

## K2. JUSTIFICATION

If CETESB environmental licensing regulatory requirements include incentives for industries to switch to cleaner technology and processes, a new line of business will emerge in the Brazilian industrial sector. As discussed in Section B2.2 and elsewhere in this report, cleaner technology is one of the main

strategies for environmental management within the business community. Industries which have successfully employed CT improve their competitiveness. In essence CT aims at:

- Minimizing the input of raw materials and energy;
- Streamlining production lines;
- Maximizing product quality; and
- Reducing effluent and other waste production.

Thus, CT may be thought of as a subset of production activities focused on the actual manufacturing process that integrate better production systems to minimize environmental harm and maximize production efficiency. An example of CT is the use of membrane technology for water reuse and reduction of wastewater generation.

Environmental benefits are typically accompanied by economic gains, which make CT an important consideration nowadays. Therefore, if businesses in the large Sao Paulo industrial sector invest in CT as a result of the requested technical assistance, a considerable developmental impact is to be expected. Such an impact would benefit sustainable economic growth in Brazil while creating demand for technology manufactured in the U.S. and elsewhere in the industrialized world.

In summary, the proposed CETESB technical assistance is justified on several grounds including the following:

- It should create trade and business opportunities in Brazil and abroad;
- Industries' decisions concerning the use of CT will be fundamentally business-oriented decisions aimed at achieving greater return on their investments;
- Environmental gains that would result from the implementation of CT are undoubtedly important to long-term sustainable development in São Paulo;
- The CETESB proposal recognizes that traditional industrial wastewater management strategies will be superseded with more environmentally conscious production procedures in the near future and is pursuing the technical support for drafting the corresponding regulatory requirements.
- CT projects are important to U.S. manufactures of this type of technology seeking commercial opportunities in Brazil, the second largest U.S. trade partner in Latin American with significant economic development potential.

As such, there are compelling trade developmental arguments for supporting the technical assistance requested by CETESB.

## L2. TERMS OF REFERENCE

Terms of reference to evaluate the technical, financial, economic, environmental, and regulatory feasibilities and the developmental impacts associated with the proposed action are provided in Appendix L2. The DM estimates that the completion of the FS will take approximately twelve months. The recommended USTDA FS budget is \$682,450.

## M2. RECOMMENDATIONS

The DM assessment of the CETESB proposal demonstrates that industrial CP is important to sustainable development in Brazil, to U.S. commercial policies, and to potential marketing avenues for CP technology manufactured in the U.S.

These types of technologies are rapidly becoming preferred alternatives throughout the developing world for environmental and economic developmental reasons. The DM supports USTDA funding of the FS for the following reasons:

1. The FS results could lead to strengthening CETESB's environmental licensing regulatory requirements which would likely result in improved environmental conditions in the State of São Paulo, the industrial capital of Brazil.
2. If the results of the proposed study lead to the implementation of CT, it will generate commercial trade that will have a beneficial impact on the environment and economy in the State of São Paulo. It could also lead to additional CT investments in other parts of Brazil as CETESB policies are generally replicated elsewhere in the country.
3. The impact on the economic development should extend beyond the industrial sector as CT production costs are typically lower than the less power efficient traditional manufacturing procedures.
4. The USTDA developmental impact criteria would be met as the introduction of CT will have a positive effect on technology transfer, and infrastructure and productivity improvements.
5. As the project sponsor, CETESB offers technical support for the execution of the study ranging from personnel for the fieldwork and transportation of water samples from the industrial outfits to the analytical laboratories. CETESB also offers office space and logistic support including local transportation for the Contractor's staff.

For the reasons indicated above the DM supports USTDA funding of the FS requested by CETESB.

## N2. CONTACTS

See Appendix N1

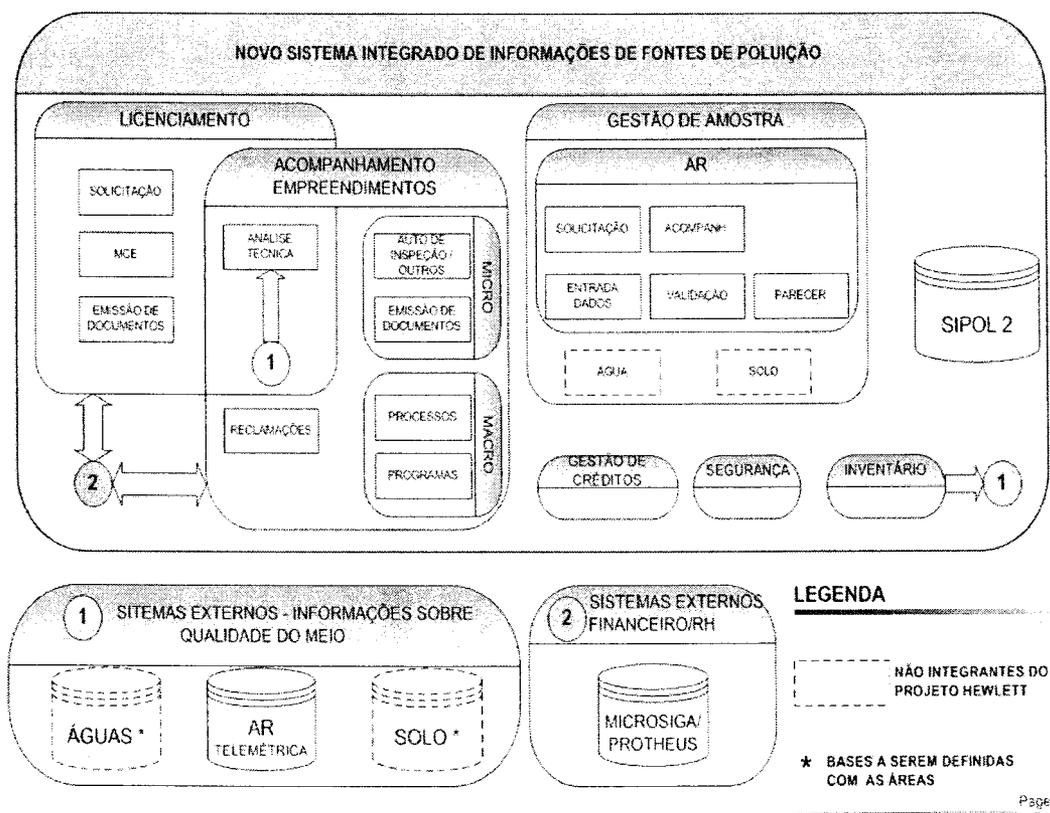
## Appendix B2.2 SIPOLWEB System Outline

**SIIPOL WEB*****“Sistema Integrado de Informações de Fontes de Poluição - Licenciamento e Acompanhamento”*****Objetivos:****Substituir do SIPOL;****Agregar novas funcionalidades que permitam:**

- Considerar informações sobre a qualidade do meio nas análises técnicas;
- Capturar, armazenar, avaliar e disponibilizar informações de emissões de poluentes;
- A elaboração e acompanhamento de programas;
- O acompanhamento de empreendimentos e processos; e
- O adequado atendimento ao Decreto Estadual N° 50.753/06 (Capacidade de Suporte/Compensação de Emissões Atmosféricas).

**Foco inicial: Licenciamento, Inventário de Fontes e Poluição Atmosférica;****Estruturado em 06 grandes módulos:**

- Módulo de Licenciamento;
- Módulo de Acompanhamento de Empreendimentos (Programas e Processos);
- Módulo de Inventários de Fontes de Poluição;
- Módulo de Gestão de Amostragem de Emissões Atmosféricas;
- Módulo de Gestão de Créditos de Emissões Atmosféricas; e
- Módulo de Gestão de Qualidade do Ar.



#### MÓDULO LICENCIAMENTO:

- *Ambiente de Análise Técnica para elaboração de relatórios e documentos, com acesso às informações de Qualidade do Ar, emissões atmosféricas na região, disponibilidade de créditos e histórico do empreendimento (documentos, pendências, resultados de amostragens e exigências técnicas);*
- *Memoriais de Caracterização do Empreendimentos específicos por atividade; e*
- *Solicitação de documentos e preenchimento de formulários via INTERNET, bem como o download e consulta de autenticidade de documentos.*

#### MÓDULO ACOMPANHAMENTO:

- *Funcionalidades para elaboração e acompanhamento de programas de controle de poluição com diversos níveis de abrangência;*
- *Ambiente de Análise Técnica com funcionalidades para elaboração de vistorias como por exemplo pré elaboração de Autos de Inspeção, Ficha de Coleta e Planilha para IQR/IQC;*
- *Edição e emissão de documentos (relatórios, informações técnicas, autos, licenças etc); e*

- *Acompanhamento de processos (despachos, controle de prazos, localização etc).*

**MÓDULO INVENTÁRIO:**

- *Elaboração de Inventário de Emissões para os diferentes meios em diversos níveis de abrangência desde um empreendimento até o Estado;*
- *Funcionalidades para atender o programa de automonitoramento, como por exemplo: proposição de plano e apresentação de relatório de automonitoramento via INTERNET;*
- *Funcionalidade de declaração anual de geração de resíduos sólidos industriais (Resolução CONAMA N° 313/02); e*
- *Inventário de Resíduos Sólidos Urbanos.*

**MÓDULO AMOSTRAGEM:**

- *Agendamento de Amostragens de Chaminé;*
- *Acompanhamento de agendamentos;*
- *Acompanhamento e validação de amostragens; e*
- *Consultas e Relatórios.*

**MÓDULO GESTÃO DE CRÉDITOS:**

- *Geração e contabilidade de créditos;*
- *Controle e rastreamento de compensações;*
- *Consulta de disponibilidade de créditos; e*
- *Transferência de créditos.*

**MÓDULO QUALIDADE DO AR:**

- *Adequação das Bases de Dados de Qualidade do Ar e Meteorológicos;*
- *Procedimentos de entrada dos dados das redes manuais;*
- *Gerador de gráficos e relatórios; e*
- *Exportação de dados.*

**A IMPLANTAÇÃO DO SIIPOL WEB PERMITIRÁ:**

- *Integração com bases de informações de qualidade do meio (inicialmente meio ar) e com outras bases de dados da SMA;*
- *Processamento do acervo disponível com a finalidade de embasar e melhorar o diagnóstico da situação ambiental do Estado de São Paulo, permitindo o planejamento integrado das ações;*
- *A estratificação das fontes e compatibilização dos procedimentos de licenciamento conforme sua complexidade, otimizando-se a utilização dos recursos do SEAQUA e diminuindo o tempo de atendimento ao usuário;*
- *Aprimorar o acompanhamento e licenciamento ambiental dos empreendimentos prioritários;*
- *A adequação aos procedimentos previstos nos novos instrumentos legais (DE 50.753/06 e DE 47.397/02); e*
- *elaborar e manter atualizados inventários de emissões provenientes de fontes fixas e móveis, provendo também atendimento as Resoluções CONAMA 357/05 e CONAMA 313/02;*



Appendix N1  
Contact List

Firm / Organization	Contact Person (First Name)	Contact Person (Last Name)	Address 1	Address 2	City, State	Zip Code	Country	Phone Number	Fax Number	E-mail Address	Date of Contact	Comments
USFDA	Gabriele Nathan	Mandel Young	1000 Wilson Blvd, Suite 1600	Arlington, VA	USA	22209-3801	USA	703 875 4357	703 875 4009	mandel@usfda.gov nathan@usfda.gov	08/30/2008	Kickoff Meeting
USFDA	David	Denny	1000 Wilson Blvd, Suite 1600	Arlington, VA	USA	22209-3901	USA	703 875 4357	703 875 4009	denny@usfda.gov	06/30/2008	Kickoff Meeting
Service Rio Janeiro	Patrick Levy	USCS	U.S. Consulate	Rio de Janeiro	Brazil		Brazil	cell 55-21-9789-0457	55-21-3823-2424	patrick.levy@unitedstates.gov	08/19/2008	Met to discuss the DM agenda
US Commercial Service Rio Janeiro	Regina Cunha	USCS	U.S. Consulate	Rio de Janeiro	Brazil		Brazil	cell 55-21-9628-3001	55-21-3823-2424	regina.cunha@gmail.com	07/01/2008	Informed about the USTDA DM and Exchanged emails on meeting schedule
US Commercial Service Belo Horizonte	John Miller	USCS	U.S. Embassy	Belo Horizonte	Brazil		Brazil	55-31-3213-1572	55-31-3213-1575	john.miller@unitedstates.gov	07/01/2008	Informed about the USTDA DM and Exchanged emails on meeting schedule
US Commercial Service Sao Paulo	Daniel DeVito	Rua Henri Dunant 700	Chacara Santo Antonio 04709-110	Sao Paulo, S.P.	Brazil		Brazil	55-11-5186-7172		danieldevito@unitedstates.gov	08/11/2008	Informed about the USTDA DM and discussed the potential scope of the projects
US Commercial Service Sao Paulo	Sean Kelly	Rua Henri Dunant 700	Chacara Santo Antonio 04709-110	Sao Paulo, S.P.	Brazil		Brazil	55-11-5186-7297	55-11-5186-7445	sean.kelly@unitedstates.gov	08/11/2008	Informed about the USTDA DM and Exchanged emails on meeting schedule
US Commercial Service Sao Paulo	Teresa Wagner	Rua Henri Dunant 700	Chacara Santo Antonio 04709-110	Sao Paulo, S.P.	Brazil		Brazil	55-11-5186-7177		teresa.wagner@unitedstates.gov	07/01/2008	Informed about the USTDA DM and Exchanged emails on meeting schedule
SANASA	Renato	Rosetto	Av. Da Saudade 500	Campinas, S.P.	Brazil		Brazil	55-19-3735-5198	55-19-3735-5080	renato.santos@sanasa.com.br	08/12/2008	Discussed technical details of the SANASA wastewater treatment facilities
SANASA	Roberto	Pagotto	Av. Da Saudade 500	Campinas, S.P.	Brazil		Brazil	55-19-3735-5365	55-19-3735-5351	roberto@sanasa.com.br	08/12/2008	Discussed technical details of the SANASA wastewater treatment facilities
SANASA	Carlos	de Oliveira	Rua Joaquim Inacio Galace Zambom 13064-400	Campinas, S.P.	Brazil		Brazil	55-19-2822-5111		carlos@sanasa.com.br	08/12/2008	Toured the Sewage Treatment Plant of the Picarrão River Basin
SANASA	Jose	Marin	Av. Da Saudade 500	Campinas, S.P.	Brazil		Brazil	55-19-3735-5271		joze.marin@sanasa.com.br	07/01/2008	Informed about the USTDA DM and Exchanged emails on meeting schedule
SANASA	Jose	Marin	Av. Da Saudade 500	Campinas, S.P.	Brazil		Brazil	55-19-3735-5271		joze.marin@sanasa.com.br	07/01/2008	Informed about the USTDA DM and Exchanged emails on meeting schedule
SANASA	Falima Carrara	Av. Prof. Frederico Hermann Junior, 345	05459-900	Sao Paulo, S.P.	Brazil		Brazil	55-11-3133-3607	55-11-3133-3958	falima@sanasa.com.br	07/01/2008	Informed about the USTDA DM and Exchanged emails on meeting schedule
CETESB	Rosimarie	Molina	Av. Prof. Frederico Hermann Junior, 345	Sao Paulo, S.P.	Brazil		Brazil	55-11-3133-3151	55-11-3133-3958	rosimarie@cetesb.sp.gov.br	08/13/2008	Met to discuss the proposed CETESB technical assistance.
CETESB	Regis	Nieto	Hermann Junior, 345	Sao Paulo, S.P.	Brazil		Brazil	55-11-3133-3134	55-11-3133-3128	regis@cetesb.sp.gov.br	08/13/2008	Met to discuss the proposed CETESB technical assistance.
CETESB	Pietro	Zajac	Hermann Junior, 345	Sao Paulo, S.P.	Brazil		Brazil	55-11-3133-3581	55-11-3133-3580	pietro@cetesb.sp.gov.br	08/13/2008	Met to discuss the proposed CETESB technical assistance.
Petrobras	Irene	Gabardo	Av. Horacio de Macedo, 950	Rio de Janeiro, RJ	Brazil		Brazil	021-3865-4776 on cell 3865 6197, cell 9761 4619	021-3865-4975	irene.gabardo@petrobras.com.br	07/01/2008	Informed about the USTDA DM and Exchanged emails on meeting schedule
Petrobras	Ilene	Francini	Av. Horacio de Macedo, 950	Rio de Janeiro, RJ	Brazil		Brazil	55 21-3865-2043	021-3865-4975	ilene@petrobras.com.br	08/18/2008	Worked on the DM scope of work
Petrobras	Viviana	Bernardes	Av. Horacio de Macedo, 950	Rio de Janeiro, RJ	Brazil		Brazil	55 21-3865-6011	55 21-3865-4975	viviana@petrobras.com.br	08/22/2008	Worked on the DM scope of work
Petrobras	Carlos	Massone	Av. Horacio de Macedo, 950	Rio de Janeiro, RJ	Brazil		Brazil	55 21-3865-3782	55 21-3865-4975	carlos@petrobras.com.br	08/22/2008	Worked on the DM scope of work
Petrobras	Fabiana	Gallota	Av. Horacio de Macedo, 950	Rio de Janeiro, RJ	Brazil		Brazil	021-3865-4776 on cell 3865 6197, cell 9761 4619	021-3865-4975	fabiana@petrobras.com.br	08/22/2008	Worked on the DM scope of work
Governo do Rio de Janeiro	Julio	Bueno	Rua Mexico, 125 /16 andar - Centro	Rio de Janeiro, RJ	Brazil		Brazil	55-21-2989-4219/4220		julio@governorjornet.com.br	07/01/2008	Informed about the USTDA DM and Exchanged emails on meeting schedule
Governo do Rio de Janeiro	Renata	Bezerra	Rua Mexico, 125 /16 andar - Centro	Rio de Janeiro, RJ	Brazil		Brazil	55-21-2989-4234/4232		renata@governorjornet.com.br	07/01/2008	Informed about the USTDA DM and Exchanged emails on meeting schedule
Governo do Rio de Janeiro	Luiz	Bicudo	Rua Mexico, 125 /16 andar - Centro	Rio de Janeiro, RJ	Brazil		Brazil	55-21-2989-3907		luiz@governorjornet.com.br	07/01/2008	Informed about the USTDA DM and Exchanged emails on meeting schedule
CEDAE	Flavio	de Carvalho	Rua Sacadura Cabral, 103	Saude	Brazil	CEP 20081-280	Brazil	55 21 2332 3729	55 21 2332 3730	flavio@cedae.org.br	08/18/2008	Met to discuss the proposed Lagoa technical assistance.

Appendix N1  
Contact List

Governo do Rio de Janeiro	Isabel	Hacker	Rua Mexico, 125 /16 andar - Centro 20031-145	Rio de Janeiro, RJ	Brazil	55 21-2289-3034	55 21-2289-4218	isabel@governodorio.de.jo.gov.br	08/18/2008	Met to discuss the proposed Lagoa technical assistance
Governo do Rio de Janeiro	Elizabeth	Lima	Av. Graca Aranha, 182 6o andar - Centro 20031-145	Rio de Janeiro, RJ	Brazil	55 21 22 99 on 55 21 22 99 2395		elizabethlima@governodorio.de.jo.gov.br	08/18/2008	Met to discuss the proposed Lagoa technical assistance.
Governo do Rio de Janeiro	Luiz	Bicudo	Rua Mexico, 125 /16 andar - Centro 20031-145	Rio de Janeiro, RJ	Brazil	55-21-2289-3907		luiz@governodorio.de.jo.gov.br	07/01/2008	Informed about the USTDA DM and Exchanged emails on meeting schedule
Governo do Rio de Janeiro	Sergio	Teixeira	Rua de Ajuda, 518 andar - Centro 20040-000	Rio de Janeiro, RJ	Brazil	55-21-2289-4247/9525 7405		sergio@governodorio.de.jo.gov.br	07/01/2008	Informed about the USTDA DM and Exchanged emails on meeting schedule
BNDES	Marcelo	Milnerhof	Ave. Republica do Chile	Rio de Janeiro, RJ	Brazil	55-21-2172-7462		marcelo@bnades.gov.br	07/01/2008	Informed about the USTDA DM and Exchanged emails on meeting schedule
BNDES	Jose	Pessoa	Ave. Republica do Chile	Rio de Janeiro, RJ	Brazil	55-21-2172-7462		jpessoa@bnades.gov.br	07/01/2008	Informed about the USTDA DM and Exchanged emails on meeting schedule
BNDES	Milton	Dias	Ave. Republica do Chile	Rio de Janeiro, RJ	Brazil	55-21-2172-7462		milton@bnades.gov.br	07/01/2008	Informed about the USTDA DM and Exchanged emails on meeting schedule
BNDES	Armando	Mariano	Ave. Republica do Chile	Rio de Janeiro, RJ	Brazil	55-21-2172-7462		armando@bnades.gov.br	07/01/2008	Informed about the USTDA DM and Exchanged emails on meeting schedule
BNDES	Luis	Santos	Ave. Republica do Chile	Rio de Janeiro, RJ	Brazil	55-21-2172-8123	55 21 2172 8283	luis@bnades.gov.br	07/01/2008	Informed about the USTDA DM and Exchanged emails on meeting schedule
BNDES	Jose	Perreira	Ave. Republica do Chile	Rio de Janeiro, RJ	Brazil	55-21-2172-8463	55 21 2533 1665	perreira@bnades.gov.br	08/19/2008	Met to discuss the USTDA DM (Iaboria and Suape Project)
BNDES	Eduardo	Loyola	Ave. Republica do Chile	Rio de Janeiro, RJ	Brazil	55-21-2277-3239	55 21 2220 1987	eduardo@bnades.gov.br	08/19/2008	Met to discuss the USTDA DM (Iaboria and Suape Project)
BNDES	Sergio	Poggi	Ave. Republica do Chile	Rio de Janeiro, RJ	Brazil	55-21-2172-8194	55 21 2172 8283	sergio@bnades.gov.br	08/19/2008	Met to discuss the USTDA DM (Iaboria and Suape Project)
BNDES	Eduardo	de Mello	Ave. Republica do Chile	Rio de Janeiro, RJ	Brazil	55-21-2172-7354	55 21 2220 1342	eduardo@bnades.gov.br	08/19/2008	Met to discuss the USTDA DM (Iaboria and Suape Project) and the CETESB Agreement.
AECOM	Mizan	Rashid	3521 Willows Road	Redmond, WA	98052 USA	425 887 7700 X 110		mizan@aec.com	07/02/2008	Discussed the objectives of the DM and projects being assessed.
CH2M Hill	Bill	Derry	777 108th Ave. NE	Bellevue, WA	98004 USA	425 233 3289	425 488 3189	bill.derry@ch2m.com	07/07/2008	Contacted to inform about the USTDA DM project.
Tetra Tech	Richard	Wilson	415 Oak St.	Kansas City, MO	64106 USA	816 412 1932	913 549 3876	richard.wilson@tetra-tech.com	07/03/2008	Discussed the projects SOW and IT interest.
CDM	Pam	Philip	1218 3rd Ave	Seattle, WA	98103 USA	206 903 0231		philip@cdm.com	07/11/2008	Discussed the project and encouraged to participate in its bidding process.
CDM	Carlos	Linares	Suite 300 Rosslyn Plaza	Arlington, VA	22209 USA	703 247 8738	703 243 8445	carlos@cdm.com	07/14/2008	Discussed the project and encouraged to participate in its bidding process.
R. W. Beck	Alan	Bushley	1001 Fourth Ave.	Seattle, WA	98154-1004 USA	206 695 4700	206 695 4772	alan@rwb.com	07/07/2008	Discussed the projects SOW and RW Beck interest in its bidding process.
HDR, Inc.	YiJung	Chang	500 108th Ave. NE	Bellevue, WA	98004 USA	425 450 6275		yi.jung@hdr.com	07/03/2008	Discussed the project and encouraged to participate in its bidding process.
Greeley & Hansen Labs, Inc.	Fernando	Sarmiento	426 N 44th Street	Phoenix, AZ	85008 USA	602 275 5595		fernando@ghlabs.com	07/03/2008	Discussed the project business opportunities and their interest.
McLane Research	Tim	Shonahan	Saint Jean Drive East	Falmouth, MA	25316 USA	508 495 3333		tim@mlr.com	07/03/2008	Discussed the project business opportunities and their interest.
TeleSign RO Instruments	Rick	Jennings	14020 Stowe Drive	Poway, CA	92064 USA	658 829 2837		rick@tele-sign.com	07/03/2008	Discussed the project business opportunities and their interest.
SynGene Scientific, Inc.	Phil	Smith	2700 Richards Road	Bellevue, WA	98005 USA	425 641 0944 x 106		phil@syn-gen.com	07/03/2008	Discussed the project business opportunities and their interest.
Koch Membrane Systems	Sergio	Rodrigues Ribeiro	Rua Tanabi, 248 - Agua Branca	Sao Paulo	CEP 05002-010	55 11 3672 4876		sergio@koch.com.br	07/07/2008	Discussed the project business opportunities and their interest.
CE Water & Technologies	Luis	Silva	Rod. Raposo Tavares	Sao Paulo	06709 015	55 11 2139 1190	55 11 2139 1006	luis@cewater.com.br	08/11/2008	Discussed GE involvement in the Boa Vista Project design.
CE Water & Technologies	Eduardo	Pacheco Tavares	Rod. Raposo Tavares	Sao Paulo	06709 015	55 11 2139 1130	55 11 2139 1006	eduardo@cewater.com.br	08/11/2008	Discussed GE involvement in the Boa Vista Project design.
CE Water & Technologies	Karen	Grassom	1808 136th Place NE	Bellevue, WA	98008 USA	425 643 9856	425 643 9854	karen@cewater.com	07/07/2008	Discussed the project business opportunities and their interest.
IADB	David	Milk	1300 New York Avenue NW	Washington, DC	20577 USA	202 623 1843	202 623 1708	dmilk@iadb.org	07/01/2008	Discussed the project business opportunities and their interest.
IADB	Federico	Basanes	1300 New York Avenue NW	Washington, DC	20577 USA	202 623 3967	202 623 1708	federico@iadb.org	07/03/2008	Discussed the project business opportunities and their interest.
BASE DCI	Jorge	Haro	80240-041 Cumbha Parana Vargas, 4393	Parana	Brazil	55 41 3013 1355		jorge@base.com.br	08/14/2008	Met to discuss equipment providers for Brazilian industries.



**U.S. TRADE AND DEVELOPMENT AGENCY**  
**Arlington, VA 22209-2131**

**NATIONALITY, SOURCE, AND ORIGIN REQUIREMENTS**

The purpose of USTDA's nationality, source, and origin requirements is to assure the maximum practicable participation of American contractors, technology, equipment and materials in the prefeasibility, feasibility, and implementation stages of a project.

**USTDA STANDARD RULE (GRANT AGREEMENT STANDARD LANGUAGE):**

Except as USTDA may otherwise agree, each of the following provisions shall apply to the delivery of goods and services funded by USTDA under this Grant Agreement: (a) for professional services, the Contractor must be either a U.S. firm or U.S. individual; (b) the Contractor may use U.S. subcontractors without limitation, but the use of subcontractors from host country may not exceed twenty percent (20%) of the USTDA Grant amount and may only be used for specific services from the Terms of Reference identified in the subcontract; (c) employees of U.S. Contractor or U.S. subcontractor firms responsible for professional services shall be U.S. citizens or non-U.S. citizens lawfully admitted for permanent residence in the U.S.; (d) goods purchased for implementation of the Study and associated delivery services (e.g., international transportation and insurance) must have their nationality, source and origin in the United States; and (e) goods and services incidental to Study support (e.g., local lodging, food, and transportation) in host country are not subject to the above restrictions. USTDA will make available further details concerning these standards of eligibility upon request.

**NATIONALITY:**

1) Rule

Except as USTDA may otherwise agree, the Contractor for USTDA funded activities must be either a U.S. firm or a U.S. individual. Prime contractors may utilize U.S.

subcontractors without limitation, but the use of host country subcontractors is limited to 20% of the USTDA grant amount.

## 2) Application

Accordingly, only a U.S. firm or U.S. individual may submit proposals on USTDA funded activities. Although those proposals may include subcontracting arrangements with host country firms or individuals for up to 20% of the USTDA grant amount, they may not include subcontracts with third country entities. U.S. firms submitting proposals must ensure that the professional services funded by the USTDA grant, to the extent not subcontracted to host country entities, are supplied by employees of the firm or employees of U.S. subcontractor firms who are U.S. individuals.

Interested U.S. firms and consultants who submit proposals must meet USTDA nationality requirements as of the due date for the submission of proposals and, if selected, must continue to meet such requirements throughout the duration of the USTDA-financed activity. These nationality provisions apply to whatever portion of the Terms of Reference is funded with the USTDA grant.

## 3) Definitions

A "U.S. individual" is (a) a U.S. citizen, or (b) a non-U.S. citizen lawfully admitted for permanent residence in the U.S. (a green card holder).

A "U.S. firm" is a privately owned firm which is incorporated in the U.S., with its principal place of business in the U.S., and which is either (a) more than 50% owned by U.S. individuals, or (b) has been incorporated in the U.S. for more than three (3) years prior to the issuance date of the request for proposals; has performed similar services in the U.S. for that three (3) year period; employs U.S. citizens in more than half of its permanent full-time positions in the U.S.; and has the existing capability in the U.S. to perform the work in question.

A partnership, organized in the U.S. with its principal place of business in the U.S., may also qualify as a "U.S. firm" as would a joint venture organized or incorporated in the United States consisting entirely of U.S. firms and/or U.S. individuals.

A nonprofit organization, such as an educational institution, foundation, or association may also qualify as a "U.S. firm" if it is incorporated in the United States and managed by a governing body, a majority of whose members are U.S. individuals.

## SOURCE AND ORIGIN:

### 1) Rule

In addition to the nationality requirement stated above, any goods (e.g., equipment and materials) and services related to their shipment (e.g., international transportation and insurance) funded under the USTDA Grant Agreement must have their source and origin in the United States, unless USTDA otherwise agrees. However, necessary purchases of goods and project support services which are unavailable from a U.S. source (e.g., local food, housing and transportation) are eligible without specific USTDA approval.

### 2) Application

Accordingly, the prime contractor must be able to demonstrate that all goods and services purchased in the host country to carry out the Terms of Reference for a USTDA Grant Agreement that were not of U.S. source and origin were unavailable in the United States.

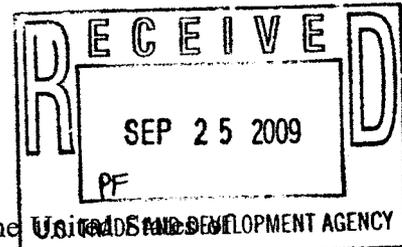
### 3) Definitions

"Source" means the country from which shipment is made.

"Origin" means the place of production, through manufacturing, assembly or otherwise.

*Questions regarding these nationality, source and origin requirements may be addressed to the USTDA Office of General Counsel.*

## GRANT AGREEMENT



This Grant Agreement is entered into between the Government of the United States of America, acting through the U.S. Trade and Development Agency ("USTDA") and the Companhia Ambiental do Estado de São Paulo ("Grantee"). USTDA agrees to provide the Grantee under the terms of this Agreement US\$683,000 ("USTDA Grant") to fund the cost of goods and services required for technical assistance ("Technical Assistance") on the proposed Technologies for Industrial Water Discharge Reduction in São Paulo Project ("Project") in Brazil ("Host Country").

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### 1. USTDA Funding

The funding to be provided under this Grant Agreement shall be used to fund the costs of an Agreement of Understanding to Perform the Technical Assistance ("Agreement of Understanding") between the Grantee and the U.S. firm selected by the Grantee ("U.S. Firm") under which the U.S. Firm will perform the Technical Assistance. Payment to the U.S. Firm will be made directly by USTDA on behalf of the Grantee with the USTDA Grant funds provided under this Grant Agreement.

### 2. Terms of Reference

The Terms of Reference for the Technical Assistance ("Terms of Reference") are attached as Annex I and are hereby made a part of this Grant Agreement. The Technical Assistance will examine the technical, financial, environmental, and other critical aspects of the proposed Project. The Terms of Reference for the Technical Assistance shall also be included in the Agreement of Understanding.

### 3. Standards of Conduct

USTDA and the Grantee recognize the existence of standards of conduct for public officials, and commercial entities, in their respective countries. The parties to this Grant Agreement and the U.S. Firm shall observe these standards, which include not accepting payment of money or anything of value, directly or indirectly, from any person for the purpose of illegally or improperly inducing anyone to take any action favorable to any party in connection with the Technical Assistance.

### 4. Grantee Responsibilities

The Grantee shall undertake its best efforts to provide reasonable support for the U.S. Firm, such as local transportation, office space, and secretarial support.

## **5. USTDA as Financier**

### **(A) USTDA Approval of Competitive Selection Procedures**

Selection of the U.S. Firm shall be carried out by the Grantee according to its established procedures for the competitive selection of contractors with advance notice of the procurement published online through *Federal Business Opportunities* ([www.fedbizopps.gov](http://www.fedbizopps.gov)). Upon request, the Grantee will submit these contracting procedures and related documents to USTDA for information and/or approval.

### **(B) USTDA Approval of U.S. Firm Selection**

The Grantee shall notify USTDA at the address of record set forth in Article 17 below upon selection of the U.S. Firm to perform the Technical Assistance. Upon approval of this selection by USTDA, the Grantee and the U.S. Firm shall then enter into an Agreement of Understanding. The Grantee shall notify in writing the U.S. firms that submitted unsuccessful proposals to perform the Technical Assistance that they were not selected.

### **(C) USTDA Approval of Agreement of Understanding Between Grantee and U.S. Firm**

The Grantee and the U.S. Firm shall enter into an Agreement of Understanding. This Agreement of Understanding, and any amendments thereto, including assignments and changes in the Terms of Reference, must be approved by USTDA in writing. To expedite this approval, the Grantee (or the U.S. Firm on the Grantee's behalf) shall transmit to USTDA, at the address set forth in Article 17 below, a photocopy of an English language version of the signed Agreement of Understanding or a final negotiated draft version of the Agreement of Understanding.

### **(D) USTDA Not a Party to the Agreement of Understanding**

It is understood by the parties that USTDA has reserved certain rights such as, but not limited to, the right to approve the terms of the Agreement of Understanding and any amendments thereto, including assignments, the selection of all U.S. Firms, the Terms of Reference, the Final Report, and any and all documents related to any Agreement of Understanding funded under the Grant Agreement. The parties hereto further understand and agree that USTDA, in reserving any or all of the foregoing approval rights, has acted solely as a financing entity to assure the proper use of United States Government funds, and that any decision by USTDA to exercise or refrain from exercising these approval rights shall be made as a financier in the course of funding the Technical Assistance and shall not be construed as making USTDA a party to the Agreement of Understanding. The parties hereto understand and agree that USTDA may, from time to time, exercise the foregoing approval rights, or discuss matters related to these rights and the Project with the parties to the Agreement of Understanding or any sub-agreement, jointly or separately, without thereby incurring

any responsibility or liability to such parties. Any approval or failure to approve by USTDA shall not bar the Grantee or USTDA from asserting any right they might have against the U.S. Firm, or relieve the U.S. Firm of any liability which the U.S. Firm might otherwise have to the Grantee or USTDA.

**(E) Grant Agreement Controlling**

Regardless of USTDA approval, the rights and obligations of any party to the Agreement of Understanding or any sub-agreement thereunder must be consistent with this Grant Agreement. In the event of any inconsistency between the Grant Agreement and any agreement or sub-agreement funded by the Grant Agreement, the Grant Agreement shall be controlling.

**6. Disbursement Procedures**

**(A) USTDA Approval of Agreement of Understanding Required**

USTDA will make disbursements of Grant funds directly to the U.S. Firm only after USTDA approves the Grantee's Agreement of Understanding with the U.S. Firm.

**(B) U.S. Firm Invoice Requirements**

The Grantee should request disbursement of funds by USTDA to the U.S. Firm for performance of the Technical Assistance by submitting invoices in accordance with the procedures set forth in the USTDA Mandatory Clauses in Annex II.

**7. Effective Date**

The effective date of this Grant Agreement ("Effective Date") shall be the date of signature by both parties or, if the parties sign on different dates, the date of the last signature.

**8. Technical Assistance Schedule**

**(A) Technical Assistance Completion Date**

The completion date for the Technical Assistance, which is July 31, 2010, is the date by which the parties estimate that the Technical Assistance will have been completed.

## **(B) Time Limitation on Disbursement of USTDA Grant Funds**

Except as USTDA may otherwise agree, (a) no USTDA funds may be disbursed under this Grant Agreement for goods and services which are provided prior to the Effective Date of the Grant Agreement; and (b) all funds made available under the Grant Agreement must be disbursed within four (4) years from the Effective Date of the Grant Agreement.

## **9. USTDA Mandatory Clauses**

All Agreements of Understanding funded under this Grant Agreement shall include the USTDA mandatory clauses set forth in Annex II to this Grant Agreement. All sub-agreements funded or partially funded with USTDA Grant funds shall include the USTDA mandatory clauses, except for clauses B(1), G, H, I, and J.

## **10. Use of U.S. Carriers**

### **(A) Air**

Transportation by air of persons or property funded under the Grant Agreement shall be on U.S. flag carriers in accordance with the Fly America Act, 49 U.S.C. 40118, to the extent service by such carriers is available, as provided under applicable U.S. Government regulations.

### **(B) Marine**

Transportation by sea of property funded under the Grant Agreement shall be on U.S. carriers in accordance with U.S. cargo preference law.

## **11. Nationality, Source and Origin**

Except as USTDA may otherwise agree, the following provisions shall govern the delivery of goods and services funded by USTDA under the Grant Agreement: (a) for professional services, the U.S. Firm must be either a U.S. firm or U.S. individual; (b) the U.S. Firm may use U.S. subcontractors without limitation, but the use of subcontractors from Host Country may not exceed twenty percent (20%) of the USTDA Grant amount and may only be used for specific services from the Terms of Reference identified in the sub-agreement; (c) employees of the U.S. Firm or U.S. subcontractors responsible for professional services shall be U.S. citizens or non-U.S. citizens lawfully admitted for permanent residence in the U.S.; (d) goods purchased for performance of the Technical Assistance and associated delivery services (e.g., international transportation and insurance) must have their nationality, source and origin in the United States; and (e) goods and services incidental to Technical Assistance support (e.g., local lodging, food, and transportation) in Host Country are not subject to the above restrictions. USTDA will make available further details concerning these provisions upon request.

## **12. Taxes**

USTDA funds provided under the Grant Agreement shall not be used to pay any taxes, tariffs, duties, fees or other levies imposed under laws in effect in Host Country. Neither the Grantee nor the U.S. Firm will seek reimbursement from USTDA for such taxes, tariffs, duties, fees or other levies.

## **13. Cooperation Between Parties and Follow-Up**

The parties will cooperate to assure that the purposes of the Grant Agreement are accomplished. For five (5) years following receipt by USTDA of the Final Report (as defined in Clause I of Annex II), the Grantee agrees to respond to any reasonable inquiries from USTDA about the status of the Project.

## **14. Implementation Letters**

To assist the Grantee in the implementation of the Technical Assistance, USTDA may, from time to time, issue implementation letters that will provide additional information about matters covered by the Grant Agreement. The parties may also use jointly agreed upon implementation letters to confirm and record their mutual understanding of matters covered by the Grant Agreement.

## **15. Recordkeeping and Audit**

The Grantee agrees to maintain books, records, and other documents relating to the Technical Assistance and the Grant Agreement adequate to demonstrate implementation of its responsibilities under the Grant Agreement, including the selection of U.S. Firms, receipt and approval of Agreement of Understanding deliverables, and approval or disapproval of U.S. firm invoices for payment by USTDA. Such books, records, and other documents shall be separately maintained for three (3) years after the date of the final disbursement by USTDA. The Grantee shall afford USTDA or its authorized representatives the opportunity at reasonable times to review books, records, and other documents relating to the Technical Assistance and the Grant Agreement.

## **16. Representation of Parties**

For all purposes relevant to the Grant Agreement, the Government of the United States of America will be represented by the U. S. Ambassador to Host Country or USTDA and Grantee will be represented by the Director. The parties hereto may, by written notice, designate additional representatives for all purposes under the Grant Agreement.

## **17. Addresses of Record for Parties**

Any notice, request, document, or other communication submitted by either party to the other under the Grant Agreement shall be in writing or through a wire or electronic medium which produces a tangible record of the transmission, such as a telegram, cable

or facsimile, and will be deemed duly given or sent when delivered to such party at the following:

To: Companhia Ambiental do Estado de São Paulo  
Av. Professor Frederico Hermann Jr., 345  
Sao Paulo, SP 05459-900  
Brazil

Phone: 011 55 11 3133-3607  
Fax: 011 55 11 3133-3958

To: U.S. Trade and Development Agency  
1000 Wilson Boulevard, Suite 1600  
Arlington, Virginia 22209-3901  
USA

Phone: (703) 875-4357  
Fax: (703) 875-4009

All such communications shall be in English, unless the parties otherwise agree in writing. In addition, the Grantee shall provide the Commercial Section of the U.S. Embassy in Host Country with a copy of each communication sent to USTDA.

Any communication relating to this Grant Agreement shall include the following fiscal data:

Appropriation No.: 119/101001  
Activity No.: 2009-51006A  
Reservation No.: 2009510012  
Grant No.: GH2009510006

#### **18. Termination Clause**

Either party may terminate the Grant Agreement by giving the other party thirty (30) days advance written notice. The termination of the Grant Agreement will end any obligations of the parties to provide financial or other resources for the Technical Assistance, except for payments which they are committed to make pursuant to noncancellable commitments entered into with third parties prior to the written notice of termination.

**19. Non-waiver of Rights and Remedies**

No delay in exercising any right or remedy accruing to either party in connection with the Grant Agreement shall be construed as a waiver of such right or remedy.

**20. U.S. Technology and Equipment**

By funding this Technical Assistance, USTDA seeks to promote the project objectives of the Host Country through the use of U.S. technology, goods, and services. In recognition of this purpose, the Grantee agrees that it will allow U.S. suppliers to compete in the procurement of technology, goods and services needed for Project implementation.

**[THE REMAINDER OF THIS PAGE IS INTENTIONALLY LEFT BLANK]**

IN WITNESS WHEREOF, the Government of the United States of America and the Companhia Ambiental do Estado de São Paulo, each acting through its duly authorized representative, have caused this Agreement to be signed in the English language in their names and delivered as of the day and year written below. In the event that this Grant Agreement is signed in more than one language, the English language version shall govern.

For the Government of the  
United States of America

For the Companhia Ambiental  
do Estado de São Paulo

By: Thomas J. White

By: Fernando Cardozo

Thomas J. White  
Consul General of the  
United States Consulate in São Paulo.

Fernando Cardozo Fernandes Rei  
Director-President

Date: 9/17/2009

Date: 9/17/2009

By: Ana Cristina Pasini Da Costa

Ana Cristina Pasini Da Costa  
Director of Technology, Quality and  
Environmental Assessment

Date: \_\_\_\_\_

Witnessed:

By: Gabrielle Mandel

Witnessed:

By: Sablan

**Annex I -- Terms of Reference**

**Annex II -- USTDA Mandatory Clauses**

## Annex I

### Terms of Reference

#### **BACKGROUND**

Companhia Ambiental do Estado de São Paulo (CETESB), currently regulates over 100,000 industrial facilities in the State of São Paulo, the most industrialized state in Brazil. CETESB surmises that industrial facilities generate an excessive volume of wastewater due to the use of outdated industrial processes. CETESB is interested in identifying cleaner technology for reducing water use and industrial wastewater generation. This Technical Assistance shall assess the potential for industrial wastewater discharge reduction through the replacement of outdated industrial processes with more environmental friendly technology. This cleaner technology can reduce water use and wastewater generation.

The Technical Assistance will, among other things, provide performance indicators for the wastewater generation of different categories of industrial facilities and different Cleaner Production (CP) practices to CETESB. These indicators will be used as part of a regulatory program that proposes to apply these CP technologies in the environmental permitting renewal of select industrial facilities. As a result of stricter limits for pollutant loads for potential wastewater, CETESB presumes that industrial facilities will be induced to switch to cleaner technologies or processes.

#### **OBJECTIVE OF THE TECHNICAL ASSISTANCE AND SCOPE OF WORK**

The objective of the Technical Assistance is to identify indicators, emission factors and measures of CP and assess their technical, financial, economical, environmental and regulatory viability, as well as the impacts associated with its development. The Technical Assistance scope of work includes the following tasks:

##### **Task 1            DETAILED BACKGROUND**

The U.S. Firm shall familiarize itself with the industrial regulatory requirements, (including those that apply to environmental licensing) of CETESB, as well as state, local and federal governments. The U.S. Firm shall assess and become familiar with the Technical Assistance area and the type of industrial facilities that require CETESB's greater attention because of their potential wastewater pollution discharge.

##### **Task 2            TECHNICAL ASSISTANCE MANAGEMENT PLAN**

The U.S. Firm shall organize a meeting at the completion of Task 1 to exchange ideas and develop an integrated management plan for all components of the Technical

Assistance. The U.S. Firm shall coordinate activities with all Technical Assistance team members including the U.S. Firm's staff and CETESB personnel. The U.S. Firm shall prepare a detailed management plan outlining the responsibilities of both entities. The management plan must not conflict with these Terms of Reference in any way.

**Deliverable:** The U.S. Firm shall prepare and deliver to the Grantee a detailed report containing the information reviewed, work performed, and recommendations within Tasks 1 and 2.

**Task 3 IDENTIFICATION OF INDUSTRIAL SECTORS, COMPANIES AND INDUSTRIAL DISCHARGE CHARACTERIZATION**

The U.S. Firm and CETESB shall discuss potential industrial sectors (at least 6 sectors) and potential companies (5 companies in each industrial sector) to be analyzed by the U.S. Firm. CETESB shall approve the sectors and companies to be analyzed. Upon approval by CETESB, the U.S. Firm and CETESB shall visit all selected companies before beginning the sampling program. Sectors may include, but shall not be limited to: textiles, beverage, pulp and paper, processed meats and slaughter houses.

The analysis shall aim to determine the amount of water used in the industrial processes, the flow of raw sewage generated by the companies and the concentration of major pollutants. Consequently, the U.S. Firm shall analyze these parameters to obtain information on the quantity of raw material processed and quantity of products. The U.S. Firm shall use this information to determine emission factors (specific loads and flows).

**Subtask 3.1 DEFINITION OF SAMPLING METHODOLOGY**

The U.S. Firm, in consultation with and upon approval by CETESB, shall define the procedures to be used in the qualitative and quantitative characterization of the listed companies' raw sewage as well as how to obtain the quantities of raw material processed or quantity of products manufactured.

The U.S. Firm, in consultation with and upon approval by CETESB, shall determine the collection points for each company and where the samples should be carried out, the number and type of samples (single or composite volume of fixed or proportional to flow of sewage) and the sampling period. The U.S. Firm, in consultation with and upon approval by CETESB, shall also set the parameters to be sampled in the field and to be analyzed in the laboratory. The U.S. Firm shall be responsible for collecting and analyzing the samples. The U.S. Firm shall report the analytical data in the format agreed upon by CETESB.

The sampling campaigns shall be carried out on the raw sewage generated in the manufacturing process of each selected company during the whole period of operation. Each sample to be analyzed is composed of fraction samples "aliquots" collected on an hourly basis directly from the raw sewage generated in the manufacturing process.

The tests shall be performed by the Brazilian National Institute of Metrology, Standardization and Industrial Quality (INMETRO), accredited laboratories for the parameters to be analyzed in accordance with the Brazilian standard ABNT NBR ISO / IEC 17025. The ABNT NBR ISO/IEC 17025 standard is a translated version of the ISO/IEC 17025 standard.

### **Subtask 3.2 ASSESSMENT OF EMISSION FACTORS (Specific Loads and Flows)**

After conducting the sampling campaigns, the U.S. Firm shall submit a Preliminary Report for each sector. The report shall include the data obtained from the qualitative and quantitative characterization of raw sewage from each company. The U.S. Firm shall utilize the data to estimate the amount of raw materials and/or manufactured products used at industrial facilities.

Utilizing the information obtained in Task 3, the U.S. Firm shall document the emission factors (specific loads and flows) for each company and sector selected and provide all the results from laboratory reports. The results shall be provided in a table format established in consultation with CETESB. The U.S. Firm shall also create a database in a user-friendly computer program which CETESB may use to update the data on the companies analyzed and to add new companies and their waste characterization data to the system in the future.

**Deliverable:** The U.S. Firm shall prepare and deliver to the Grantee a detailed report containing the information reviewed, work performed, and recommendations within Task 3.

### **Task 4 IDENTIFICATION OF AVAILABLE CLEANER PRODUCTION PRACTICES AND ENVIRONMENTAL GAINS**

The U.S. Firm shall conduct extensive research on the best internationally adopted cleaner production (CP) practices available in each of the sectors identified in Task 3. Utilizing the information and research from previous tasks, the U.S. Firm shall identify the key CP practices that are commercially available to reduce both flow and load in the industrial sectors evaluated. Practices may include, but are not limited to technologies, procedures, and less toxic or environmentally noxious substances. These practices shall include technologies that focus on the following:

- Improvement of products, optimize processes;
- Substitution of raw materials;
- Changes in operational practices;
- Reuse of water in and out of production facilities; and
- Other options for reducing consumption of water and generation effluent (quantitatively and qualitatively).

The U.S. Firm shall consolidate this information into a database using commercially available software. The database and software shall be compatible with the systems currently used by CETESB and shall allow for keyword searches and CETESB future updates.

The U.S. firm shall recommend actions needed for each CP practice by providing technical specifications and configurations for the systems and equipment, specific training, and operation and maintenance. Changes in product quality arising from CP adoption shall also be identified by the U.S. Firm.

The U.S. Firm shall identify and quantify the major environmental benefits as indicators in the same measurement unit that the emission factors were calculated in Task 3. These benefits shall, at minimum, include reduction in the following:

- Water consumption;
- Waste generation;
- Pollution; and
- Other potential reductions in other environmental impacts (generation of waste, odor, reduced energy consumption, etc.).

The U.S. Firm shall also identify and document any potential negative impacts and discuss the extent to which they can be mitigated. The U.S. Firm shall identify and document any increase in the following:

- Water consumption;
- Waste generation;
- Pollution; and
- Other potential reductions in other environmental impacts (generation of waste, odor, reduced energy consumption, etc.).

**Deliverable: The U.S. Firm shall prepare and deliver to the Grantee a detailed report containing the information reviewed, work performed, and recommendations within Task 4.**

## **Task 5 FEASIBILITY ANALYSIS**

### **Subtask 5.1 Technical Assessment of Cleaner Production Technologies (CPT) Implementation**

For each industrial sector under consideration, the U.S. Firm shall prepare a technical assessment of the CPT projects which shall include, but will not be limited to, the analysis of the following factors:

- Industrial systems engineering and design parameters, complexities, and limitations;
- Constructability and identification of major problem areas;
- Operability, including operating costs and personnel needs;
- Maintenance requirements, personnel needs and costs;
- Long-term adaptability and its effects on the existing production system; and
- Life cycle costs.

### **Subtask 5.2 Economic Analysis of CPT Implementation**

The U.S. Firm shall prepare an economic analysis to assess the benefits and disadvantages of the implementation of CPT projects. This analysis shall contain, at a minimum, the estimated cost of deployment and operation as well as the potential cost savings of each CPT considered. The analysis shall also evaluate the return on investments in each CPT investigated.

The U.S. Firm shall examine the economic benefits of using CPT in each industrial sector as compared to using the existing production and management technology. To this end, the analysis shall take into account all avoidable wastewater management costs and environmental impacts and their associated economic costs.

The U.S. Firm shall estimate the economic and financial impacts of the investment by comparing current socioeconomic conditions (without the CPT) to future socioeconomic scenarios (with successful implementation of CPT).

### **Subtask 5.3 Financial Analysis of CPT Implementation**

The U.S. Firm shall prepare a general financial analysis related to the implementation of CPT in each industrial sector investigated. The financial analysis shall help CETESB and industrial wastewater generators in seeking and obtaining CPT project financing. The financial analysis shall satisfy the requirements of prospective funding institutions, which shall be identified by CETESB at the onset of the Technical Assistance.

**Subtask 5.4 Human Health and Environmental Impact Assessment of CPT Implementation**

The U.S. Firm shall identify, discuss, and analyze the human health and environmental impacts that would originate from CPT's implementation. The U.S. Firm shall compare current human health and environmental impacts (without the CPT) to future human health and environmental impacts (with successful implementation of CPT).

The environmental impact assessment shall be carried out in accordance with CETESB and the Government of Brazil's regulations and shall be based on the information and data provided by CETESB and industrial wastewater generators.

**Subtask 5.5 Water Resources System Impact Assessment of CPT Implementation**

Using baseline data provided by CETESB, the U.S. Firm shall identify the positive and negative short-term and long-term impacts on groundwater and surface water systems which could result from CPT implementation. The assessment shall include the identification and discussion of mitigation measures available to reduce impacts on current water resources. CETESB and industrial wastewater generators shall provide all the data and information required for the assessment of water quality impacts.

**Subtask 5.6 Ecological Impact Assessment of CPT Implementation**

The U.S. Firm shall analyze the short-term and long-term impacts on sensitive life forms and ecological systems resulting from CPT implementation. The assessment shall include the identification and discussion of available mitigation measures that reduce negative impacts to the greatest extent possible. CETESB shall provide all the required data and information for the assessment of the project's potential ecological impacts.

**Subtask 5.7 Socioeconomic Impact Assessment of CPT Implementation**

The U.S. Firm shall identify, discuss and analyze short-term and long-term impacts on human health and well-being, employment, income, education, business growth, economic production, and commercial and industrial activities that may result from CPT implementation.

**Deliverable:** The U.S. Firm shall prepare and deliver to the Grantee a detailed report containing the information reviewed, work performed, and recommendations within Task 5.

**Task 6 DEVELOPMENTAL IMPACT ASSESSMENT**

The environmental, technical, economic and financial analysis discussed above should

serve as a basis for assessing the potential development impact of the Project. For the benefit of those interested in the Project, the U.S. Firm shall assess the Project's developmental benefits and establish a methodology to measure these benefits for up to five years after completion of the Technical Assistance. The assessment should include examples of what is expected to result if the Project is implemented as described in the Final Report.

The U.S. Firm shall focus on specific examples from the categories listed below, including identifying how and where to acquire the information to assess these impacts in the future. The U.S. Firm shall list only benefits in the categories applicable to the Project. The categories to be considered are:

- **Infrastructure:** Estimate the scale of the expected acquisition of technology and construction of related infrastructure.
- **Human Capacity Building:** Estimate the number and type of jobs that would be necessary if the recommendations were implemented. Distinguish between temporary jobs and permanent jobs that would be created or maintained. Comment on any prospective training recommended in the Final Report, including an estimate of the number of persons to be trained, type of training required and desired outcome of training. The estimate for the creation of jobs may be approximated or based on order of magnitude.
- **Technology Transfer and Productivity Improvement:** Discuss recommended commercial contracts for new technologies and the expected benefits. Additionally, discuss the expected efficiency gains from these recommendations. The U.S. Firm shall also describe the possible resulting improvements in quality and volume of water. The U.S. Firm shall provide estimates of all expected productivity gains from against which future improvements can be measured.
- **Market-oriented reform:** Discuss any market-oriented reforms that would facilitate implementation of the Project or that would result from Project implementation, such as policy changes that effectuate liberalization of prices, changes in tax policy and tariffs, privatization of state-owned assets, or increased competition in a particular sector.
- **Other:** Discuss prospective indirect development impacts of key recommendations, such as improved safety and economic benefits (including increases in industrial productivity, investment and indirect job creation) that are not captured in the four categories listed above.

The U.S. Firm may discuss other relevant social and economic factors such as the effects on turnover, employment generation, collection of taxes, impacts on businesses and their owners, and any other social and economical indicators.

**Deliverable: The U.S. Firm shall prepare and deliver to the Grantee a detailed report containing the information reviewed, work performed, and recommendations within Task 6.**

**Task 7            EVALUATION OF INTERNATIONAL REGULATORY PROGRAMS**

The U.S. Firm shall review relevant CP regulatory programs implemented in the US and three other countries (at a minimum), at least one of which is considered a “developing” country. The emphasis shall be on documenting successful programs in the area of water reduction and effluents generation reduction. For each program identified, the U.S. Firm shall review and assess each regulatory program, including, but not limited to, the following:

- Institution responsible for the program and the contact person;
- Criteria for eligibility of companies;
- Criteria for selection of indicators and/or parameters;
- Methodology for setting targets for reduction;
- Description of the databases and emission factors used;
- Methodology of work and rules of operation of the program;
- Voluntary actions and mandates and the related benefits and enforcement actions;
- Stakeholders’ (industry, public, government agencies, etc.) responsibilities in the development, implementation and operation of the program;
- Description of the institutional structure (including the effects of taxes / incentives and legal purposes) required for the program;
- Identification of the economic data (costs/sources of revenue) for the operation of the program;
- Identification of the purpose of the program including the types and degree of investment in production processes that are more efficient in terms of operations and maintenance costs;
- Identification of the overall effect of the program at the local, regional and/or global level, as well as benefits for employment growth;

- Identification of any financial assistance programs, including grants or loans that are available to assist industrial facilities; and
- Other relevant information that may help CETESB in developing a similar program.

**Deliverable:** The U.S. Firm shall prepare and deliver to the Grantee a detailed report containing the information reviewed, work performed, and recommendations within Task 7.

#### **Task 8            PROPOSED REGULATORY MECHANISM AND WORKSHOP**

Based on the results of Task 7, the U.S. Firm shall identify, recommend and document a proposed regulatory mechanism for implementing CP through CETESB's current licensing process. The U.S. Firm shall clearly state the benefits of the proposed regulatory mechanism to CETESB.

The U.S. Firm shall discuss the regulatory mechanism with representatives from the selected industrial sectors. In some cases, this discussion may be done through CETESB's Environmental Chambers. These are multi stakeholder discussion *fora* aimed at fostering environmental improvements through the permanent interaction between government and productive sectors. In the case of sectors not enrolled in an active environmental chamber, the discussion may be done through the Federação das Indústrias do Estado de Sao Paulo, FIESP/CIESP, which are Sao Paulo state's industrial associations. CETESB will be responsible for organizing the meetings with each Environmental Chamber or Industrial Federation (FIESP/CIESP) representatives. CETESB will identify and prepare the venue and perform all activities related to the notification and meeting of the participants.

The U.S. Firm shall arrange a one-day Technical Workshop after the completion of Task 8 to present and discuss proposals for the regulatory mechanism. The U.S. Firm will coordinate the Technical Workshop with CETESB staff and companies' representatives. The U.S. Firm will be responsible for preparing and disseminating all materials for the Technical Workshop.

The U.S. Firm shall use the results of this workshop to review the proposed regulatory mechanism.

As part of this task, the U.S. Firm shall develop a computer program to link the recommended regulatory mechanism for implementing CP to the existing CETESB system for environmental licensing. The U.S. Firm shall prepare a Technical Report containing an Implementation Plan for measures studied during the Technical Assistance, including recommended strategies for inclusion of CP regulation in the environmental licensing process and a clear explanation of its benefits to CETESB.

**Deliverable:** The U.S. Firm shall be responsible for the simultaneous translation and consolidation of the results in a Workshop Report containing the agenda, list of participants, topics discussed, issues raised, and subsequent activities if this is the case. The U.S. Firm shall prepare and deliver to the Grantee a detailed report containing the information reviewed, work performed, and recommendations within Task 8.

**Task 9 IDENTIFICATION OF U.S. SOURCES OF TECHNOLOGY**

The U.S. Firm shall assess the availability of sources of U.S. technology for the recommended CPT and related components suggested for each industrial sector, including wastewater treatment reuse technology. The U.S. Firm shall provide general but prescriptive technical specifications for the equipment, as well as, the manufacturer's business name, point of contact, address, website, telephone and fax numbers, and email address. The U.S. Firm shall contact the identified U.S. manufacturers to discuss this project and its potential business opportunities. The U.S. Firm shall gauge U.S. manufacturers' interest in participating in the CPT procurement process and document the findings in the Final Report.

**Deliverable: Technical Memorandum**

**Task 10 CPT IMPLEMENTATION PLAN**

The U.S. Firm shall prepare an overall plan for CPT implementation. The implementation plan shall include a timeline for the potential acquisition of the recommended CPT and related services needed in each industrial sector investigated. The U.S. Firm shall not be responsible for any work associated with publicizing bidding documents or evaluating proposals under any procurement activity related to this Project.

**Deliverable: Technical Memorandum**

**Task 11 FINAL REPORT**

The U.S. Firm shall prepare and deliver a substantive and comprehensive final report of all work performed under these Terms of Reference ("Final Report") to CETESB and USTDA. The Final Report shall be organized according to the above tasks and shall include all deliverables and documents that have been provided to CETESB. The Final Report shall be prepared in accordance with Clause I of Annex II of the Grant Agreement.

**Deliverable: Final Report**

Notes:

- (1) The U.S. Firm is responsible for compliance with U.S. export licensing requirements, if applicable, in the performance of the Terms of Reference.
- (2) The U.S. Firm and CETESB shall be careful to ensure that the public version of the Final Report contains no security or confidential information.
- (3) CETESB and USTDA shall have an irrevocable, worldwide, royalty-free, non-exclusive right to use and distribute the Final Report and all work product that is developed under these Terms of Reference.
- (4) CETESB shall be responsible for all procurement-related final decisions.

## Annex II

### **USTDA Mandatory Agreement of Understanding to Perform the Technical Assistance Clauses**

#### **A. USTDA Mandatory Clauses Controlling**

The parties to this Agreement of Understanding to Perform the Technical Assistance ("Agreement of Understanding") acknowledge that this Agreement of Understanding is funded in whole or in part by the U.S. Trade and Development Agency ("USTDA") under the Grant Agreement between the Government of the United States of America acting through USTDA and the Companhia Ambiental do Estado de São Paulo ("Client"), dated \_\_\_\_\_ ("Grant Agreement"). The Client has selected \_\_\_\_\_ ("U.S. Firm") to perform the technical assistance ("Technical Assistance") for the Technologies for Industrial Water Discharge Reduction in São Paulo Project ("Project") in Brazil ("Host Country"). Notwithstanding any other provisions of this Agreement of Understanding, the following USTDA mandatory Agreement of Understanding clauses shall govern. All sub-agreements entered into by the U.S. Firm funded or partially funded with USTDA Grant funds shall include these USTDA mandatory Agreement of Understanding clauses, except for clauses B(1), G, H, I, and J. In addition, in the event of any inconsistency between the Grant Agreement and any Agreement of Understanding or sub-agreement thereunder, the Grant Agreement shall be controlling.

#### **B. USTDA as Financier**

##### **(1) USTDA Approval of Agreement of Understanding**

All agreements of understanding funded under the Grant Agreement, and any amendments thereto, including assignments and changes in the Terms of Reference, must be approved by USTDA in writing in order to be effective with respect to the expenditure of USTDA Grant funds. USTDA will not authorize the disbursement of USTDA Grant funds until the Agreement of Understanding has been formally approved by USTDA or until the Agreement of Understanding conforms to modifications required by USTDA during the Agreement of Understanding review process.

##### **(2) USTDA Not a Party to the Agreement of Understanding**

It is understood by the parties that USTDA has reserved certain rights such as, but not limited to, the right to approve the terms of this Agreement of Understanding and amendments thereto, including assignments, the selection of all U.S. Firms, the Terms of Reference, the Final Report, and any and all documents related to any Agreement of Understanding funded under the Grant Agreement. The parties hereto further understand and agree that USTDA, in reserving any or all of the foregoing approval rights, has acted solely as a financing entity to assure the proper use of United States

Government funds, and that any decision by USTDA to exercise or refrain from exercising these approval rights shall be made as a financier in the course of financing the Technical Assistance and shall not be construed as making USTDA a party to the Agreement of Understanding. The parties hereto understand and agree that USTDA may, from time to time, exercise the foregoing approval rights, or discuss matters related to these rights and the Project with the parties to the Agreement of Understanding or any sub-agreement, jointly or separately, without thereby incurring any responsibility or liability to such parties. Any approval or failure to approve by USTDA shall not bar the Client or USTDA from asserting any right they might have against the U.S. Firm, or relieve the U.S. Firm of any liability which the U.S. Firm might otherwise have to the Client or USTDA.

### **C. Nationality, Source and Origin**

Except as USTDA may otherwise agree, the following provisions shall govern the delivery of goods and services funded by USTDA under the Grant Agreement: (a) for professional services, the U.S. Firm must be either a U.S. firm or U.S. individual; (b) the U.S. Firm may use U.S. subcontractors without limitation, but the use of subcontractors from Host Country may not exceed twenty percent (20%) of the USTDA Grant amount and may only be used for specific services from the Terms of Reference identified in the subcontract; (c) employees of U.S. Firm or U.S. subcontractors responsible for professional services shall be U.S. citizens or non-U.S. citizens lawfully admitted for permanent residence in the U.S.; (d) goods purchased for performance of the Technical Assistance and associated delivery services (e.g., international transportation and insurance) must have their nationality, source and origin in the United States; and (e) goods and services incidental to Technical Assistance support (e.g., local lodging, food, and transportation) in Host Country are not subject to the above restrictions. USTDA will make available further details concerning these provisions upon request.

### **D. Recordkeeping and Audit**

The U.S. Firm and subcontractors funded under the Grant Agreement shall maintain, in accordance with generally accepted accounting procedures, books, records, and other documents, sufficient to reflect properly all transactions under or in connection with the Agreement of Understanding. These books, records, and other documents shall clearly identify and track the use and expenditure of USTDA funds, separately from other funding sources. Such books, records, and documents shall be maintained during the Agreement of Understanding term and for a period of three (3) years after final disbursement by USTDA. The U.S. Firm and subcontractors shall afford USTDA, or its authorized representatives, the opportunity at reasonable times for inspection and audit of such books, records, and other documentation.

## **E. U.S. Carriers**

### **(1) Air**

Transportation by air of persons or property funded under the Grant Agreement shall be on U.S. flag carriers in accordance with the Fly America Act, 49 U.S.C. 40118, to the extent service by such carriers is available, as provided under applicable U.S. Government regulations.

### **(2) Marine**

Transportation by sea of property funded under the Grant Agreement shall be on U.S. carriers in accordance with U.S. cargo preference law.

## **F. Workman's Compensation Insurance**

The U.S. Firm shall provide adequate Workman's Compensation Insurance coverage for work performed under this Agreement of Understanding.

## **G. Reporting Requirements**

The U.S. Firm shall advise USTDA by letter as to the status of the Project on March 1st annually for a period of two (2) years after completion of the Technical Assistance. In addition, if at any time the U.S. Firm receives follow-on work from the Client, the U.S. Firm shall so notify USTDA and designate the U.S. Firm's contact point including name, telephone, and fax number. Since this information may be made publicly available by USTDA, any information which is confidential shall be designated as such by the U.S. Firm and provided separately to USTDA. USTDA will maintain the confidentiality of such information in accordance with applicable law.

## **H. Disbursement Procedures**

### **(1) USTDA Approval of Agreement of Understanding**

Disbursement of Grant funds will be made only after USTDA approval of this Agreement of Understanding. To make this review in a timely fashion, USTDA must receive from either the Client or the U.S. Firm a photocopy of an English language version of a signed Agreement of Understanding or a final negotiated draft version to the attention of the General Counsel's office at USTDA's address listed in Clause M below.

## **(2) Payment Schedule Requirements**

A payment schedule for disbursement of Grant funds to the U.S. Firm shall be included in this Agreement of Understanding. Such payment schedule must conform to the following USTDA requirements: (1) up to twenty percent (20%) of the total USTDA Grant amount may be used as a mobilization payment; (2) all other payments, with the exception of the final payment, shall be based upon Agreement of Understanding performance milestones; and (3) the final payment may be no less than fifteen percent (15%) of the total USTDA Grant amount, payable upon receipt by USTDA of an approved Final Report in accordance with the specifications and quantities set forth in Clause I below. Invoicing procedures for all payments are described below.

## **(3) U.S. Firm Invoice Requirements**

USTDA will make all disbursements of USTDA Grant funds directly to the U.S. Firm. The U.S. Firm must provide USTDA with an ACH Vendor Enrollment Form (available from USTDA) with the first invoice. The Client shall request disbursement of funds by USTDA to the U.S. Firm for performance of the contract by submitting the following to USTDA:

### **(a) U.S. Firm's Invoice**

The U.S. Firm's invoice shall include reference to an item listed in the Contract payment schedule, the requested payment amount, and an appropriate certification by the U.S. Firm, as follows:

#### **(i) For a mobilization payment (if any):**

"As a condition for this mobilization payment, the U.S. Firm certifies that it will perform all work in accordance with the terms of its Agreement of Understanding with the Client. To the extent that the U.S. Firm does not comply with the terms and conditions of the Agreement of Understanding, including the USTDA mandatory provisions contained therein, it will, upon USTDA's request, make an appropriate refund to USTDA."

#### **(ii) For Agreement of Understanding performance milestone payments:**

"The U.S. Firm has performed the work described in this invoice in accordance with the terms of its Agreement of Understanding with the Client and is entitled to payment thereunder. To the extent the U.S. Firm has not complied with the terms and conditions of the Agreement of Understanding, including the USTDA mandatory provisions contained therein, it will, upon USTDA's request, make an appropriate refund to USTDA."

(iii) For final payment:

"The U.S. Firm has performed the work described in this invoice in accordance with the terms of its Agreement of Understanding with the Client and is entitled to payment thereunder. Specifically, the U.S. Firm has submitted the Final Report to the Client, as required by the Agreement of Understanding, and received the Client's approval of the Final Report. To the extent the U.S. Firm has not complied with the terms and conditions of the Agreement of Understanding, including the USTDA mandatory provisions contained therein, it will, upon USTDA's request, make an appropriate refund to USTDA."

**(b) Client's Approval of the U.S. Firm's Invoice**

(i) The invoice for a mobilization payment must be approved in writing by the Client.

(ii) For Agreement of Understanding performance milestone payments, the following certification by the Client must be provided on the invoice or separately:

"The services for which disbursement is requested by the U.S. Firm have been performed satisfactorily, in accordance with applicable Agreement of Understanding provisions and the terms and conditions of the USTDA Grant Agreement."

(iii) For final payment, the following certification by the Client must be provided on the invoice or separately:

"The services for which disbursement is requested by the U.S. Firm have been performed satisfactorily, in accordance with applicable Agreement of Understanding provisions and terms and conditions of the USTDA Grant Agreement. The Final Report submitted by the U.S. Firm has been reviewed and approved by the Client. "

**(c) USTDA Address for Disbursement Requests**

Requests for disbursement shall be submitted by courier or mail to the attention of the Finance Department at USTDA's address listed in Clause M below.

**(4) Termination**

In the event that the Agreement of Understanding is terminated prior to completion, the U.S. Firm will be eligible, subject to USTDA approval, for reasonable and documented costs which have been incurred in performing the Terms of Reference prior to termination, as well as reasonable wind down expenses. Reimbursement for such costs shall not exceed the total amount of undisbursed Grant funds. Likewise, in

the event of such termination, USTDA is entitled to receive from the U.S. Firm all USTDA Grant funds previously disbursed to the U.S. Firm (including but not limited to mobilization payments) which exceed the reasonable and documented costs incurred in performing the Terms of Reference prior to termination.

## **I. USTDA Final Report**

### **(1) Definition**

"Final Report" shall mean the Final Report described in the attached Annex I Terms of Reference or, if no such "Final Report" is described therein, "Final Report" shall mean a substantive and comprehensive report of work performed in accordance with the attached Annex I Terms of Reference, including any documents delivered to the Client.

### **(2) Final Report Submission Requirements**

The U.S. Firm shall provide the following to USTDA:

(a) One (1) complete version of the Final Report for USTDA's records. This version shall have been approved by the Client in writing and must be in the English language. It is the responsibility of the U.S. Firm to ensure that confidential information, if any, contained in this version be clearly marked. USTDA will maintain the confidentiality of such information in accordance with applicable law.

and

(b) One (1) copy of the Final Report suitable for public distribution ("Public Version"). The Public Version shall have been approved by the Client in writing and must be in the English language. As this version will be available for public distribution, it must not contain any confidential information. If the report in (a) above contains no confidential information, it may be used as the Public Version. In any event, the Public Version must be informative and contain sufficient Project detail to be useful to prospective equipment and service providers.

and

(c) Two (2) CD-ROMs, each containing a complete copy of the Public Version of the Final Report. The electronic files on the CD-ROMs shall be submitted in a commonly accessible read-only format. As these CD-ROMs will be available for public distribution, they must not contain any confidential information. It is the responsibility of the U.S. Firm to ensure that no confidential information is contained on the CD-ROMs.

The U.S. Firm shall also provide one (1) copy of the Public Version of the Final Report to the Foreign Commercial Service Officer or the Economic Section of the U.S. Embassy in Host Country for informational purposes.

### **(3) Final Report Presentation**

All Final Reports submitted to USTDA must be paginated and include the following:

**(a)** The front cover of every Final Report shall contain the name of the Client, the name of the U.S. Firm who prepared the report, a report title, USTDA's logo, USTDA's mailing and delivery addresses. If the complete version of the Final Report contains confidential information, the U.S. Firm shall be responsible for labeling the front cover of that version of the Final Report with the term "Confidential Version." The U.S. Firm shall be responsible for labeling the front cover of the Public Version of the Final Report with the term "Public Version." The front cover of every Final Report shall also contain the following disclaimer:

"This report was funded by the U.S. Trade and Development Agency (USTDA), an agency of the U. S. Government. The opinions, findings, conclusions or recommendations expressed in this document are those of the author(s) and do not necessarily represent the official position or policies of USTDA. USTDA makes no representation about, nor does it accept responsibility for, the accuracy or completeness of the information contained in this report."

**(b)** The inside front cover of every Final Report shall contain USTDA's logo, USTDA's mailing and delivery addresses, and USTDA's mission statement. Camera-ready copy of USTDA Final Report specifications will be available from USTDA upon request.

**(c)** The U.S. Firm shall affix to the front of the CD-ROM a label identifying the Host Country, USTDA Activity Number, the name of the Client, the name of the U.S. Firm who prepared the report, a report title, and the following language:

"The U.S. Firm certifies that this CD-ROM contains the Public Version of the Final Report and that all contents are suitable for public distribution."

**(d)** The U.S. Firm and any subcontractors that perform work pursuant to the Grant Agreement must be clearly identified in the Final Report. Business name, point of contact, address, telephone and fax numbers shall be included for U.S. Firm and each subcontractor.

**(e)** The Final Report, while aiming at optimum specifications and characteristics for the Project, shall identify the availability of prospective U.S. sources of supply. Business name, point of contact, address, telephone and fax numbers shall be included for each commercial source.

(f) The Final Report shall be accompanied by a letter or other notation by the Client which states that the Client approves the Final Report. A certification by the Client to this effect provided on or with the invoice for final payment will meet this requirement.

#### **J. Modifications**

All changes, modifications, assignments or amendments to this Agreement of Understanding, including the appendices, shall be made only by written agreement by the parties hereto, subject to written USTDA approval.

#### **K. Technical Assistance Schedule**

##### **(1) Technical Assistance Completion Date**

The completion date for the Technical Assistance, which is July 31, 2010, is the date by which the parties estimate that the Technical Assistance will have been completed.

##### **(2) Time Limitation on Disbursement of USTDA Grant Funds**

Except as USTDA may otherwise agree, (a) no USTDA funds may be disbursed under this Agreement of Understanding for goods and services which are provided prior to the Effective Date of the Grant Agreement; and (b) all funds made available under the Grant Agreement must be disbursed within four (4) years from the Effective Date of the Grant Agreement.

#### **L. Business Practices**

The U.S. Firm agrees not to pay, promise to pay, or authorize the payment of any money or anything of value, directly or indirectly, to any person (whether a governmental official or private individual) for the purpose of illegally or improperly inducing anyone to take any action favorable to any party in connection with the Technical Assistance. The Client agrees not to receive any such payment. The U.S. Firm and the Client agree that each will require that any agent or representative hired to represent them in connection with the Technical Assistance will comply with this paragraph and all laws which apply to activities and obligations of each party under this Agreement of Understanding, including but not limited to those laws and obligations dealing with improper payments as described above.

#### **M. USTDA Address and Fiscal Data**

Any communication with USTDA regarding this Agreement of Understanding shall be sent to the following address and include the fiscal data listed below:

U.S. Trade and Development Agency  
1000 Wilson Boulevard, Suite 1600  
Arlington, Virginia 22209-3901  
USA

Phone: (703) 875-4357  
Fax: (703) 875-4009

Fiscal Data:

Appropriation No.:	119/101001
Activity No.:	2009-51006A
Reservation No.:	2009510012
Grant No.:	GH2009510006

**N. Definitions**

All capitalized terms not otherwise defined herein shall have the meaning set forth in the Grant Agreement.

**O. Taxes**

USTDA funds provided under the Grant Agreement shall not be used to pay any taxes, tariffs, duties, fees or other levies imposed under laws in effect in Host Country. Neither the Client nor the U.S. Firm will seek reimbursement from USTDA for such taxes, tariffs, duties, fees or other levies.

## Annex I

### Terms of Reference

#### **BACKGROUND**

Companhia Ambiental do Estado de São Paulo (CETESB), currently regulates over 100,000 industrial facilities in the State of São Paulo, the most industrialized state in Brazil. CETESB surmises that industrial facilities generate an excessive volume of wastewater due to the use of outdated industrial processes. CETESB is interested in identifying cleaner technology for reducing water use and industrial wastewater generation. This Technical Assistance shall assess the potential for industrial wastewater discharge reduction through the replacement of outdated industrial processes with more environmental friendly technology. This cleaner technology can reduce water use and wastewater generation.

The Technical Assistance will, among other things, provide performance indicators for the wastewater generation of different categories of industrial facilities and different Cleaner Production (CP) practices to CETESB. These indicators will be used as part of a regulatory program that proposes to apply these CP technologies in the environmental permitting renewal of select industrial facilities. As a result of stricter limits for pollutant loads for potential wastewater, CETESB presumes that industrial facilities will be induced to switch to cleaner technologies or processes.

#### **OBJECTIVE OF THE TECHNICAL ASSISTANCE AND SCOPE OF WORK**

The objective of the Technical Assistance is to identify indicators, emission factors and measures of CP and assess their technical, financial, economical, environmental and regulatory viability, as well as the impacts associated with its development. The Technical Assistance scope of work includes the following tasks:

##### **Task 1            DETAILED BACKGROUND**

The U.S. Firm shall familiarize itself with the industrial regulatory requirements, (including those that apply to environmental licensing) of CETESB, as well as state, local and federal governments. The U.S. Firm shall assess and become familiar with the Technical Assistance area and the type of industrial facilities that require CETESB's greater attention because of their potential wastewater pollution discharge.

##### **Task 2            TECHNICAL ASSISTANCE MANAGEMENT PLAN**

The U.S. Firm shall organize a meeting at the completion of Task 1 to exchange ideas and develop an integrated management plan for all components of the Technical

Assistance. The U.S. Firm shall coordinate activities with all Technical Assistance team members including the U.S. Firm's staff and CETESB personnel. The U.S. Firm shall prepare a detailed management plan outlining the responsibilities of both entities. The management plan must not conflict with these Terms of Reference in any way.

**Deliverable:** The U.S. Firm shall prepare and deliver to the Grantee a detailed report containing the information reviewed, work performed, and recommendations within Tasks 1 and 2.

**Task 3 IDENTIFICATION OF INDUSTRIAL SECTORS, COMPANIES AND INDUSTRIAL DISCHARGE CHARACTERIZATION**

The U.S. Firm and CETESB shall discuss potential industrial sectors (at least 6 sectors) and potential companies (5 companies in each industrial sector) to be analyzed by the U.S. Firm. CETESB shall approve the sectors and companies to be analyzed. Upon approval by CETESB, the U.S. Firm and CETESB shall visit all selected companies before beginning the sampling program. Sectors may include, but shall not be limited to: textiles, beverage, pulp and paper, processed meats and slaughter houses.

The analysis shall aim to determine the amount of water used in the industrial processes, the flow of raw sewage generated by the companies and the concentration of major pollutants. Consequently, the U.S. Firm shall analyze these parameters to obtain information on the quantity of raw material processed and quantity of products. The U.S. Firm shall use this information to determine emission factors (specific loads and flows).

**Subtask 3.1 DEFINITION OF SAMPLING METHODOLOGY**

The U.S. Firm, in consultation with and upon approval by CETESB, shall define the procedures to be used in the qualitative and quantitative characterization of the listed companies' raw sewage as well as how to obtain the quantities of raw material processed or quantity of products manufactured.

The U.S. Firm, in consultation with and upon approval by CETESB, shall determine the collection points for each company and where the samples should be carried out, the number and type of samples (single or composite volume of fixed or proportional to flow of sewage) and the sampling period. The U.S. Firm, in consultation with and upon approval by CETESB, shall also set the parameters to be sampled in the field and to be analyzed in the laboratory. The U.S. Firm shall be responsible for collecting and analyzing the samples. The U.S. Firm shall report the analytical data in the format agreed upon by CETESB.

The sampling campaigns shall be carried out on the raw sewage generated in the manufacturing process of each selected company during the whole period of operation. Each sample to be analyzed is composed of fraction samples "aliquots" collected on an hourly basis directly from the raw sewage generated in the manufacturing process.

The tests shall be performed by the Brazilian National Institute of Metrology, Standardization and Industrial Quality (INMETRO), accredited laboratories for the parameters to be analyzed in accordance with the Brazilian standard ABNT NBR ISO / IEC 17025. The ABNT NBR ISO/IEC 17025 standard is a translated version of the ISO/IEC 17025 standard.

### **Subtask 3.2 ASSESSMENT OF EMISSION FACTORS (Specific Loads and Flows)**

After conducting the sampling campaigns, the U.S. Firm shall submit a Preliminary Report for each sector. The report shall include the data obtained from the qualitative and quantitative characterization of raw sewage from each company. The U.S. Firm shall utilize the data to estimate the amount of raw materials and/or manufactured products used at industrial facilities.

Utilizing the information obtained in Task 3, the U.S. Firm shall document the emission factors (specific loads and flows) for each company and sector selected and provide all the results from laboratory reports. The results shall be provided in a table format established in consultation with CETESB. The U.S. Firm shall also create a database in a user-friendly computer program which CETESB may use to update the data on the companies analyzed and to add new companies and their waste characterization data to the system in the future.

**Deliverable: The U.S. Firm shall prepare and deliver to the Grantee a detailed report containing the information reviewed, work performed, and recommendations within Task 3.**

### **Task 4 IDENTIFICATION OF AVAILABLE CLEANER PRODUCTION PRACTICES AND ENVIRONMENTAL GAINS**

The U.S. Firm shall conduct extensive research on the best internationally adopted cleaner production (CP) practices available in each of the sectors identified in Task 3. Utilizing the information and research from previous tasks, the U.S. Firm shall identify the key CP practices that are commercially available to reduce both flow and load in the industrial sectors evaluated. Practices may include, but are not limited to technologies, procedures, and less toxic or environmentally noxious substances. These practices shall include technologies that focus on the following:

- Improvement of products, optimize processes;
- Substitution of raw materials;
- Changes in operational practices;
- Reuse of water in and out of production facilities; and
- Other options for reducing consumption of water and generation effluent (quantitatively and qualitatively).

The U.S. Firm shall consolidate this information into a database using commercially available software. The database and software shall be compatible with the systems currently used by CETESB and shall allow for keyword searches and CETESB future updates.

The U.S. firm shall recommend actions needed for each CP practice by providing technical specifications and configurations for the systems and equipment, specific training, and operation and maintenance. Changes in product quality arising from CP adoption shall also be identified by the U.S. Firm.

The U.S. Firm shall identify and quantify the major environmental benefits as indicators in the same measurement unit that the emission factors were calculated in Task 3. These benefits shall, at minimum, include reduction in the following:

- Water consumption;
- Waste generation;
- Pollution; and
- Other potential reductions in other environmental impacts (generation of waste, odor, reduced energy consumption, etc.).

The U.S. Firm shall also identify and document any potential negative impacts and discuss the extent to which they can be mitigated. The U.S. Firm shall identify and document any increase in the following:

- Water consumption;
- Waste generation;
- Pollution; and
- Other potential reductions in other environmental impacts (generation of waste, odor, reduced energy consumption, etc.).

**Deliverable:** The U.S. Firm shall prepare and deliver to the Grantee a detailed report containing the information reviewed, work performed, and recommendations within Task 4.

## **Task 5 FEASIBILITY ANALYSIS**

### **Subtask 5.1 Technical Assessment of Cleaner Production Technologies (CPT) Implementation**

For each industrial sector under consideration, the U.S. Firm shall prepare a technical assessment of the CPT projects which shall include, but will not be limited to, the analysis of the following factors:

- Industrial systems engineering and design parameters, complexities, and limitations;
- Constructability and identification of major problem areas;
- Operability, including operating costs and personnel needs;
- Maintenance requirements, personnel needs and costs;
- Long-term adaptability and its effects on the existing production system; and
- Life cycle costs.

### **Subtask 5.2 Economic Analysis of CPT Implementation**

The U.S. Firm shall prepare an economic analysis to assess the benefits and disadvantages of the implementation of CPT projects. This analysis shall contain, at a minimum, the estimated cost of deployment and operation as well as the potential cost savings of each CPT considered. The analysis shall also evaluate the return on investments in each CPT investigated.

The U.S. Firm shall examine the economic benefits of using CPT in each industrial sector as compared to using the existing production and management technology. To this end, the analysis shall take into account all avoidable wastewater management costs and environmental impacts and their associated economic costs.

The U.S. Firm shall estimate the economic and financial impacts of the investment by comparing current socioeconomic conditions (without the CPT) to future socioeconomic scenarios (with successful implementation of CPT).

### **Subtask 5.3 Financial Analysis of CPT Implementation**

The U.S. Firm shall prepare a general financial analysis related to the implementation of CPT in each industrial sector investigated. The financial analysis shall help CETESB and industrial wastewater generators in seeking and obtaining CPT project financing. The financial analysis shall satisfy the requirements of prospective funding institutions, which shall be identified by CETESB at the onset of the Technical Assistance.

**Subtask 5.4 Human Health and Environmental Impact Assessment of CPT Implementation**

The U.S. Firm shall identify, discuss, and analyze the human health and environmental impacts that would originate from CPT's implementation. The U.S. Firm shall compare current human health and environmental impacts (without the CPT) to future human health and environmental impacts (with successful implementation of CPT).

The environmental impact assessment shall be carried out in accordance with CETESB and the Government of Brazil's regulations and shall be based on the information and data provided by CETESB and industrial wastewater generators.

**Subtask 5.5 Water Resources System Impact Assessment of CPT Implementation**

Using baseline data provided by CETESB, the U.S. Firm shall identify the positive and negative short-term and long-term impacts on groundwater and surface water systems which could result from CPT implementation. The assessment shall include the identification and discussion of mitigation measures available to reduce impacts on current water resources. CETESB and industrial wastewater generators shall provide all the data and information required for the assessment of water quality impacts.

**Subtask 5.6 Ecological Impact Assessment of CPT Implementation**

The U.S. Firm shall analyze the short-term and long-term impacts on sensitive life forms and ecological systems resulting from CPT implementation. The assessment shall include the identification and discussion of available mitigation measures that reduce negative impacts to the greatest extent possible. CETESB shall provide all the required data and information for the assessment of the project's potential ecological impacts.

**Subtask 5.7 Socioeconomic Impact Assessment of CPT Implementation**

The U.S. Firm shall identify, discuss and analyze short-term and long-term impacts on human health and well-being, employment, income, education, business growth, economic production, and commercial and industrial activities that may result from CPT implementation.

**Deliverable:** The U.S. Firm shall prepare and deliver to the Grantee a detailed report containing the information reviewed, work performed, and recommendations within Task 5.

**Task 6 DEVELOPMENTAL IMPACT ASSESSMENT**

The environmental, technical, economic and financial analysis discussed above should

serve as a basis for assessing the potential development impact of the Project. For the benefit of those interested in the Project, the U.S. Firm shall assess the Project's developmental benefits and establish a methodology to measure these benefits for up to five years after completion of the Technical Assistance. The assessment should include examples of what is expected to result if the Project is implemented as described in the Final Report.

The U.S. Firm shall focus on specific examples from the categories listed below, including identifying how and where to acquire the information to assess these impacts in the future. The U.S. Firm shall list only benefits in the categories applicable to the Project. The categories to be considered are:

- **Infrastructure:** Estimate the scale of the expected acquisition of technology and construction of related infrastructure.
- **Human Capacity Building:** Estimate the number and type of jobs that would be necessary if the recommendations were implemented. Distinguish between temporary jobs and permanent jobs that would be created or maintained. Comment on any prospective training recommended in the Final Report, including an estimate of the number of persons to be trained, type of training required and desired outcome of training. The estimate for the creation of jobs may be approximated or based on order of magnitude.
- **Technology Transfer and Productivity Improvement:** Discuss recommended commercial contracts for new technologies and the expected benefits. Additionally, discuss the expected efficiency gains from these recommendations. The U.S. Firm shall also describe the possible resulting improvements in quality and volume of water. The U.S. Firm shall provide estimates of all expected productivity gains from against which future improvements can be measured.
- **Market-oriented reform:** Discuss any market-oriented reforms that would facilitate implementation of the Project or that would result from Project implementation, such as policy changes that effectuate liberalization of prices, changes in tax policy and tariffs, privatization of state-owned assets, or increased competition in a particular sector.
- **Other:** Discuss prospective indirect development impacts of key recommendations, such as improved safety and economic benefits (including increases in industrial productivity, investment and indirect job creation) that are not captured in the four categories listed above.

The U.S. Firm may discuss other relevant social and economic factors such as the effects on turnover, employment generation, collection of taxes, impacts on businesses and their owners, and any other social and economical indicators.

**Deliverable:** The U.S. Firm shall prepare and deliver to the Grantee a detailed report containing the information reviewed, work performed, and recommendations within Task 6.

**Task 7            EVALUATION OF INTERNATIONAL REGULATORY PROGRAMS**

The U.S. Firm shall review relevant CP regulatory programs implemented in the US and three other countries (at a minimum), at least one of which is considered a "developing" country. The emphasis shall be on documenting successful programs in the area of water reduction and effluents generation reduction. For each program identified, the U.S. Firm shall review and assess each regulatory program, including, but not limited to, the following:

- Institution responsible for the program and the contact person;
- Criteria for eligibility of companies;
- Criteria for selection of indicators and/or parameters;
- Methodology for setting targets for reduction;
- Description of the databases and emission factors used;
- Methodology of work and rules of operation of the program;
- Voluntary actions and mandates and the related benefits and enforcement actions;
- Stakeholders' (industry, public, government agencies, etc.) responsibilities in the development, implementation and operation of the program;
- Description of the institutional structure (including the effects of taxes / incentives and legal purposes) required for the program;
- Identification of the economic data (costs/sources of revenue) for the operation of the program;
- Identification of the purpose of the program including the types and degree of investment in production processes that are more efficient in terms of operations and maintenance costs;
- Identification of the overall effect of the program at the local, regional and/or global level, as well as benefits for employment growth;

- Identification of any financial assistance programs, including grants or loans that are available to assist industrial facilities; and
- Other relevant information that may help CETESB in developing a similar program.

**Deliverable:** The U.S. Firm shall prepare and deliver to the Grantee a detailed report containing the information reviewed, work performed, and recommendations within Task 7.

#### **Task 8            PROPOSED REGULATORY MECHANISM AND WORKSHOP**

Based on the results of Task 7, the U.S. Firm shall identify, recommend and document a proposed regulatory mechanism for implementing CP through CETESB's current licensing process. The U.S. Firm shall clearly state the benefits of the proposed regulatory mechanism to CETESB.

The U.S. Firm shall discuss the regulatory mechanism with representatives from the selected industrial sectors. In some cases, this discussion may be done through CETESB's Environmental Chambers. These are multi stakeholder discussion *fora* aimed at fostering environmental improvements through the permanent interaction between government and productive sectors. In the case of sectors not enrolled in an active environmental chamber, the discussion may be done through the Federação das Indústrias do Estado de Sao Paulo, FIESP/CIESP, which are Sao Paulo state's industrial associations. CETESB will be responsible for organizing the meetings with each Environmental Chamber or Industrial Federation (FIESP/CIESP) representatives. CETESB will identify and prepare the venue and perform all activities related to the notification and meeting of the participants.

The U.S. Firm shall arrange a one-day Technical Workshop after the completion of Task 8 to present and discuss proposals for the regulatory mechanism. The U.S. Firm will coordinate the Technical Workshop with CETESB staff and companies' representatives. The U.S. Firm will be responsible for preparing and disseminating all materials for the Technical Workshop.

The U.S. Firm shall use the results of this workshop to review the proposed regulatory mechanism.

As part of this task, the U.S. Firm shall develop a computer program to link the recommended regulatory mechanism for implementing CP to the existing CETESB system for environmental licensing. The U.S. Firm shall prepare a Technical Report containing an Implementation Plan for measures studied during the Technical Assistance, including recommended strategies for inclusion of CP regulation in the environmental licensing process and a clear explanation of its benefits to CETESB.

**Deliverable:** The U.S. Firm shall be responsible for the simultaneous translation and consolidation of the results in a Workshop Report containing the agenda, list of participants, topics discussed, issues raised, and subsequent activities if this is the case. The U.S. Firm shall prepare and deliver to the Grantee a detailed report containing the information reviewed, work performed, and recommendations within Task 8.

**Task 9 IDENTIFICATION OF U.S. SOURCES OF TECHNOLOGY**

The U.S. Firm shall assess the availability of sources of U.S. technology for the recommended CPT and related components suggested for each industrial sector, including wastewater treatment reuse technology. The U.S. Firm shall provide general but prescriptive technical specifications for the equipment, as well as, the manufacturer's business name, point of contact, address, website, telephone and fax numbers, and email address. The U.S. Firm shall contact the identified U.S. manufacturers to discuss this project and its potential business opportunities. The U.S. Firm shall gauge U.S. manufacturers' interest in participating in the CPT procurement process and document the findings in the Final Report.

**Deliverable: Technical Memorandum**

**Task 10 CPT IMPLEMENTATION PLAN**

The U.S. Firm shall prepare an overall plan for CPT implementation. The implementation plan shall include a timeline for the potential acquisition of the recommended CPT and related services needed in each industrial sector investigated. The U.S. Firm shall not be responsible for any work associated with publicizing bidding documents or evaluating proposals under any procurement activity related to this Project.

**Deliverable: Technical Memorandum**

**Task 11 FINAL REPORT**

The U.S. Firm shall prepare and deliver a substantive and comprehensive final report of all work performed under these Terms of Reference ("Final Report") to CETESB and USTDA. The Final Report shall be organized according to the above tasks and shall include all deliverables and documents that have been provided to CETESB. The Final Report shall be prepared in accordance with Clause I of Annex II of the Grant Agreement.

**Deliverable: Final Report**

Notes:

- (1) The U.S. Firm is responsible for compliance with U.S. export licensing requirements, if applicable, in the performance of the Terms of Reference.
- (2) The U.S. Firm and CETESB shall be careful to ensure that the public version of the Final Report contains no security or confidential information.
- (3) CETESB and USTDA shall have an irrevocable, worldwide, royalty-free, non-exclusive right to use and distribute the Final Report and all work product that is developed under these Terms of Reference.
- (4) CETESB shall be responsible for all procurement-related final decisions.



standing issued within one month of the date of its proposal by the State of \_\_\_\_\_.

2. Neither the Offeror nor any of its principal officers have, within the three-year period preceding this RFP, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a federal, state or local government contract or subcontract; violation of federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, violating federal or state criminal tax laws, or receiving stolen property.
3. Neither the Offeror, nor any of its principal officers, is presently indicted for, or otherwise criminally or civilly charged with, commission of any of the offenses enumerated in paragraph 2 above.
4. There are no federal or state tax liens pending against the assets, property or business of the Offeror. The Offeror, has not, within the three-year period preceding this RFP, been notified of any delinquent federal or state taxes in an amount that exceeds \$3,000 for which the liability remains unsatisfied. Taxes are considered delinquent if (a) the tax liability has been fully determined, with no pending administrative or judicial appeals; and (b) a taxpayer has failed to pay the tax liability when full payment is due and required.
5. The Offeror has not commenced a voluntary case or other proceeding seeking liquidation, reorganization or other relief with respect to itself or its debts under any bankruptcy, insolvency or other similar law. The Offeror has not had filed against it an involuntary petition under any bankruptcy, insolvency or similar law.

The selected Offeror shall notify the Grantee and USTDA if any of the representations included in its proposal are no longer true and correct at the time of its entry into a contract with the Grantee. USTDA retains the right to request an updated certificate of good standing from the selected Offeror.

Signed: \_\_\_\_\_  
(Authorized Representative)

Print Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_