

**REQUEST FOR PROPOSALS**

**FEASIBILITY STUDY FOR THE**

**WASTEWATER TREATMENT SYSTEMS AND FACILITY UPGRADES FOR  
COMMERCIAL USERS PROJECT IN THE PHILIPPINES**

Submission Deadline: **4:00PM**

**LOCAL TIME**

**October 24, 2008**

Submission Place: Mr. Antonino T. Aquino  
President  
Manila Water Company Inc.  
MWSS Admin Bldg.  
Katipunan Road 1105 Balara  
Quezon City, Philippines

Phone: 632-981-8162

Fax: 632-981-8164

**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.**

## **REQUEST FOR PROPOSALS**

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## **Section 1: INTRODUCTION**

The U.S. Trade and Development Agency (USTDA) has provided a grant to Manila Water Company, Inc. (MWCI or Grantee) for a Wastewater Treatment Systems and Facility Upgrades for Commercial Users Feasibility Study. The feasibility study will investigate onsite wastewater treatment options for potential non-domestic customers (also referred to as commercial and industrial traders) in the Philippines. The grant agreement outlining the feasibility study requirements is attached at Annex 4 for reference. The Grantee is soliciting technical proposals from qualified U.S. firms to provide expert consulting services to carry out the feasibility study.

### **1.1 BACKGROUND SUMMARY**

The Philippine government reports that untreated wastewater has damaged rivers, streams and groundwater such that only a third of the Philippines' river systems remain as viable sources for the public water supply. Much of this pollution is caused by commercial and industrial traders, or non-domestic customers, which generate effluent and discharge it into the country's river system, rather than properly treating it. As a result of this, the Department of Natural Resources now enforces a strict wastewater discharge quality standard as stipulated by the Philippines Clean Water Act (CWA). These regulations have affected non-domestic customers greatly, such that some have been closed down for not complying with wastewater discharge standards.

MWCI holds a 25 year concession agreement with the Metropolitan Waterworks and Sewerage System (MWSS) for the provision of water and wastewater service in the Manila East Zone Service Area. MWCI water service includes delivering over 317 million gallon per day to more than a million households. Currently, MWCI operates and maintains 31 sewage treatment plants (STPs) equivalent to 80 million liter per day capacity which only covers 11% of its 5.3 million customer base. Presently, MWCI is providing septage collection and treatment to over 270,000 households and businesses that employ septic tanks. The 31 STPs are complemented by a network of sewer systems that were built, operated and maintained solely for sewage purposes. Although the 3,000 commercial and industrial users (non-domestic customers) in the Manila East Zone Service Area area, are not the responsibility of MWCI under the terms of the MWSS concession, these potential customers are unable to meet regulations dictated by the CWA and have approached MWCI for advice and solutions to their wastewater problems. Most of these non-domestic customers lack the expertise to operate and maintain their own treatment facilities and are thus looking to MWCI as a service provider who can help them comply with CWA at an acceptable cost. In an effort to provide a solution to these non-domestic customers, MWCI would like to identify and implement either waste treatment strategies on-site, or pre-treatment strategies before transferring the commercial waste to one of MWCI's operating wastewater facilities.

A USTDA sponsored Definitional Mission, conducted by AJGB International Inc., identified this feasibility study and recommended it for USTDA funding given the likelihood that U.S. technology could be used for project implementation.

A background Definitional Mission is provided for reference in Annex 2.

## **1.2 OBJECTIVE**

MWCI requests USTDA funding to support a feasibility study to consider various technological solutions to address water treatment problems for potential non-domestic customers. The study will determine the characteristics of the customers in their service area, recommend the best technology for each option including timelines of construction and project need, assess the wastewater treatment facility upgrades needed to accept effluent from the customers, and recommend a cost recovery mechanism and tariff level for the projects. Each option will be highly dependent on commercial/industrial trader preference, wastewater treatment technologies, and the availability of existing infrastructure.

These solutions or options to be considered under the study include:

1. Direct connection to existing STPs:

The customers will directly connect to MWCI's existing 31 wastewater treatment facilities, which will require STP upgrades in order to comply with existing water quality standards.

2. On-site Pretreatment Facilities:

MWCI will design, construct, operate and maintain on-site wastewater pretreatment facilities at customer locations to reduce the contaminant level of the effluents produced. The pretreated wastewater effluent would then be processed for regulatory compliance at the existing treatment plants. This may enable MWCI to forgo individual STP upgrades; however, this will be considered during the study.

3. On-site Treatment Facilities:

MWCI will design, construct, operate and maintain on-site treatment facilities for the customers that will fully treat effluents in compliance with regulatory requirements.

4. On-site treatment Facilities for a Group of Non-domestic Customers

MWCI will design, construct, operate and maintain a treatment facility for a group of customers (four to five). This is applicable to highly commercialized areas or to areas where there is a density of customers in one area/location.

MWCI has agreed to provide a cost share contribution towards necessary laboratory, topography and geotechnical work that is part of the feasibility study terms of reference.

The Terms of Reference (TOR) for this feasibility study is 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.

COST will not be a factor in the evaluation and therefore, cost proposals should not be submitted; upon detailed evaluation of technical proposals, one firm will be selected for contract negotiations. The fixed price amount for the negotiated contract has been established by a USTDA grant of U.S. \$442,000 dollars. The Grantee has agreed to provide a cost share contribution, in addition to USTDA's grant funding, towards the water quality laboratory work, topography, geotechnical survey and local transportation needed to complete the full Terms of Reference.

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

The negotiated contract will be funded by USTDA in accordance with the terms and conditions of its grant to the Grantee. The contract must include certain USTDA mandatory clauses relating to nationality, taxes, payment, reporting, and other matters. The USTDA nationality requirements and the USTDA mandatory clauses are attached at Annexes 3 and 4 for reference.

## **Section 2: INSTRUCTIONS TO PROPOSERS**

### **2.1 PROJECT TITLE**

The project is called "Wastewater Treatment Systems and Facility Upgrades for Commercial Users Feasibility Study."

### **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. individual, or 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 relevant sections of the Report is attached at Annex 2 for background information only.

### **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 feasibility study.

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 feasibility study.

## **2.5 PROJECT FUNDING SOURCE**

The feasibility study will be funded under a grant from USTDA. The total fixed price amount of the grant is not to exceed U.S. \$442,000 dollars. The Grantee has agreed to provide a cost share contribution, in addition to USTDA's grant funding, towards the water quality laboratory work, topography, geotechnical survey and local transportation needed to complete the full Terms of Reference.

## **2.6 RESPONSIBILITY FOR COSTS**

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

## **2.7 TAXES**

Offerors should submit proposals which note that in Annex 4, USTDA Mandatory Contract Provisions, USTDA funds are not to be used to pay taxes or duties under the laws of host country.

## **2.8 CONFIDENTIALITY**

The Grantee will use its best efforts to preserve the confidentiality of any business proprietary or confidential information submitted by the Offeror, which is clearly designated as such by the Offeror.

## **2.9 ECONOMY OF PROPOSALS**

Proposal documents should be prepared simply and economically, providing a comprehensive and concise description of the Offeror's capabilities to satisfy the requirements of the RFP. There is no necessity for expensive bindings, colored displays, or other promotional material unless such material is absolutely pertinent to the proposal. Emphasis should be placed on completeness and clarity of content.

## **2.10 SUBSTANTIVE PROPOSALS**

The Offeror shall certify (a) that its proposal is genuine and is not made in the interest of, or on the 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 himself 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 host country for up to 20 percent of the amount of the USTDA grant for non-substantial work associated with the Terms of Reference. USTDA nationality requirements are detailed in Annex 3.

## **2.12 LANGUAGE OF PROPOSAL**

All proposal documents shall be prepared and submitted in English, and only English.

## **2.13 PROPOSAL SUBMISSION REQUIREMENTS**

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

Mr. Antonino T. Aquino  
President  
Manila Water Company Inc.  
MWSS Admin Bldg.  
Katipunan Road 1105 Balara  
Quezon City, Philippines

Phone: 632-981-8162  
Fax: 632-981-8164

**An Original and eight (8) copies of your proposal must be received at the above address no later than 4:00PM, on October 24, 2008.**

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.

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

## **2.14 PACKAGING**

Each 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 and eight (8) copies should be collectively wrapped and sealed, and clearly marked for content.

Neither USTDA nor the Grantee will be responsible for premature opening of proposals not properly 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 sixty (60) 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**

Firms agree by their response to the RFP announcement to abide by the procedures set forth therein. Material modifications in the TOR or responsibilities of the parties will not be accepted.

Any exceptions in the proposal shall be clearly identified, and shall include the scope of such exception, and its impact, on the procurement. The Grantee shall make final determination as to the responsiveness of such exceptions and their acceptability.

## **2.18 OFFEROR QUALIFICATIONS**

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

## **2.19 RIGHT TO REJECT PROPOSALS**

The Grantee reserves the right to reject any and all proposals and to accept or reject any or all of the items in the proposal, and to award the contract in whole or in part if it is deemed in the best interest of the Grantee.

## **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 consultants and subcontractors. USTDA nationality provisions are set forth in detail in Annex 3. The successful Offeror shall cause appropriate provisions of its contract, including all mandatory USTDA clauses, to be inserted in all subcontracts ensuing to ensure fulfillment of all contractual provisions by subcontractors.

## **2.21 AWARD**

An award resulting from this RFP shall be made to the best qualified Offeror, taking into consideration the evaluation factors set forth herein; however, the right is reserved 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) furnish all supplies, supervision, transportation, and other execution accessories, services, and facilities; (b) provide and perform all necessary labor; and (c) in accordance with good technical practice, with due diligence, and in accordance with the requirements, stipulations, provisions and conditions of this RFP and the resultant contract, execute and complete all specified work to the satisfaction of the Grantee.

## **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. Upon approval of each invoice, the Grantee will forward the invoice to USTDA which will process payment to the Contractor. All payments by USTDA under the Grant Agreement will be made in U.S. currency.

### **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 as the value of the USTDA grant is established at a fixed price amount not to exceed U.S. \$442,000 dollars.

Offerors shall submit one (1) original and eight (8) copies of the proposal. Proposals received by fax cannot be accepted.

The following sections and content are required for each proposal:

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

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

#### **3.1 SECTION 1: INTRODUCTION AND EXECUTIVE SUMMARY**

An Executive Summary should be prepared describing the major facts or features of the proposal, including any conclusions, assumptions, and generalized 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 SECTION 2: COMPANY INFORMATION**

### **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), similar information must be provided for each subcontractor. Offerors are requested to limit the length of the Company Profile Information to one (1) page per firm.

1. Name of firm and business address, including telephone and fax numbers.
2. Year established (include former firm names and year established, if applicable).
3. Type of ownership and parent company, if any.
4. Project Manager's name, address, telephone and fax number, if different from (1).

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

Provide name, title, address, telephone 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 impact of any current or anticipated commitments which may impact the ability of the Offeror or its subcontractors to complete the feasibility study as proposed and within the project schedule.
2. Identify any specific information which is needed from the Grantee before commencing contract negotiations.

## **3.3 SECTION 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 feasibility study. Identify the Project Manager who will be the individual responsible for this project. The Project Manager must have the responsibility and authority to act on behalf of the Offeror in matters related to the proposed feasibility study.

Provide a listing of personnel (including subcontractors and consultants) to be engaged in the project, either U.S. or local 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 organizational relationship between the firms must be described.

A manpower schedule and the level of effort for the project period, by activities and tasks, as detailed under the 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 SECTION 4: TECHNICAL APPROACH AND WORK PLAN**

Describe in detail the proposed technical approach and work plan. Discuss the project requirements as perceived by the Offeror. Include a brief narrative of 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 Technical Work Plan, including periodic reporting or review points, incremental delivery dates, and other project milestones.

Based on the Technical Work Plan, and previous project experience, explain when and where Offeror will require support from the Grantee. Detail the amount of staff time required by the Grantee or participating agencies and any work space or facilities needed to complete the feasibility study.

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

Provide a discussion of the Offeror's experience and qualifications which are relevant to the objectives and TOR for the feasibility study. If a subcontractor(s) is being used, similar information must be provided for the prime and each subcontractor firm proposed for the project. Relevant experience and qualifications of key staff proposed shall be provided including letters of commitment from the individuals proposed concerning their availability for contract performance.

As many as possible but not more than six (6) relevant and verifiable project references must be provided, 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 feasibility study 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, and the Grantee shall promptly 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 shall then be undertaken with the second most qualified Offeror and so forth.

It is proposed that the study be conducted by a U.S. firm with experience in the fields of onsite wastewater treatment, advance wastewater treatment and pumping project station design and implementation. The Offeror should demonstrate qualifications, experience and the required capability to carry out these types of activities. Price will not be a factor in contractor selection. USTDA' grant funding is provided on a fixed price basis. The selection of the Contractor will be based on the following criteria:

1. Offerors experience related to the study and project(s).
  - 1.1 Offerors' overall experience: 15 points
  - 1.2 Offerors' overseas experience: 10 pointsTotal of 25 points
2. Adequacy of proposed work plan and methodology in response to the Terms of Reference.
  - 2.1 Understanding of study requirements and required work deliverables: 10 points
  - 2.2 Proposed methodology and workplan: 15 pointsTotal of 25 points
3. Qualifications and competence of Offerors' project team.
  - 3.1 Project Manager's experience on similar activities or projects: 5 points
  - 3.2 Project Engineer's experience in similar activities or projects: 5 points
  - 3.3 Mechanical Engineer's experience in similar activities or projects: 5 points
  - 3.4 Electrical Engineer's experience in similar activities or projects: 5 points
  - 3.5 Economist / Financial Analyst's experience in similar activities or projects: 5 pointsTotal of 25 points  
*(Note: The above referenced discipline titles are not required; however the Offeror shall explain how the proposed expert(s) meet the requirements needed to complete the study if these disciplines are not included as team members.)*
4. Past performance
  - 4.1 Reference to six similar previous/current activities or projects: 25 points
  - 4.2 Reference to five similar previous/current activities or projects: 20 points
  - 4.3 Reference to four similar previous/current activities or projects: 15 points
  - 4.4 Reference to three similar previous/current activities or projects: 10 points
  - 4.5 Reference to two similar previous/current activities or projects: 5 pointsTotal of 25 points

Proposals which do not include all requested information may be considered non-responsive.

## ANNEX 1

Mr. Antonino T. Aquino, President, Manila Water Company Inc., MWSS Admin Bldg., Katipunan Road 1105 Balara, Quezon City, Philippines, Phone: 632-981-8162, Fax: 632-981-8164

B: Philippines: Wastewater Treatment Systems and Facility Upgrades for Commercial Users Feasibility Study

POC Evangela Kunene, USTDA, 1000 Wilson Boulevard, Suite 1600, Arlington, VA 22209-3901, Tel: (703) 875-4357, Fax: (703) 875-4009. Philippines: Wastewater Treatment Systems and Facility Upgrades for Commercial Users Feasibility Study. 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 develop a feasibility study to investigate onsite wastewater treatment options and/or technology upgrades for four treatment facilities to provide wastewater treatment services to commercial and industrial customers in metro Manila, Philippines.

Manila Water Company Inc. (MWCI) has a concession agreement with the Metropolitan Waterworks and Sewerage System (MWSS) to supply water and wastewater services to five million people in more than nine cities or municipalities. The commercial and industrial users (non-domestic customers) in the area, that primarily operate septic systems, are not the responsibility of MWCI under the terms of the MWSS concession; however, these potential customers are unable to meet regulations dictated by the Philippines Clean Water Act that require stringent wastewater discharge quality. In an effort to provide a solution to these non-domestic customers, MWCI would like to identify and implement either waste treatment strategies on-site, or pre-treatment strategies for the waste before it is transferred to one of MWCI's operating wastewater facilities.

The U.S. Trade and Development Agency (USTDA) has provided grant funding to enable MWCI to hire a U.S. company to complete the feasibility study. The study will consider four wastewater management schemes and recommend technology solutions for each. These schemes will include: (1) directly connecting the non-domestic customers to existing wastewater treatment facilities operated by MWCI; (2) designing, constructing, and operating on-site wastewater pre-treatment systems that will reduce the contaminant level of specific effluents before being processed at the existing treatment plants; (3) designing, constructing, operating and maintaining on-site treatment facilities that will fully treat the commercial industrial effluents; and, (4) designing, constructing, operating and maintaining treatment facility that will service a group or cluster of non-domestic customers. USTDA has provided funding given the potential for U.S. technology and service providers to participate in the implementation of the project providing.

The U.S. firm selected will be paid in U.S. dollars from a \$442,000 grant to the Grantee from 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 directly to the Grantee by 4:00PM, October 24, 2008 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.

## **A N N E X 2**

**The Definitional Mission Report is provided here in part; only the portion related to Manila Water Company (MWCI) and the USTDA activity is included here.**

# DEFINITIONAL MISSION REPORT

## PHILIPPINES AND INDONESIA ENVIRONMENTAL SECTOR PROJECTS USTDA - CO2008310003

Submitted to:

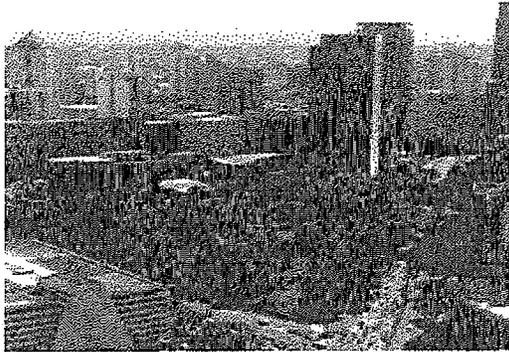
### **U.S. Trade and Development Agency**

Attn.: Ms. Diana Rossiter, Country Manager

1000 Wilson Boulevard, Suite 1600

Arlington, VA 22209-3901

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



Manila Metropolitan Area



Jakarta Metropolitan Area

By:

### **AJGB International, Inc.**

Environmental Engineering Specialists

111-162nd Ave. SE, Bellevue, WA 98008 USA ☎ (425) 957-1279

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April 18, 2008



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.



## **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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## DEFINITIONAL MISSION: ASIA REGIONAL: PHILIPPINES AND INDONESIA: ENVIRONMENTAL SECTOR PROJECTS

USTDA - CO2008310003

### FINAL REPORT

#### A. INTRODUCTION

Under contract with the U.S. Trade and Development Agency (USTDA), AJGB International has conducted a Definitional Mission (DM) to assess the possibility of funding technical assistance for environmental projects in The Philippines and Indonesia. AJGB International has prepared this report in accordance with USTDA requirements for Definitional Mission: Philippines and Indonesia: Environmental Sector Projects (RFP-CO2008310003).

The scope of work for this DM involves working with potential project sponsors in The Philippines and Indonesia. In agreement with the DM Terms of Reference (TOR) six projects were evaluated using USTDA funding criteria. The scope of work and budget were prepared for the following six potential projects, three of which are being recommended for funding consideration, two of which are being deferred for funding:

1. Manila Water Company, Inc. Onsite Wastewater Treatment and Water Quality Monitoring Project (Section A1 through N1). Recommended for funding;
2. Watery Business Solutions, Inc. Maragondon River Project (Section A2 through N2);
3. Development Bank of the Philippines Water Supply and Sanitation Privatization Investment Fund (Section A3 through N3);
4. Local Water Utilities Administration GIS and Hydraulic Modeling to Reduce Non-Revenue Water (Section A4 through N4). Recommended for funding;
5. Indonesia State Ministry of Environment East Java Hazardous Waste Facility (Section A5 through N5); and
6. Indonesia State Ministry of Environment Java Air Quality Improvement Project (Section A6 through N6) Recommended for funding.

The evaluation of each of the six projects listed above is documented separately. The evaluation is based on actual site visits and meetings with their sponsors. As a result of the DM evaluation, projects 1, 4 and 6 above are recommended for USTDA funding consideration.

The DM also investigated other projects in the Philippines and Indonesia. Additionally, the DM contacted the representatives of five previous USTDA funded projects to ascertain their implementation status. The results of these DM activities are reported in Section A7. Although terms of reference (TOR) and budgets were prepared for all six projects and a project documented in Section A7, only the terms of reference and budget for the projects recommended for USTDA funding consideration are provided for the actual implementation of feasibility studies. The others are included as examples of the likely TOR content for these studies.

## **MANILA WATER COMPANY, INC (MWCI)**

Project Sponsor: Manila Water Company, INC. (MWCI)  
Project Sponsor Representative in Charge: Tony Aquino, President and CEO  
Project Title: FS for Onsite Wastewater Treatment Technology Solutions and  
Wastewater Treatment Facilities Upgrades for Commercial and Industrial Traders  
Proposal Type: Feasibility Study (FS)

### **A1. EXECUTIVE SUMMARY**

#### **A1.1 Background**

The Manila Water Company, Inc. (MWCI), provides water and wastewater services to the Metropolitan Waterworks and Sewerage System (MWSS) in the Manila East Zone Service Area. Wastewater service consists of wastewater collection and treatment via the operation and maintenance of 31 wastewater treatment plants (WTPs or STPs) supported by a network of sewer systems designed and built solely for sewage purposes.

The existing WTPs are in compliance with regulatory requirements. The MWCI service area consists predominantly of households and businesses that operate on septic tanks. The MWCI currently provides septage collection and treatment to over 270,000 households and has recently constructed two septage treatment plants to address the need of the majority of its individual septic tank users.

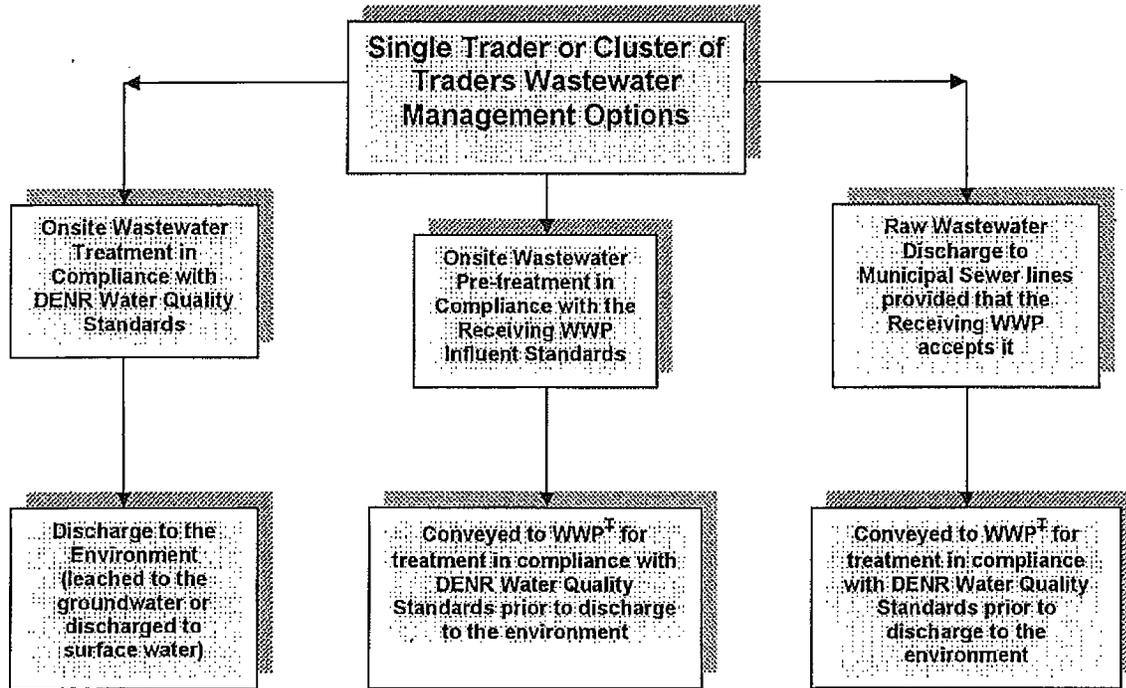
According to the MWCI there is an urgent need to provide wastewater solutions to commercial and industrial traders (non-domestic wastewater dischargers/customers) so that their services comply with the Philippines Clean Water Act (CWA) requirements for wastewater discharge.

In addition, the difficulties inherent to the installation of a centralized sewerage system in the East Zone are causing the MWCI to pursue the installation of several WTPs throughout its service area. Since non-domestic wastewater or trader effluent is discharged to WTPs designed to treat residential wastewater only, the MWCI is considering several scenarios to deal with such a system.

#### **A1.2 FS Proposals**

The MWCI requests U.S. Trade and Development Agency technical assistance to implement a feasibility study (FS) that evaluates technical and financial viability as well as a marketing strategy for four on-site wastewater treatment scenarios or schemes for trader effluent (see Figure A1.2):

- Scenario 1: Direct connection of commercial and industrial traders to existing WTPs
- Scenario 2: On-site preliminary wastewater treatment (pretreatment) prior to connection to existing WTPs
- Scenario 3: Full on-site treatment facilities
- Scenario 4: Scenario 3, except that it would include treatment facilities for clusters (groups) of several commercial and industrial traders



**Figure A1.2 Traders Wastewater Management Options**

†: Implementation of this option may require wastewater treatment plant (WWP) upgrading to accept raw or pre-treated traders' wastewater for treatment without failing to meet DENR water

The project entails providing traders with technical wastewater management options for meeting Clean Water Act requirements. A successful project will be measured by either an increase in the number of traders connected to the MWCI wastewater management system or an increase in the number of traders who meet wastewater discharge quality standards through the utilization of properly designed and installed onsite wastewater management systems.

**A1.3 Developmental Priority**

Due to the large number of commercial and industrial traders who do not meet wastewater discharge quality standards within the study area, the proposed action is a significant developmental priority. These traders are subject to fines and potential business closures which will result in economic losses and unemployment. The type of technology needed for attaining compliance with environmental regulations is available from several U.S. manufacturers. Implementation of the proposed action will generate business opportunities and economic growth.

**A1.4 Sponsor's Commitment**

MWCI requests an FS to determine the viability of expanding its commercial service to commercial and industrial traders whose wastewater discharge does not meet CWA water quality standards. Information researched for this DM shows that MWCI enjoys a high degree of customer satisfaction and is committed to increasing its wastewater management capability. MWCI has demonstrated the financial and technical

capability to manage water and wastewater services and should be able to expand its line of service and attract sufficient commercial and industrial trader wastewater management business without any major difficulties.

The Project Sponsor is committed to providing all necessary support (technical staff, local transportation, geotechnical study, land surveying and water quality analytical laboratory) to the U.S. FS Contractor.

#### **A1.5 U.S. Trade and Development Agency Technical Assistance**

The DM assessment of the project sponsor's proposal indicates that U.S. Trade and Development Agency Technical assistance to carry out the evaluation of on-site wastewater options for commercial and industrial traders is warranted. The DM estimates the U.S. Trade and Development Agency grant assistance at \$441,139. The expected duration of the FS is six (6) months.

#### **A1.6 U.S. Export Potential**

Information generated from this DM shows that the U.S. export associated with the technical requirements of this project is anticipated to be in the range of \$6 million to \$9 million dollars for just a small fraction (10 percent) of the potential market. If MCWI is successful in introducing onsite wastewater treatment units to half of the prospective customers (MWCI estimates that there are 3000 potential customers in the Manila Metropolitan Area), the U.S. export potential can reach up to \$45 million dollars.

#### **A1.7 Implementation Financing**

MWCI's solid financial reputation guarantees its credit value with financial commercial banks. Therefore, the capital investment necessary for the implementation of these projects would be available if the FS demonstrates its technical and financial viability.

#### **A1.8 Qualifications of Project Sponsor's Team**

The project sponsor's successful implementation of several wastewater management projects since 1997 clearly demonstrates its management capabilities.

#### **A1.9 FS Terms of Reference**

Appendix L1 contains the Term of Reference and budget for the FS requested by MWCI to evaluate on-site wastewater treatment options and the upgrade of its wastewater treatment facilities.

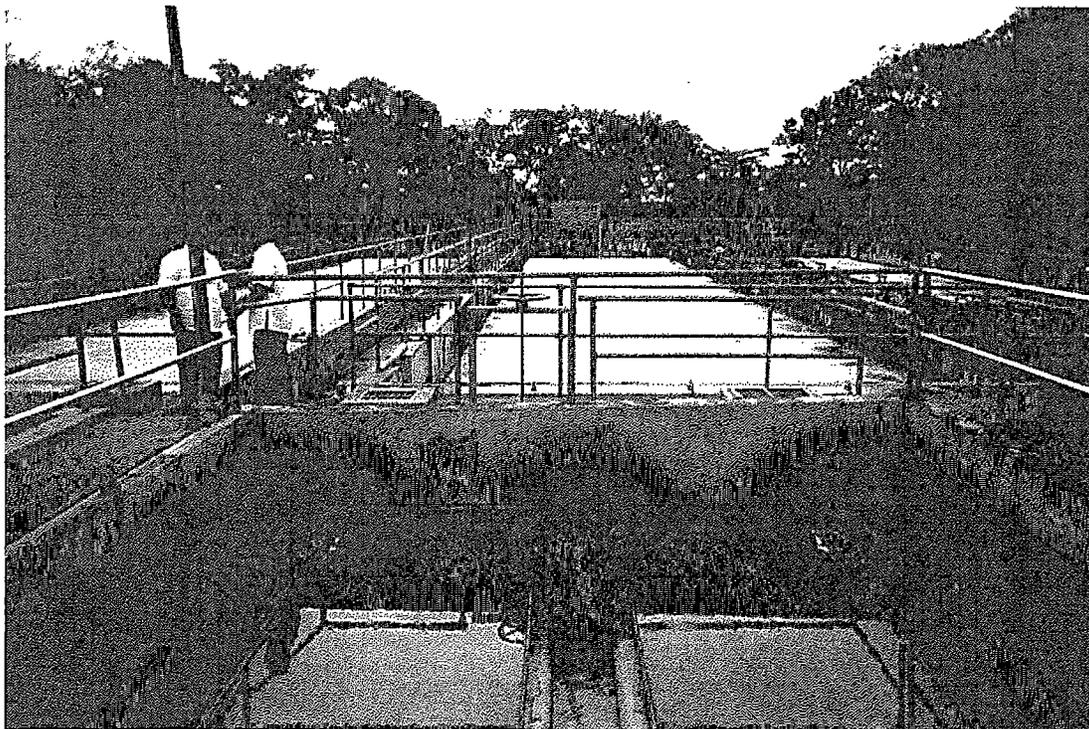
#### **A1.10 Recommendations**

The DM concludes that these projects are important to U.S. commercial policies and meet the criteria for TDA acceptance. Consequently, the DM recommends supporting the FS requested by MWCI.

## B1. PROJECT DESCRIPTION

### B1.1 Background

Manila Water Company, Inc. (Manila Water or MWCI, [www.manilawater.com](http://www.manilawater.com)) holds a 25 year (1997-2022) concession agreement with the Metropolitan Waterworks and Sewerage System (MWSS) for the provision of water and wastewater service to the MWSS Manila East Zone Service Area. MWCI water service consists of the delivery of over 317 MGD to more than a million households. The service area is characterized by limited wastewater collection and treatment systems. Currently, Manila Water operates and maintains 31 sewage treatment plants (STP) equivalent to a 80 million liter per day (MLD) capacity which only covers 11% of its 5.3 million customer base. MWCI is planning to increase wastewater management up to 30% of its 5.3 million customer base by the year 2010. The 31 STPs are complemented by a network of sewer systems that were built, operated and maintained solely for sewage purposes. Figure B.1.1 shows a view of the Makati South Wastewater Treatment Plant, the largest wastewater facility in the Metro Manila Area. This plant processes 40 MLD (10.5 MGD) and is in compliance with current regulatory requirements.



**Figure B.1.1 Makati South Wastewater Treatment Plant (MSTP)**

A large number of households and businesses in the MWCI service area operate on septic tanks. Recently, Manila Water has constructed two septage treatment plants to address the needs of the majority of its domestic customers who employ their own individual septic tanks. Presently, MWCI is providing septage collection and treatment to over 270,000 households.

The commercial and industrial traders that operate septic tanks are non-regulated actions; that is, these wastewater generators are not the responsibility of MWCI under the terms of the MWSS concession agreement. These businesses generate wastewater with high BOD and Oil & Grease content. Table B.1.1 shows the typical wastewater characteristics for fast food restaurants in the Manila Area. As dictated by the Philippines Clean Water Act (CWA), the Department of Natural Resources (DENR) enforces water quality standards of 50 ppm of BOD<sub>5</sub>, 75 ppm of TSS that are not met by current septic tank discharge.

**Table B.1.1 – Fast Food Restaurant Wastewater Characteristics**

Flow, GPD	BOD, ppm	COD, ppm	Oil & Grease, ppm	Total Solids, ppm
2,704	1,800	3,000	80	600

Due to the difficulties of installing a centralized sewerage system in the East Zone service area, MWCI is pursuing the installation of several wastewater treatment plants throughout its service area. The businesses' onsite treatment will continue under a more stringent wastewater discharge quality standard.

MWCI reports that there is an urgent need for Manila Water to provide wastewater solutions to potential non-residential (non-domestic) customers which include commercial and industrial traders. The wastewater, or trade effluent, from these potential non-residential customers must be pre-treated because of the following reasons:

1. Manila Water will now be employing the existing storm drainage system as a combined sewer network prior to treatment which results in an automatic connection for non-residential customers. Manila Water designs its STPs for residential customers only in correspondence with the Concession Agreement (regulated customers). Designing the treatment plants for non-residential flow will require additional investments recovered via tariff and paid by all of its customers. Manila Water prefers to recover costs incurred to treat trade effluent from the traders themselves through a non-regulated business structure.
2. The automatic connection and discharge of trade effluent to Manila Water's STPs poses risks to their operation and performance. MWCI should, therefore, offer solutions to these traders in order to complement their business CWA compliance.
3. Stricter laws have been in effect as a result of the Clean Water Act and its rules and regulations. The Laguna Lake Development Authority (LLDA) closed some fast food chains for not complying with water pollution laws.
4. Commercial and industrial traders do not have the expertise to operate and maintain their own wastewater treatment facility and they are looking for service providers who can offer this service at an acceptable cost.

For the foregoing reasons, many commercial and industrial establishments (traders) have approached LLDA to lobby for leniency on these pollution laws, as well as to seek advice on how to solve their non-compliance problem. LLDA, realizing that closure of these establishments will cause unemployment and decreased economic activity for the country, wants to provide feasible solutions. LLDA has asked Manila Water, as the leading water service provider in the Manila Metropolitan Area, to come up with solutions for these traders. MWCI, as indicated above, offers regulatory experience and quality customer service.

Because of the limited amount of available water resources, wastewater reuse is another viable option in Manila. Therefore, MWCI is interested in investigating whether MWCI and its customers would benefit from advanced wastewater treatment for wastewater reuse.

## B1.2 Proposed Actions

The MWCI requests U. S. Trade and Development Agency (USTDA) technical assistance for a feasibility study that will investigate the following four wastewater management scenarios or schemes:

### Scenario 1: Commercial and industrial traders direct connection to existing STPs

Manila Water will **directly connect** the traders to its existing 31 wastewater treatment facilities, which will require an STP upgrade in order to comply with existing water quality standards. The cost of this upgrade will then be recovered via a non-regulated tariff charged to the traders.

### Scenario 2: MWCI provides preliminary treatment prior to connection to existing facilities

Manila Water will design, construct, operate and maintain **on-site wastewater pretreatment** facilities at trader locations to reduce the contaminant level of trade effluent. Traders' wastewater effluent will then be processed for regulatory compliance at the existing treatment plants.

### Scenario 3: MWCI provides full on-site treatment facilities

Manila Water will design, construct, operate and maintain on-site treatment facilities that will **fully treat trade effluent** in compliance with regulatory requirements.

### Scenario 4: MWCI provides full on-site treatment facilities for a cluster of traders

Manila Water will design, construct, operate and maintain a **treatment facility for a cluster** (4 to 5) of traders. This is applicable to highly commercialized areas or to areas where there are 4 or 5 commercial establishments clustered together.

All the scenarios will be highly dependent on trader preference, wastewater treatment technologies and the availability of sewer lines. All scenarios will yield different investments and tariffs (for recovery) as well. Manila Water intends to offer the four scenarios primarily to customers within its concession area but this service could eventually be offered to the rest of the Manila Metropolitan Area and the entire country as whole. While these traders can use any other service provider to address these problems, it is Manila Water's intent to be competitive enough to capture this market.

MWCI requests that the feasibility study generate the following:

1. Trader inventory and mapping which determines the number, type and wastewater characteristics of traders in the concession area and Metropolitan Manila;
2. Recommendation of the best technology for each scenario, including the timelines of construction, and size of land needed;
3. Recommendation of the complementary and monitoring equipment needed for flow and velocity measurement, water quality testing and technology performance measures;
4. Assessment of the wastewater treatment facilities upgrade needed for accepting traders' wastewater and for wastewater conditioning for reuse; and
5. Recommendation of the cost recovery mechanisms and recommended tariffs.

The trader inventory and mapping activities can be performed most appropriately by MWCI. The other four FS products outlined above can be part of the FS Contractor responsibilities.

The proposed action meets USTDA developmental impact criteria as they address infrastructure and technological needs which have positive environmental and socio-economic impacts.

## **C1. PROJECT SPONSOR'S CAPABILITIES AND COMMITMENT**

The information provided in the MWCI 2006 Sustainability Report shows that 96% of its customers are satisfied with the service provided. The Department of Health ([www.doh.gov.ph](http://www.doh.gov.ph)) and MWSS regulatory Office confirm that MWCI water service meets and exceeds the Philippines National Standards for Drinking Water.

Since 1997, MWCI has embarked on the implementation of several wastewater management projects that have increased secondary treatment capability to 10% (from 3% in 1997). With the financial support of 64 million dollars from the World Bank, MWCI is carrying out wastewater projects that will increase wastewater management coverage in the East Zone to 30% by the year 2010.

MWCI has demonstrated financial and technical capability to manage water and wastewater services. Appendix C1 presents a MWCI project commitment letter in support of its request for USTDA technical assistance. The Project Sponsor is committed to providing all necessary support (technical staff, local transportation, geotechnical study, land surveying and water quality analytical laboratory) to the U.S. FS Contractor.

## **D1. IMPLEMENTATION FINANCING**

Both the World Bank and the Asian Development Bank are providing financial support for the MWCI wastewater projects referenced in the MWSS concession agreement. As such, the acquisition of wastewater technology for wastewater projects that meet secondary treatment and comply with DENR regulations have financial support.

The creditworthiness of MWCI is rated PRS AAA (the highest rating for long-term issues) according to the Philippine Rating Services Corporation ([www.PhilRatings.com](http://www.PhilRatings.com)), the only domestic credit rating agency in the Philippines accredited by both the Bangko Sentral ng Pilipinas (BSP) and the Securities and Exchange Commission (SEC). Consequently, MWCI's solid financial reputation guarantees its credit value with financial commercial banks.

Onsite wastewater treatment for commercial and industrial traders or wastewater treatment upgrade are non-regulated actions; that is, as indicated above, wastewater management actions are not required under the terms of the concession agreement. Consequently, their implementation financing should originate from MWCI's own capital resources or capital raised under commercial terms with MWCI guarantors and financiers. The size of the capital investment will depend on the number of traders that select MWCI for the onsite wastewater management service. The DM estimates that the likely size of the investment will range from \$12 million to \$60 million dollars. MWCI's creditworthiness assures the capital investment for the implementation of the projects at hand would be available if the FS shows the project's technical and financial viability.

## E1. U.S. EXPORT POTENTIAL

### E1.1 Onsite Wastewater Treatment Technology

The U.S. environmental industry has always been at the forefront of onsite wastewater management. U.S. companies provide products and services that meet the strict environmental requirements of the U.S. Environmental Protection Agency (EPA). U.S. companies offer the entire gamut of products and services from plant engineering and design services to Package Wastewater Treatment Plants for reduction of BOD, COD, TSS, H<sub>2</sub>S and SO<sub>2</sub>. The onsite wastewater technology offered by U.S. companies is characterized by its low maintenance and high reliability. Additionally, U.S. technology is readily available for fast worldwide delivery. Several U.S. manufacturers of Package Wastewater Treatment Plants for onsite wastewater management were contacted to ascertain their interest in industrial and domestic onsite wastewater treatment projects in the Philippines (see Table E1.1).

**Table E1.1 U.S. Manufacturers of Package Wastewater Treatment Plants**

Company	Interested	Website	Phone number
BSL Global Water Solutions, CA	yes <sup>†</sup>	<a href="http://www.bslwater.com">www.bslwater.com</a>	(949) 296 – 7666
ClearBlu Environmental, CA	yes	<a href="http://www.clearbluenvironmental.com">www.clearbluenvironmental.com</a>	(831) 724 – 1377
Complete Water Services, GA	yes	<a href="http://www.completewater.cc">www.completewater.cc</a>	(678) 355 – 9270
Cromaglass Corp., PA	yes	<a href="http://www.cromaglass.com">www.cromaglass.com</a>	(570) 326 – 3396
EEC Global Operation, CA	N/A	<a href="http://www.eecusa.com">www.eecusa.com</a>	(714) 915 – 3477
Industrial Waste Water Services, GA	N/A	<a href="http://www.iwwsllc.com">www.iwwsllc.com</a>	(706) 839 -1722
Norweco, Inc., OH	yes	<a href="http://www.norweco.com">www.norweco.com</a>	(419) 668 – 4471
Orenco Systems, Inc.	yes	<a href="http://www.orenco.com">www.orenco.com</a>	(541) 459 – 4449
Pure Process System, TX	No	<a href="http://www.pureprocesssystems.com">www.pureprocesssystems.com</a>	(713) 663 1877
RGF Environmental Group, FL	yes	<a href="http://www.rgf.com">www.rgf.com</a>	(800) 842 -7771

<sup>†</sup>: See contact names in Appendix N1.

N/A: Telephone call was not returned or telephone number no longer available.

No: Projects appear too small for their typical equipment application.

There are limited local business representatives and distributors of U.S. Onsite Wastewater Treatment products in the Philippines. For example, of the ten companies listed above, only EEC Global, Orenco and RGF have local representation in the Philippines. The overall perception is that U.S. products have a clear advantage in terms of durability, performance and efficiency, however in the mind of many potential users they are also more expensive when compared to products manufactured in Asia. However, as indicated above, there are very few local representatives who could promote U.S. technology.

MWCI is requesting technical assistance for investigating the technical and financial feasibility of introducing onsite wastewater treatment services to its non-domestic water customers. MWCI has considered offering this service to businesses such as fast food restaurants and other commercial outfits that generate wastewater discharge which do not currently comply with DENR water quality requirements. Because these businesses have indicated limited or no interest in embarking on water quality compliance activities on their own, there is a demand for a reliable service for assisting with the selection and supply of wastewater treatment technology to meet regulatory requirements. MWCI envisions a study that will investigate solutions for individual as well as for clusters of commercial and industrial traders located within a defined area that would result in economy of scale benefits if connected to a centralized onsite wastewater treatment facility. MWCI is also in need of assessing upgrades for its wastewater treatment facilities because some of these may receive pretreated wastewater from their non-domestic customers.

Depending on the rate of wastewater discharge, the cost of a U.S. manufactured onsite wastewater treatment facility for typical fast food commercial and industrial outfit applications ranges between

\$10,000 and \$40,000. Assuming 200 fast food restaurants and 100 industrial customers (of the potential 3,000 MCWI onsite wastewater treatment customers in the Manila Metropolitan Area), the potential export is in the range of \$6 to \$9 million dollars. If half of the potential 3,000 customers were to implement onsite wastewater treatment system using MWCI services then the U.S. export could range from \$30 to \$45 million dollars (see Figure E1.1).

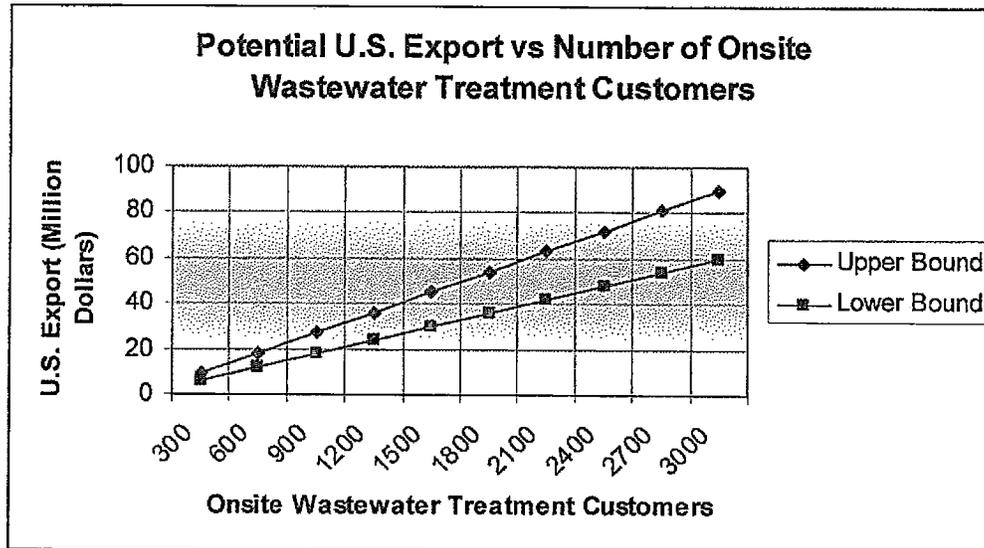


Figure E1.1 U.S. Export Potential in Million Dollars

An onsite wastewater treatment workshop is an important first step in introducing and promoting the advantages of technology manufactured in the U.S. More significantly, this event can facilitate the interaction between U.S. manufacturers and potential local representatives. This event can be organized in partnership with the Chemical Industries Association of the Philippines ([www.spik-ph.org](http://www.spik-ph.org)), MWCI, DENR ([www.DENR.gov.ph](http://www.DENR.gov.ph)) and other local institutions and stakeholders interested in wastewater treatment technology that complies with Clean Water Act requirements.

### E1.2 Wastewater Treatment Technology

An upgrade of the existing wastewater treatment plants is a potentially viable option for treating trade effluent in the MWCI service area. The objective of the Study is to assess technology for upgrading existing wastewater treatment plants so that the inflow from commercial and industrial traders is acceptable for treatment without exceeding wastewater discharge standards. Both the service and technology are available from U.S. companies and manufacturers of wastewater system equipment and technology. Thus, MWCI would benefit from the feasibility assessment of a project that investigates upgrading current and planned wastewater facilities in order to expand the wastewater treatment service to non-residential wastewater conditioning. Furthermore, the limited availability of water resources in the Manila Metropolitan Area makes wastewater reuse another possible option. MWCI is interested in investigating whether advanced wastewater treatment for wastewater conditioning is technically, financially and economically feasible.

AJGB International, Inc. has discussed this type of project with several U.S. consultants who have expressed interest in providing the requested environmental services. Potential U.S. suppliers of services and advance wastewater treatment technology and equipment are listed in Table E1.2 below:

**Table E1.2 U.S. Suppliers and Manufacturers of Advance Wastewater Treatment Technology**

Engineering	Wastewater Treatment Equipment and Membranes	Pumps and Controls	Advanced Systems Design and Build
Black & Veatch, Kansas City, MO	Aquatech International Corp. Canonsburg, PA	Aurora Pumps, IL	Membrane System Corporation, El Cajon, CA
CDM International, Cambridge, MA	Filtronic, Inc., Anaheim, CA	Crane Pumps & Systems, OH	Pure Aqua, Irvine, CA
CH2M-Hill, Denver, CO	Waterlink, Canton, OH	Fairbanks Morse Pumps, Aurora, IL	Smith and Loveless, Lanexa, OH
Earth Tech International, Austin, TX	Koch Membrane Systems, Inc., Wilmington, MA	Gorman Rupp, Mansfield, OH	
Louis Berger, Washington, D.C.	GE Infrastructure, Fairfield, CT	Myers Pumps, OH	
MWH, Pasadena, CA	Severn Trent Services, Fort Washington, PA	MTH Pumps, IL	
R.W. Beck, Seattle, WA	Selg and Associates, Bothell, WA	Peerless Pump, IN	
Tetra Tech, Kansas City, MO	Smith and Loveless, Lanexa, KS		
	The Dow Chemical Co, Midland, MI		

\* Appendix N1 lists the contact information for all engineering consulting firms contacted for this DM.

Our preliminary assessment indicates that several U.S. companies would be interested in providing consulting and construction management services for advanced wastewater treatment projects in the Philippines.

## F1. FOREIGN COMPETITION AND MARKET ENTRY ISSUES

The Philippines is the biggest buyer of U.S. products in Southeast Asia. In terms of foreign competition, Japanese products are in second place just 2.3 perceptual points behind those imported from the U.S. (<http://www.census.gov/ph/data/sectordata/sr07284tx.html>). However, in 2007, China surpassed the United States as the Philippine's biggest trading partner. Bilateral trade between China and the Philippines has exceeded \$30 billion dollars, with the balance of the trade favoring Filipinos. The five most important foreign competitors to U.S. companies in the Philippines are: China, Japan, Singapore, Taiwan and Germany. Additionally, the Netherlands has a long business commitment in the Southeast Asian region.

DEG ([www.deginvest.de/EN\\_Home/index.jsp](http://www.deginvest.de/EN_Home/index.jsp)), a German institution which finances private enterprise investments, is providing a 150,000 EUR grant to MWCI for training on environmental systems, information campaign on importance of wastewater services and sanitation systems for low-income communities.

The environmental market is actively sought by regional companies. For example the Board of Directors of MWCI includes a representative of Mitsubishi Corporation. Also, a Japanese company, JFE ([www.jfe-eng.co.jp](http://www.jfe-eng.co.jp)), is the contractor for four MWCI wastewater design and build facilities being financed by the World Bank.

U.S. companies appear cautious about participating in environmental projects that use the design and build bidding process. Only one large U.S. company (EarthTech) with an office in Manila indicated that it

will be interested in MWCI wastewater design and build projects. Consequently, it is anticipated that the implementation phase of MWCI design and build projects may not attract the attention of many U.S. companies.

Nonetheless, the project under consideration involves the acquisition of packaged wastewater treatment systems fully engineered and built in the U.S. and, as such, it is less likely to encounter difficulties in meeting the requirements of a design and build bidding process. Several manufacturers (see Table E1.1 of package wastewater treatment plants contacted for this DM expressed interest in the project.

On a positive note, Filipinos are generally familiar with the high quality of U.S. products. However, to reiterate, the participation of U.S. companies is hampered by the limited number of U.S. wastewater products and technology representatives in the Philippines.

## **G1. DEVELOPMENTAL IMPACT**

According to background data and information reviewed for this report, the long-term socioeconomic wellbeing of this study area is in peril due to environmental conditions associated with poor wastewater management and overexploitation of water resources. The proposal submitted by MWCI involves wastewater management actions aimed at minimizing water quality deterioration. The proposed actions are geared toward providing safe technology for municipal systems which, in turn, improve economic and environmental conditions as well as enhance the quality of both residences and business alike. Consequently, USTDA technical assistance would introduce much needed environmental infrastructure and human capacity building. Project success will be measured by the number of traders that implement onsite wastewater treatment systems manufactured in the U.S. MWCI, the project sponsor, will likely keep a complete list of all water customers that have acquired onsite U.S. manufactured wastewater technology as part of its accounting records. The following is a summary of the anticipated developmental impacts.

### **G1.1 Infrastructure**

The MWCI projects introduce wastewater management technology not common in the study area. Onsite wastewater treatment plants are potentially a highly profitable business in the Philippines because they can capitalize on the significant quantity of industrial outfits required to meet stricter water quality standards.

Water demand in the study area is reaching levels that may necessitate advanced wastewater treatment for reuse. It is surmised that in the near future, the proposed advanced wastewater infrastructure will become an imperative part of wastewater management system in many Southeast Asian communities including Manila. Additionally, the proposed infrastructure will reduce contamination of groundwater and prevent additional dependency on over-utilized water resources.

### **G1.2 Human Capacity Building**

Planning, design, construction and operation of advanced wastewater management facilities and onsite wastewater management projects in Manila will certainly create technological knowledge and expertise that is currently unavailable. A number of professionals and technician will be needed for the operation of these projects. 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 similar projects elsewhere in Philippines and the region.

### **G1.3 Technology Transfer and Productivity Improvements**

The proposed projects are examples of classical technology transfers that offer multiple benefits to the sponsor's community. As discussed above, the projects will provide the technological means to improve water supply shortages that have become a potential risk factor for decreased economic development. An improvement in water supply will allow business growth and should enhance productivity.

## **H1. IMPACT ON THE ENVIRONMENT**

Project implementation provides substantial positive socioeconomic and environmental impacts. A reduction in groundwater contamination due to improved onsite wastewater treatment will slow the contamination of an irreplaceable resource.

Because of the installation of equipment and instrumentation and construction of related infrastructure, the implementation of both onsite wastewater treatment systems and advanced wastewater management projects may have temporary water quality impacts. Nonetheless, the environmental impacts associated with the implementation phase of these projects might be avoided or mitigated using standard construction management and pollution prevention techniques.

The project implementation will not have negative impacts on river or sea water uses. Other uses such as commercial fishing and industrial activities should remain unobstructed throughout the life of the project.

In compliance with the Philippines environmental regulatory framework, an Initial Environmental Examination (IEE) will be prepared as part of the FS. The environmental process will proceed until an Environmental Compliance Certificate (ECC) is issued for the construction and operation of the proposed project. Obtaining an ECC will in all likelihood require compliance with an Environmental Impact Statement (EIS). The DS recommends that the FS Contractor be responsible for the preparation of the IEE. In agreement with standard practice, the ECC shall be obtained as part of the project permitting process.

## **I1. IMPACT ON U.S. LABOR**

The prospective technical assistance is for a feasibility study and preparation of contracting documents for the replacement of pumping units and advanced wastewater treatment. It does not include direct assistance for establishing or expanding production of any commodity in The Philippines. In fact, USTDA technical assistance promotes U.S. made environmental technology and equipment and services which, in turn, aims at creating new demands for U.S. made equipment and services.

This new demand for U.S. equipment and services would have a net positive effect on the U.S. trade balance, as expansion of the current volume of environmental equipment and related export would most likely increase employment in the U.S.

Technical personnel from the U.S. would be required to travel to The Philippines in order to provide technical assistance for the projects. 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.

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.

## J1. QUALIFICATIONS

It is proposed that the FS be conducted by an expert U.S. company with ample experience in the fields of onsite wastewater treatment, advance wastewater treatment and pumping project station design and implementation. Therefore, it is expected that the company selected will have demonstrated qualifications, experience and the required capability to carry out these projects. The suggested selection criteria for the firm and team that will execute the USTDA grant assistance is the following:

1. Firms' specific experience related to the assignment: 25 points maximum
  - 1.1 Firms' overall experience: 15 points
  - 1.2 Firms' overseas experience: 10 points
2. Adequacy of proposed work plan and methodology in response to the TOR: 25 points maximum
  - 2.1 Knowledge of proposed work and understanding of service: 10 points
  - 2.2 Appropriateness of proposed methodology and workplan: 15 points
3. Qualifications and competence of the key staff for the assignment: 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 Electrical 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

## K1. JUSTIFICATION

The DM finds grounds for USTDA grant assistance for the FS regarding onsite wastewater treatment and wastewater treatment facilities upgrade for the following reasons:

1. The implementation phases of the proposed actions are likely candidates for receiving implementation financing from different sources including the Development Bank of the Philippines and MWCI. The bidding process will meet international tender requirements and as such will facilitate the participation of U.S. companies.
2. The projects will have positive developmental impacts on long-term socioeconomic developments such as the reduction of irreparable pollution damage to the groundwater environment in the study area.

3. The capital investment needed for the acquisition of U.S. manufactured technology represents an opportunity for U.S. product sales and services. The planning level U.S. Exports/USTDA Technical Assistance ratio for onsite wastewater treatment projects is low. However, higher U.S. exports are possible once the benefits of the technology are experienced by a larger number of non-domestic wastewater generators and the technology becomes a common element of the business or trade for environmental regulatory compliance. According to MWCI there are about 3,000 potential customers of onsite wastewater treatment technology. If half of the potential customers utilize U.S. manufactured onsite wastewater management technology, the U.S. export potential increases to about 45 million dollars which is about 100 times the size of the USTDA grant (\$441,139).
4. The projects are the sponsor's developmental priority as they provide technology that will result in the potential reduction of water quality impact.
5. The projects promote U.S. exports and increase sustainable economic growth in the U.S. and the Philippines.
6. USTDA grant assistance is likely to generate support for U.S. companies that face strong competition from foreign companies that receive subsidies and other aid from their governments.
7. There are no indications that the project sponsor will deviate from an openly contested procurement process that provides equal opportunity to U.S. companies.

USTDA funding would prevent foreign governments from providing grant assistance for the development of the projects. It would also strengthen the U.S. position as the Philippines's top economic partner. Moreover, implementation of the project would stimulate economic growth and foreign trade beneficial to both the U.S. and the Philippines.

## L1. TERMS OF REFERENCE

The objective of the prospective feasibility study requested by MWCI will investigate the viability of onsite wastewater treatment. The primary goal of the FS is to provide technical guidance for assessing and confirming the technical, financial and economic viability of developing the Project, (see Section B1.2). The technical assistance will provide the foundation for the expeditious implementation of onsite wastewater treatment systems. Appendix L1 contains the proposed Terms of Reference and budget for the feasibility study. The estimated cost of the USTDA grant to assist with the feasibility study is \$441,139. The DM estimates that the completion of the FS will take approximately six (6) months.

## M1. RECOMMENDATIONS

The DM assessment of the proposed actions indicates that the projects are important to U.S. commercial policies. They also serve as significant marketing avenues for onsite wastewater treatment technologies manufactured in the U.S. These types of technologies are needed in the Philippines for compliance with DENR water quality standards.

Support for USTDA funding of the MWCI FS is justified for the following reasons:

- The Project Sponsor offers logistical and technical support for the execution of the FS including cost sharing for water quality laboratory work, topography and geotechnical surveys;

- The Project Sponsor offers technical personnel, local transportation and office space for logistical support;
- The Project Sponsor indicates its intention to proceed with the project implementation in terms acceptable to U.S. companies providing technology and services for the implementation of the projects; and
- The proposed actions represent potentially significant commercial transactions in terms of capital investment and the long-term export potential needed for Operations & Maintenance. Additionally, there is a recurrent revenue element due to equipment replacement and maintenance activities.

In addition, as discussed in Section E, U.S. manufacturers of environmental and water supply technologies are facing strong competition from Japan and other regional companies. USTDA offers a significant opportunity for U.S. companies to exert their competitive presence in the Philippines and the South East Asian region which will provide future competitive advantages and business opportunities. Accordingly, USTDA study funding addresses a relatively important business element as it counteracts marketing efforts of foreign companies in the Philippines and the surrounding region. Also, the project will demonstrate the capability of U.S. onsite wastewater treatment systems and advanced wastewater treatment technologies for wastewater conditioning for reuse. Consequently, the DM recommends supporting MWCI's request for an FS

## **N1. CONTACTS**

See Appendix N1.

Appendix C.1 MWCI Support Letter



March 5, 2008

**Ms. DIANA ROSSITER**  
Country Manager  
U.S. Trade and Development Agency  
1000 Wilson Boulevard, Suite 1600  
Arlington, VA 22209-3901

**Re: Manila Water Company Request for USTDA Technical Assistance**

Dear Ms. Rossiter:

Manila Water Company, Inc is interested in seeking USTDA Technical Assistance for the feasibility study on Wastewater Treatment for Reuse and Onsite Wastewater Treatment Technology Solutions for Commercial and Industrial Traders. Manila Water's present thrust is to expand its wastewater services, and is in the process of implementing its wastewater master plan and these two mentioned priority projects are complementary to our business plan.

The USTDA technical assistance will study the technical, economic and financial details of the above-mentioned projects, as well as justify the accompanying capital investment. These are non-regulated projects that Manila Water intends to implement if the feasibility study confirms their technical viability and profitability. Manila Water's contribution to the study cost will include office space, local communication including internet connection and local transportation for the USTDA consulting team.

Please do not hesitate to contact me or Lyn R. Almario if you have any question or require further information in support of our request for USTDA Technical Assistance.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Antonino T. Aquino'.

**ANTONINO T. AQUINO**  
President

## Appendix L1 Terms of Reference

### TERMS OF REFERENCE FOR THE MWCI ONSITE WASTEWATER TREATMENT AND WASTEWATER TREATMENT FACILITIES UPGRADE FEASIBILITY STUDY

#### BACKGROUND

The Grantee currently provides more than 317 Million Gallons per Day (MGD) of water to over one-million households. As of 2007, the Grantee also provides septage collection and treatment to over 270,000 households in the Manila Metropolitan Area. Despite these efforts, the service area is characterized by a limited wastewater collection and treatment; the Grantee hopes to increase its wastewater management, providing coverage to 30 percent of its customers, by the year 2010.

The Grantee documents that there are about 3,000 non-domestic water users that rely on septic tanks that do not meet current Philippine Department of Natural Resources' (DENR) water quality standards (50 ppm of BOD<sub>5</sub>, 75 ppm of TSS). To meet DENR standards, several of these potential non-domestic customers, including fast food restaurants, have requested onsite wastewater treatment service. The Grantee has in turn requested USTDA funding to help identify appropriate onsite wastewater treatment solutions, which would improve wastewater discharge from commercial and industrial traders. To accommodate affluent that would be produced by the onsite wastewater treatment solutions, the Grantee has also requested that the Study recommend upgrades for four (4) treatment facilities that would accept the pre-treated waste, from the onsite services recommended, without incurring non-compliance water quality liabilities.

#### OBJECTIVE OF THE STUDY

The U.S. Trade and Development Agency (USTDA) grant will provide technical support to Manila Water Company, Inc., MWCI, (Grantee) for a feasibility study (Study) that will investigate onsite wastewater treatment options for potential non-domestic customers (also referred to as commercial and industrial traders) in the Philippines (Host Country). The Study will also assess and identify the technology needed to upgrade four (4) treatment facilities to allow the Grantee to accept raw or pre-treated non-domestic wastewater for further treatment, without incurring non-compliance water quality liabilities. Lastly, the Study will identify necessary septage treatment technology, wastewater treatment technology for wastewater conditioning for reuse, and related water quality monitoring systems as it relates to the identification of onsite treatment options and necessary facility upgrades.

The objective of the Study is to evaluate the technical, financial, economic, environmental, and regulatory feasibilities and the developmental impacts associated with the Project, in order to help the Grantee's commercial customer base meet DENR requirements. The Project includes:

#### Identification of Onsite Treatment Solutions Scenarios

- Individual Onsite Treatment Systems – The Contractor shall identify onsite wastewater treatment systems for six (6) individual, different types of commercial customers. The Grantee shall identify the six (6) customers to be considered under this scenario; and,
- Cluster Onsite Treatment System – The Contractor shall identify onsite wastewater treatment systems for six (6) groupings or clusters of commercial waste generators (each grouping shall be comprised of four to five individual commercial entities). The groupings shall be selected by the Grantee.

Note: The Grantee's identification and selection of the participating commercial wastewater generators will take into account wastewater generation and the availability of analytical data.

### Identification of Grantee Wastewater Facility Upgrades

- The Contractor shall identify the technology needed for four (4) of the Grantee's wastewater treatment plants, septage treatment plants or combined sewer overflow plants to accept raw or pretreated commercial and industrial wastewater or septage for further treatment. The recommendations shall attempt to ensure that the Grantee will not incur non-compliance water quality liabilities, if they choose to take on the commercial wastewater that is deferred. The four (4) facilities to be considered for upgrades are:
  - (1) South Septage Treatment Plant (FTI Complex, Taguig): The Grantee's biggest septage treatment plant (SpTP) is designed to accept a maximum of 814 m<sup>3</sup>/day (0.215 MGD) of septage. This facility was completed as part of the Manila Third Sewerage Projects (MTSP) in 2007.
  - (2) North Septage Treatment Plant (San Mateo, Rizal): This is the second septage treatment facility constructed under MTSP and was completed in 2007. Design capacity is 586 m<sup>3</sup>/day (0.15 MGD). Both North SpTP and South SpTP have the potential to accept sewage and sludge from commercial and industrial establishments. The two facilities were initially designed for domestic septage using conventional activated sludge. Modification of these facilities is necessary if they are to treat non-domestic wastes. Aside from trade effluent related improvements, waste-to-energy components are also planned for both the North and South SpTPs. Waste-to-energy improvements are not part of this USTDA Study.
  - (3) Makati South Sewage Treatment Plant (Magallanes Village, Makati, MSTP): This is currently the country's largest sewage treatment plant with a 40,000 m<sup>3</sup>/day (11 MGD) capacity. It treats wastewater from the Makati Commercial Business District, the country's premier financial & commercial district.
  - (4) MTSP STPs: Currently there are at least 10 STPs being funded by the MTSP. These STPs are combined sewage-drainage (combined sewer overflow) systems and will treat substantially larger volumes of wastewater. Examples of such developments include the 90MLD (23.76 MGD) Taguig Sewer System STP, the 40MLD (10.56 MGD) Makati South STP2, the 15MLD (3.96 MGD) East Ave. Regional STP, the 10MLD (2.64 MGD) Olandes STP and the 120 MLD (31.7 MGD) Marikina City Sewer Masterplan STPs. The Grantee will select one (1) of these 10 facilities for the Study.
- The Contractor shall also review and identify the level of onsite wastewater pre-treatment required from various commercial wastewater generators for discharge to the four (4) Grantee facilities indicated above.
- The Contractor shall investigate and recommend advanced wastewater treatment technology for upgrading the Makati South Sewage Treatment Plant (MSTP) and one currently planned wastewater facility for wastewater conditioning for reuse.

## Task 1 DETAILED BACKGROUND REVIEW

The Contractor shall review the Philippine Department of Environment and Natural Resources (DENR) water quality regulatory requirements including those that apply to commercial customers. The Contractor shall assess and become familiar with the Study area and type of commercial customers that require the Grantee's services in order to comply with the DENR requirements.

**Subtask 1.1 Onsite Treatment Solution Scenario Background Review**

The Contractor shall review all existing and available background information on the commercial wastewater generators. The background information shall include, but not be limited to water supply data, wastewater analytical data and their commercial operations, and environmental settings. The Grantee is responsible for providing the water supply and wastewater analytical data requested by the Contractor. As part of this task, the Contractor shall meet with Grantee officials, wastewater generators representatives, DENR, and other relevant stakeholders. The Contractor shall become familiar with the procurement mechanisms for acquiring the onsite wastewater treatment systems.

**Subtask 1.2 Grantee Wastewater Facility Upgrades Background Review:**

The Contractor shall inspect each of the four (4) facilities identified for the Study. The Contractor shall review reports, water quality data, engineering drawings and technical information pertaining to the four (4) wastewater systems identified. Additionally, the Contractor shall become thoroughly familiar with the each facility.

As a result of this task the Contractor shall be fully acquainted with DENR, the Grantee, the commercial wastewater generators and their institutional requirements. The Contractor shall also be familiar with all requirements of the Study.

Estimated duration of Task 1: Twenty (20) workdays

**Task 2 STUDY MANAGEMENT PLAN**

The Contractor shall organize a meeting at the start of the Study to exchange ideas and develop an integrated study plan for all components of the Study. The Contractor shall coordinate activities with all Study team members including the Contractor staff, Grantee personnel and commercial wastewater generators. The Contractor shall prepare a detailed project management plan outlining the responsibilities of each entity including the Grantee, participating commercial wastewater generators and other stakeholders.

Deliverable: Technical Memorandum including Preliminary Findings and Workplan (Inception Report)

Estimated duration of Task 2: Two (2) workdays

**Task 3 WASTEWATER TREATMENT TECHNOLOGY EVALUATION****Subtask 3.1 Onsite Wastewater Treatment Technology Assessments**

The Contractor shall investigate technical solutions for the six (6) individual commercial wastewater treatment customers and for the six (6) groupings of commercial wastewater generators. The Contractor shall provide specific technical specifications for the immediate installation of the identified onsite wastewater treatment systems. The Contractor shall also provide the technical requirements needed for the Grantee to prepare the procurement documents to acquire the technology and proficiency to operate the onsite wastewater treatment systems identified.

It is the Grantee's responsibility, not the Contractor's, to provide technical specifications for civil work and civil work construction cost estimates as it relates to the onsite systems identified. The Grantee shall also be responsible for the collection of wastewater flow data, wastewater sampling and analysis, and the provision of other data deemed necessary to conduct the Study, such as, but not be limited to power source data, topographical information and utilities survey.

The Contractor shall work closely with the Grantee and commercial wastewater generators to establish the technology needed to meet the goals of the Study. The Contractor shall evaluate and identify the hardware, staffing capability and other resource requirements for implementing and supporting the long-term operation of the onsite wastewater treatment and monitoring technology for each of the onsite treatment scenarios addressed as part of the Study.

**Deliverable: Technical Memorandum**

Estimated duration of Subtask 3.1: Ten (10) workdays

**Subtask 3.2 Grantee Wastewater Facility Upgrade Technology Assessment**

The Contractor shall work closely with the Grantee to identify the wastewater, septage and combined sewer overflow facility treatment and monitoring technology needed to upgrade wastewater treatment capability at the four (4) wastewater treatment facilities selected for the Study.

**Deliverable: Technical Memorandum**

Estimated duration of Subtask 3.3: Ten (10) workdays

**Subtask 3.3 Wastewater Pre-Treatment Technology Assessment**

The Contractor shall work closely with the Grantee and the commercial wastewater generators to identify and select the wastewater pre-treatment and monitoring technology. The identification and selection of the wastewater pre-treatment technology shall take into account the capacity of the Grantee's wastewater treatment facilities and DENR water quality standards and permitting requirements. The Contractor shall select pre-treatment technology that can be installed and operated at the commercial wastewater locations. The Grantee shall provide the water supply data and wastewater analytical data requested by the Contractor for this work.

The Contractor shall work with the Grantee and commercial wastewater generators to identify and determine the requirements of the wastewater pre-treatment systems including monitoring, operation and control of the processes involved. The evaluation shall include estimating the cost of the required systems and developing information and data for the Study report.

**Deliverable: Technical Memorandum**

Estimated duration of Subtask 3.2: Ten (10) workdays

**Task 4 FEASIBILITY ANALYSIS OF THE PROJECT**

The Contractor shall conduct and articulate a detailed feasibility analysis of the Project developed above. The Contractor shall assess the technical, economic, financial, environmental and regulatory feasibility of the Project. The Contractor shall provide a detailed project implementation cost for the onsite treatment solution and Grantee wastewater facility upgrades (this shall also include any wastewater pre-treatment technology identified as part of the Project).

The Contractor shall estimate the economic and financial impacts of the investment by comparing current socioeconomic conditions (without the Project) to future socioeconomic scenarios (successful implementation of the Project). Socioeconomic factors that could be used for the analysis may include, but shall not be limited to, income, employment, taxes, impacts on business and property owners, increased short-term and long-term employment, project construction, cost of environmental deterioration and loss of valuable water resources.

The Contractor shall provide the technical specifications and related documentation for the Grantee to procure the equipment and monitoring technology needed for the full implementation of the Project. The Contractor shall identify training needs to ensure that the Grantee's technical personnel and commercial wastewater customers acquire the technical proficiency needed to operate and maintain the onsite wastewater treatment systems and facility upgrades in accordance with their operational capacity.

#### **Subtask 4.1      Technical Assessment of the Project**

The Contractor shall prepare a technical assessment of the Project which shall include, but not be limited to, the analysis of the following factors:

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

#### **Subtask 4.2      Economic Analysis of the Project**

The Contractor shall prepare an economic analysis to assess the benefits/disadvantages of Project implementation based on a set of socioeconomic indicators. The Contractor shall examine the economic benefits of using onsite wastewater treatment or wastewater pre-treatment as compared to using the existing wastewater management technology. To this end, the analysis shall take into account all avoidable wastewater management impacts and economic costs associated with them.

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

#### **Subtask 4.3      Financial Analysis of the Project**

The Contractor shall prepare a financial analysis related to the implementation of the Project. The financial analysis shall help the Grantee and commercial wastewater generators to seek and obtain project financing. The financial analysis shall satisfy the requirements of prospective funding institutions, which shall be identified by the Grantee at the onset of the Study. In concert with the Grantee, the Contractor shall assess the potential interest of the Development Bank of the Philippines (DBP), local commercial banks and other local and international financial institutions in lending support to the Project. The financial analysis shall include, but shall not be limited to, a detailed analysis of the proposed debt-equity structure and a full description of the cost-recovery program required for the self-sustainability of the Project.

The cost-recovery program shall take into account the costs associated with the operation and maintenance of the Project, in addition to the debt service and the cost of replacement. Future significant capital expenditures are expected to be required to replace, update, and/or upgrade Project capability and equipment, thus the Contractor shall include these cost components in the water charges that are recommended. The Contractor shall also identify all potential sources of revenue for the Project.

#### **Subtask 4.4      Human Health and Environmental Impact Analysis of the Project**

The Contractor shall identify, discuss, and analyze the human health and environmental impacts that would from the Project's implementation. The environmental impact analysis shall be carried out in accordance with the Government of Philippines regulations and be based on the information and data provided by the Grantee and commercial wastewater generators. This type of project will require compliance with the standards of the Philippines National Water Resources Board ([www.NWRB.gov.ph](http://www.NWRB.gov.ph)), Department of Health ([www.doh.gov.ph](http://www.doh.gov.ph)) and the DENR ([www.DENR.gov.ph](http://www.DENR.gov.ph)). These agencies shall be

consulted as part of the Study. In compliance with the Philippines environmental regulatory framework, an Initial Environmental Examination (IEE) shall be prepared as part of the Study. Environmental control and mitigation measures shall be assessed and specified as necessary. This environmental impact analysis does not include the preparation of a full Environmental Impact Assessment (EIA) report; the Contractor is only responsible for the preparation of the IEE under these Terms of Reference.

#### **Subtask 4.5 Water Resources System Impact Analysis of the Project**

Using baseline data, the Contractor shall identify the positive and negative short-term and long-term impacts on groundwater and surface water systems which could result from the Project's implementation. The analysis shall include the identification and discussion of mitigation measures available to reduce potential negative groundwater impacts. The Grantee and commercial wastewater generators shall provide all data and information required for the analysis of the Project's water quality impacts.

#### **Subtask 4.6 Ecological Impact Analysis of the Project**

The Contractor shall analyze the short-term and long-term impacts on sensitive life forms and ecological systems resulting from the Project's implementation. The analysis shall include the identification and discussion of available mitigation measures that reduce negative impacts to the greatest extent possible. The Grantee shall provide all the required data and information for the analysis of the Project's potential ecological impacts.

#### **Subtask 4.7 Socioeconomic Impact Analysis of the Project**

The Contractor 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 the implementation of the Project.

#### **Subtask 4.8 Developmental Impact Assessment of the Project**

The socioeconomic analysis discussed in Task 4.7 shall provide the basis for assessing the potential developmental impact of the Project. For the benefit of those interested in the Project, the Contractor shall assess the Project's developmental benefits and the methodology for measuring those benefits for up to five years following the completion of the Study. The assessment shall include examples of what is expected to result if the Project is implemented as outlined in the Final Report. The Contractor shall focus specifically on examples from the categories listed below and develop a methodology for assessing these impacts over time (up to five years). The Contractor shall identify how to obtain the information to assess these impacts, in the future (e.g., the Grantee, trade statistics, or U.S. Embassy in the Host Country). The Contractor shall only list benefits in the categories that are applicable to the Project. The categories to be considered are as follows:

- **Infrastructure:** Estimate the expected scale of infrastructure construction and comment on the capabilities of any recommended infrastructure improvements.
- **Human capacity building:** Estimate the number and type of jobs created during the construction or installation phases if the Contractor's recommendations are implemented. Distinguish between temporary construction jobs and the number of jobs that would be created or sustained once construction is complete. Comment on any prospective training recommended in the Final Report, including an estimate of the number of persons to be trained, type of training needed, and the desired outcome of the training. The estimated job creation can be approximate or based on order of magnitude.
- **Technology transfer and productivity improvements:** Discuss recommended commercial contracts for licensing new technologies, as well as the expected productivity benefits of any such

technologies. Moreover, discuss the expected efficiency gains stemming from these recommendations such as improved systems or processes that enhance productivity or result in a more efficient use of resources. The Contractor shall also describe the improvements in the water quality that could result. The Contractor shall provide current baseline estimates of all anticipated productivity gains 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, privatization of previously state-owned assets, or increased competition in a given sector.
- Other: Discuss prospective, indirect developmental impacts of the key recommendations, such as enhanced safety and economic benefits (including increases in tourism, investment, and indirect job creation) that are not captured in the four categories listed above.

**Deliverable: Technical Memorandum**

Estimated duration of Task 4 (including all its Subtasks): Thirty (30) workdays

**Task 5 IDENTIFICATION OF U. S. SOURCES OF TECHNOLOGY**

The Contractor shall assess the availability of U.S. sources of technology for the recommended components of the onsite wastewater treatment systems and for the recommended upgrades to the Grantee's wastewater treatment facilities and pre-treatment needs. The Contractor shall provide detailed prescriptive technical specifications for each piece of equipment including the manufacturer's business name, point of contact, address, website, telephone and fax numbers, and email address. The Contractor shall contact the identified U.S. manufacturers to notify and discuss this Project and its potential business opportunities. The Contractor shall gauge U.S. manufacturers' interest in participating in the procurement process for this Project and document the findings in the Final Report.

**Deliverable: Technical Memorandum**

Estimated duration of Task 5: Five (5) Workdays

**Task 6 PROJECT WORKSHOP**

The Contractor shall organize and carry out a workshop to present the findings of the Study and showcase, promote and demonstrate the benefits of wastewater treatment technology manufactured in the U.S. The workshop shall aim at providing Philippine businesses a direct opportunity to learn how U.S. wastewater technology can be used to cost-effectively meet DENR water quality requirements. The workshop shall be a full day event divided into three sessions. The first session shall discuss the results and recommendations of the Study. The second session shall discuss the capability of U.S. wastewater technology in meeting DENR water quality standards and shall also provide a listing of U.S. sources of supply including the information developed in Task 5. The Contractor shall provide a brief comparative of U.S. sources of supply as they relate to other foreign suppliers of similar technology and the benefits and disadvantages of both. The third session aims at addressing audience questions regarding specific applications. It is anticipated that the Contractor shall contact the local U.S. Commercial Service for participation in the workshop. The workshop audience shall include:

- Relevant industrial organizations such as Chemical Industries Associations of the Philippines, fast food traders representatives, and commercial wastewater dischargers identified by the Contractor during the course of the Study;

- Government Institutions such as Metropolitan Waterworks and Sewerage System (MWSS), Philippines National Water Resources Board, Department of Health, DENR and Local Water Utilities Administration;
- Water purveyors, the Grantee and Maynilad Water Services, Inc., relevant Water Districts;
- U.S. Manufacturers of wastewater treatment systems; and
- University representatives.

**Deliverable: Workshop Hand-out and Presentations Audio and Visual Aids**

Duration of Task 6: Ten (10) Workdays

**Task 7 PROJECT IMPLEMENTATION PLAN**

The Contractor shall prepare an overall plan for the implementation of each of the Project's components. The implementation plan shall include a procurement plan and technical specifications to acquire the recommended wastewater technology and related services needed for the Project's implementation. The Contractor shall not be responsible for any work associated with publicizing the bidding documents or evaluating proposals under any procurement related activity for this Project.

**Deliverable: Technical Memorandum**

Duration of Task 7: Ten (10) Workdays

**Task 7 FINAL REPORT**

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

Duration of Task 7: Fifteen (15) Workdays

**Notes:**

- (1) The Contractor is responsible for compliance with U.S. export licensing requirements, if applicable, in the performance of the Terms of Reference.
- (2) The Contractor and the Grantee shall be careful to ensure that the public version of the Final Report contains no security or confidential information.
- (3) The Grantee 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) The Grantee shall be responsible for all procurement-related final decisions.

Appendix L1  
 Definitional Mission: Philippines and Indonesia Environmental Sector Projects  
 USTDA-CO2008310003  
 MWC

TECHNICAL ASSISTANCE PROPOSED BUDGET

TASK NAME	LABOR IN PERSON DAYS							LABOR RECAP BY TASK			TRIP RECAP BY TASK		
	Project Manager	Project Engineer	Mechanical Eng.	Electrical Eng.	Financial Analyst	Scientists/ AutoCad	Sponsor Liaison	TOTAL DAYS	LABOR COST	TRIPS	TRIP DAYS	TRIP COST	
Task 1 DETAILED BACKGROUND REVIEW	5	20	5	5	5		20	60	\$53,000	4	35	\$16,295	
Task 2 STUDY MANAGEMENT PLAN	2	2					2	6	\$5,600	1	4	\$2,948	
Task 3 WASTEWATER TREATMENT TECHNOLOGIES EVALUATION	5	30	20	5		10	30	100	\$90,000	2	40	\$13,480	
Task 4 FEASIBILITY ANALYSIS OF THE PROJECT	5	10	5	5	30	30	5	115	\$105,600	2	20	\$8,740	
Task 5 ANALYSIS OF U.S. MANUFACTURERS OF ONSITE WW TREATMENT TECH	1	5					5	11	\$8,000				
Task 6 PROJECT WORKSHOP	5	10				5	10	30	\$26,000	2	10	\$6,370	
Task 7 PROJECT IMPLEMENTATION PLAN	2	10	2	2	10	2	10	24	\$18,200	1	5	\$3,185	
Task 7 FINAL REPORT	2	15				10	15	56	\$51,700	1	3	\$2,711	
LABOR IN PERSON DAYS	27	102	32	17	45	57	122	402	\$358,000				

LABOR INCLUDING OVERHEAD & GENERAL ADMINISTRATIVE

Daily Rate*	\$1,500	\$1,300	\$1,300	\$1,300	\$1,300	\$1,300	\$1,100	TOTAL LABOR COST
	\$40,500	\$132,600	\$41,600	\$22,100	\$58,500	\$62,700	\$0	\$358,000

Outside Consultants

LABOR CATEGORIES	AVERAGE Fully Loaded Daily Rate	Person Days	Cost Extension	TOTAL OUTSIDE LABOR COST
US National**				\$0
			Subtotal Labor	\$0

Other Direct Costs for Outside Consultants\*\*

Ground Travel	Number	Unit	Cost/Unit	Totals
Per Diem	13	RT	\$2,000	\$26,000
Misc Costs Inc, Tel, Fax, Courier	117	Per-Days	\$237	\$27,729
	13	Per-Days	\$50	\$650
	13	RT	\$120	\$1,560
				\$6,000
				\$5,000
				\$5,000
				\$8,000
				\$63,139
				\$441,139

TOTAL OUTSIDE CONSULTANTS (Consultant Labor + Other Costs):

Other Direct Costs	Number	Unit	Cost/Unit	Totals
Total Outside Consultants				\$0
Air Fare	13	RT	\$2,000	\$26,000
Per Diem Location	117	Per-Days	\$237	\$27,729
Local Travel & Local Technical Assistance	13	Per-Days	\$50	\$650
Taxi To & From Airports	13	RT	\$120	\$1,560
Reports reproduction and workshop hand-outs				\$6,000
Workshop including venue, coffee breaks and lunch for 100 attendees				\$5,000
Other Field expenses including DBA & Medevac insurance, airport taxes				\$5,000
Other Administrative Costs, including internet, telephone & fax				\$8,000
TOTAL ODC's				\$63,139
TOTAL USTDA Grant				\$441,139

MWCI Cost Share		
Water Quality Laboratory Work (LS)		\$8,000
Topography (Lump Sum, LS)		\$7,000
Geotechnical Survey (LS)		\$5,000
Local Transportation (LS)		\$10,000
Total Cost Share		\$30,000
USTDA Grant		\$441,139
TOTAL PROJECT COST		\$471,139

Appendix M1  
Contract List

Contract Organization	Contact Person (Last Name)	Address 1	Address 2	City, State	Zip Code	Country	Phone Number	Fax Number	E-mail Address	Date of Contact	Comments
USTDA	Diana Rossler	1000 Wilson Blvd. Suite 1600		Arlington, VA	22209-3901	USA	703 875 4357	703 875 4009	Drossler@usda.gov	1/15/2008	Preliminary Discussion on Philippines Projects
USTDA	Sтивен	1000 Wilson Blvd. Suite 1600		Arlington, VA	22209-3901	USA	703 875 4357	703 875 4009	Sstevens@usda.gov	1/15/2008	Preliminary Discussion on Indonesia Projects
USTDA	Henry Stengass	1000 Wilson Blvd. GFP Wilmary Tower A, 931F Wireless Road		Arlington, VA	22209-3901	USA	703 875 4357	703 875 4009	Hstengass@usda.gov	1/16/2008	Preliminary Discussion on Indonesia and Philippines Projects
USTDA	Rachaneekom Stiswasdi	178 American Business Center, 281F, Ayala Life- F&U Center		Bangkok		Thailand	66 2 205 5278	66 2 255 4366	rachaneekom.stiswasdi@mail.go v.gov	12/22/2008	Informed about the USTDA DM and Exchanged emails on Maclean, Rock Ind. Contact Information.
US Commercial Service Manila	Babe Montesines	6811 Ayala Ave.		Manila City		The Philippines	632 888 6077	632 888 6606	Babe.Montesines@mail.doc.gov	1/16/2008	Informed about the USTDA DM and Exchanged emails on meeting schedule
US Commercial Service Jakarta	Anasia Shiva	3rd Floor The World Trade Center Jl. Jenderal Sudirman Kav. 29- 31, Jakarta		Jakarta	12920	Indonesia	62 21 5252850	62 21 5262855	anasia.shiva@mail.doc.gov	1/16/2008	Informed about the USTDA DM and Exchanged emails on meeting schedule
US Commercial Service Jakarta	Richard Rothman	Wisma Metropolitan Complex Bappenas 2A Bldg., 4th F		Jakarta	10310	Indonesia	62 21 3900412	62 21 3905650	rrothm@bappenas.go.id	1/16/2008	Contacted to inform about the USTDA DM and schedule meeting
Bappenas	Ir. Medrizam	Jl. D.I. Panjaitan Kaw. 24, Kebon Nipas		Jakarta	10410	Indonesia	021 8891 1207	021 8591 1207	ade@medrizam.go.id	1/16/2008	Contacted to inform about the USTDA DM and schedule meeting
MSE	Ade Paul	Building B 4th F Changwadi, Halasan District		Jakarta	10029	China	85 10 8284 1809, cell 13501842240		ade@medrizam.go.id	1/16/2008	Contacted to inform about the USTDA DM and schedule meeting
Dakota Point Emission Technologies	Robert Rusl	1601 N. Kent St. Garvey West		Burlington, WA	98233	USA	360 757 1210	360 757 1210	Robert.Rusl@emission.com	1/19/2008	Traded emails on Indonesia Air Quality Project Discussed the project and their experience in Indonesia Air Quality Projects.
ARD, Inc.	Shendoyin Escobar	1001 Fourth Ave. Level 34		Arlington, VA	22203	USA	703 807 5700	703 807 0889	gescobar@ardinc.com	1/15/2008	Discussed the projects SOW and ARD Interest
CH2M Hill	John Quarendon	777 108th Ave. NE Redenbaugh		Singapore	189720		1011 85 6391 0350	425 488 3188	john.quarendon@ch2m.com	1/23/2008	Contacted to inform about the USTDA DM.
CP&M Hill	Laurel Wilson	415 Oak St. 1 Maritime Square, Harbour Front Centre		Bellevue, WA	98004	USA	425 233 3289	425 488 3188	laurel.wilson@cpandm.com	1/15/2008	Contacted to inform about the USTDA DM.
Tetra Tech	Richard Hurdle	1001 Fourth Ave. Level 34		Kansas City, MO	64106	USA	703 875 4387	913 549 3876	Richard.wilson@tetra.tech	1/15/2008	Discussed the projects SOW and TI Interest
CDM	Robert Alan	1001 Fourth Ave. Level 34		Singapore	59253	Singapore	65 6273 3311	65 6278 0297	rhurdle@cdm.com	1/15/2008	Was informed about the projects, indicated interest
R. W. Beck	Alan Bustley	1001 Fourth Ave. Level 34		Seattle, WA	98154-1004	USA	206 695 4700	206 695 4772	bustley@rwbbeck.com	1/15/2008	Discussed the projects SOW and RW Beck Interest
Louis Berger	Richard Hirsch	Unit 3, 12 Floor Urban Bank Plaza Avenue		Makati City		The Philippines	632 812 1647	632 812 5665	rhirsch@louisberger.com	1/21/2008	Was informed about the projects.
EarthTech	Geneer Alvarez	Exchange Road Origas Center		Pasig City	1600	Philippines	632 638 2477	632 634 4466	g_alvarez@eartht.net	2/13/2008 and 2/13/2008	Discussed U.S. engineering firms interest in MWC Design and Build Wastewater Projects. Discussed the project and encouraged to participate in its bidding process.
HDR, Inc.	Yulung Chang	500 108th Ave. NE Suite 400		Bellevue, WA	98004	USA	425 450 8275	425 488 3188	Yulung.Chang@hdrinc.com	4/10/2008	Discussed the project and encouraged to participate in its bidding process.
Greeley & Hansen	Fernando Sarmiento	426 N 44th Street Suite 400		Phoenix, AZ	85008	USA	602 275 5595	602 275 5595	Fsarmiento@greeley-hansen.com	4/12/2008	Discussed the project business opportunities and their interest.
BSL Global Water	Lory Siess	1818 H Street NW Room MCA-725		Washington, D.C.	20422	USA	202 473 8934	202 522 0761	lorsie@bslwater.com	4/8/2008	Discussed the project business opportunities and their interest.
ClearBlu Complete Water Services	Robert Bby	Jakarta Stock Exchange Building, Tower 2, 12th Floor, 53		Washington, D.C.	20422	USA	202 473 8934	202 522 0761	www.clearbluwater.com	4/8/2008	Discussed the project business opportunities and their interest.
Cromglass Corp.	Jim Lewis	1818 H Street NW Room MCA-725		Washington, D.C.	20422	USA	202 473 8934	202 522 0761	www.cromglass.com	4/8/2008	Discussed the project business opportunities and their interest.
Norweco	Chady McGroarty	1818 H Street NW Room MCA-725		Washington, D.C.	20422	USA	202 473 8934	202 522 0761	www.norweco.com	4/8/2008	Discussed the project business opportunities and their interest.
Orencia	Geoffrey Salfhouse	1818 H Street NW Room MCA-725		Washington, D.C.	20422	USA	202 473 8934	202 522 0761	www.orencia.com	4/8/2008	Discussed the project business opportunities and their interest.
RGF Environmental The World Bank	Sharon Reinhammer Menzies	1818 H Street NW Room MCA-725		Washington, D.C.	20422	USA	202 473 8934	202 522 0761	www.rgf.com	1/15/2008	Discussed the project business opportunities and their interest.
The World Bank	Josef Leilmann	Jakarta Stock Exchange Building, Tower 2, 12th Floor, 53		Jakarta	12190	Indonesia	62 21 5299 3052, cell 62-81-3160- 18876	62 21 5299 3052	jleilmann@worldbank.org	1/15/2008	Informed about the USTDA DM and Exchanged emails on meeting schedule
The World Bank	Maya Villaluz	23rd Floor, The Talpan Place		Pasig City	1605	Philippines	9173074	9173074	Maya.villaluz@worldbank.org	1/16/2008	Discussed World Bank projects being funded and in the pipeline including LWUA, DSP and Land Bank Loans.
The World Bank	Risyanita Sukarna	Jakarta Stock Exchange Building, Tower 2, 12th Floor, 53		Jakarta	12190	Indonesia	632 632 67057	632 636 2336	Rsuikarna@worldbank.org	2/13/2008	Met to discuss the ADB plans and programs for the Philippines water and wastewater sector.
Asian Development Bank	Rudolf Frauendorfer	Room 6411 West Core, 6th Floor		Mandaluyong City		The Philippines	632 632 5172	632 636 2336	rfrueendorfer@adb.org	2/13/2008	Met to discuss the ADB plans and programs for the Philippines water and wastewater sector.
Asian Development Bank	Hubert Jenny	Room 6403 West Core, 6th Floor		1650 Metro Manila		Philippines	632 632 5172	632 636 2336	hubertj@adb.org	2/11/2008	Discussed USTDA Mission in the Philippines

Appendix N1  
Contact List

Asian Development Bank	Yoshiaki	Kobayashi	Room 6627 South	6 ADB Avenue	1650 Metro Manila	The Philippines	63 2 632 5994	632 636 2444	2/1/2008	Discussed USTDA Mission in the Philippines. Contacted to inform about the USTDA DM and schedule meeting.
Asian Development Bank	John	Cooney	438 E. Vanderbilt Way		San Bernardino, CA	USA	909 890 5811	909 890 5612	1/7/2008	Reviewed proposal and provided comments, scheduled LWUA meeting.
Nobel Systems	Michael	Samuel	1404 Prestige Tower, F. Ortigas Jr. Rd.		Pasig City	The Philippines	632 631 7920	632 631 3080	2/11/2008	Discussed the Nobel LWUA Proposal budget and district commitment.
CEST	Antonio	Navarro	61F Strata 2000 Bldg.		Pasig City	The Philippines	632 634 5691	632 634 3870	1/16/2008	Informated about the USTDA DM and Exchanged emails on meeting schedule
WB-Solutions	Linda	Quintos				The Philippines	6333 337 3272	6333 336 6538	1/23/2008	Contacted to inform about the USTDA DM and schedule meeting
Metro Iloilo Water	Edwin	Reyes	Bonifacio Drive		Iloilo City	The Philippines	048 433 5032	048 433 6803	1/23/2008	Contacted to inform about the USTDA DM and schedule meeting
Puerto Princesa Water District	Antonio	Romasarita	263 Rizal Ave. 3850 Gen.		Puerto Princesa	The Philippines	632 918 93 59599	632 843 6628	1/23/2008	Contacted to inform about the USTDA DM and schedule meeting
Maclan Rock Ind.	Lito	Maderazo	San Gil J. Puyat Ave. Corner Makati Ave.		Makati City	The Philippines	632 893 1782	632 815 1517	2/11/2008	Discussed the DBP Water Supply and Sanitation Privatization Investment Fund FS Proposal.
Development Bank of the Philippines	Florinto	Dilby	San Gil J. Puyat Ave. Corner Makati Ave.		Makati City	The Philippines	632 893 3548	632 815 1517	2/11/2008	Discussed the DBP Water Supply and Sanitation Privatization Investment Fund FS Proposal.
Development Bank of the Philippines	Paul	Lazaro	San Gil J. Puyat Ave.		Makati City	The Philippines	632 893 45 691	632 815 1517	2/11/2008	Discussed the DBP Water Supply and Sanitation Privatization Investment Fund FS Proposal.
WB-Solutions	Nothert	Loesch	61F Strata 2000 Bldg.	Emerald Avenue,	Pasig City	The Philippines	632 63 45 691	632 63 45 691	2/12/2008	Discussed the Maragondon Project FS Proposal.
WB-Solutions	Ed	Sanque	61F Strata 2000 Bldg.	Emerald Avenue,	Pasig City	The Philippines	632 63 45 691	632 63 45 691	2/12/2008	Discussed the Maragondon Project FS Proposal.
WB-Solutions	Maurits	Van Linder	61F Strata 2000 Bldg.	Emerald Avenue,	Pasig City	The Philippines	632 63 45 691	632 63 45 691	2/12/2008	Discussed the Maragondon Project FS Proposal.
Maragondon Water District	Manuel	Angeles			Maragondon	Cavite 4112	412 1675	412 0787	2/12/2008	Discussed the Maragondon Project FS Proposal.
MWSS	Leonor	Cleofas	G/F Engineering Bldg.	MWSS Complex, 489 Katipunan Road, Balara	Quezon City	The Philippines	929 5413		2/13/2008	Discussed Maynilad Wastewater Projects and asked to submit a proposal for USTDA TA.
Maynilad	Antonio	Garcia	G/F Engineering Bldg.	MWSS Complex, 489 Katipunan Road, Balara	Quezon City	The Philippines	632 435 2161		2/13/2008	Discussed Maynilad Wastewater Projects and asked to submit a proposal for USTDA TA.
LWUA	Bernardito	De Jesus	MWSS-LWUA Complex	Katipunan Road	Quezon City	The Philippines	632 929 4035		2/13/2008	Discussed LWUA GIS Projects including their interest and commitment.
LWUA	Oriando	Hondrade	MWSS-LWUA Complex	Katipunan Road	Quezon City	The Philippines	632 929 6107	632 920 5446	2/13/2008	Discussed LWUA GIS Projects including their interest and commitment.
Nobel Systems	Michael	Samuel	438 East Vanderbilt Way		San Bernardino, CA	USA	909 890 5611	909 890 5612	2/13/2008	Discussed the technical details of the LWUA GIS Projects including the implementation budget.
ID Modeling	Paul	Hautfen	303 N Lake Avenue, Suite 230		Passadena, CA	USA	626 765 0500	626 765 0520	2/13/2008	Discussed the technical details of the LWUA GIS Projects including the implementation budget.
MWC	Francisco	Landayan	MWSS-Admin Bldg.	Katipunan Road	Quezon City	The Philippines	632 926 7999	632 881 8161	2/14/2008	Discussed the technical details of MWC proposals
MWC	Loida	Dino	MWSS-Admin Bldg.	Katipunan Road	Quezon City	The Philippines	632 249 1646	632 981 8161	2/14/2008	Discussed the technical details of MWC proposals
MWC	Fiorelia	Fabela	MWSS-Admin Bldg.	Katipunan Road	Quezon City	The Philippines	632 981 8126	632 981 8164	2/14/2008	Discussed the technical details of MWC proposals
MWC	Christopher	Calentong	MWSS-Admin Bldg.	Katipunan Road	Quezon City	The Philippines	632 981 8165	632 928 5762	2/14/2008	Discussed the technical details of MWC proposals
MWC	Verna	Orey	MWSS-Admin Bldg.	Katipunan Road	Quezon City	The Philippines	632 981 8111	632 981 8164	2/14/2008	Discussed the technical details of MWC proposals
MWC	Rolando	Palac	MWSS-Admin Bldg.	Katipunan Road	Quezon City	The Philippines	0917 8733 028	632 981 8161	2/14/2008	Discussed the technical details of MWC proposals
MCA	Carlos	Gavino	8/F PNB Financial Center	President Diosdado Macapagal Boulevard	Pasay City	The Philippines	632 552 9856	632 552 8993	2/14/2008	Discussed the details of the MCC program in The Philippines
MOE	Ade	Paiguna	Building B 4th F	J. D.J. Pangajalan Kav. 24, Kebon Nenas	Jakarta	Indonesia	62 21 8591 1207		2/18/2008	Met to discuss MOE plans and technical details for the proposed AQM-J project
MOE	Linda	Krisnawati	Building B 4th F	J. D.J. Pangajalan Kav. 24, Kebon Nenas	Jakarta	Indonesia	62 21 8591 1207		2/18/2008	Met to discuss MOE plans and technical details for the proposed AQM-J project
MOE	Rasio	Santi	Building C 2nd F	J. D.J. Pangajalan Kav. 24, Kebon Nenas	Jakarta	Indonesia	62 21 8590 5639	62 21 8590 6679	2/18/2008	Met to discuss hazardous waste management in Indonesia and discussed MOE plans for H2W in East Java.
MOE	Lihem	Maik	Building C 2nd F	J. D.J. Pangajalan Kav. 24, Kebon Nenas	Jakarta	Indonesia	62 21 8591 1114		2/18/2008	Met to discuss MOE plans for H2W management in East Java.
MOE	Syaiful	Bahri	Building C 2nd F	J. D.J. Pangajalan Kav. 24, Kebon Nenas	Jakarta	Indonesia	62 21 8591 1114		2/18/2008	Met to discuss MOE plans for H2W management in East Java.

Appendix N1  
Contact List

MOE	Christofel	Straif	Jl. D.I. Pangeran Kev. 24, Kebon Nanas	Jakarta	13410	Indonesia	62 21 8590 5639	62 21 5299 3111	christofel@yahoo.com	2/18/2008	Met to collect information on HZW management in Indonesia. Met to discuss environmental sector projects in Indonesia
World Bank	Risyana	Sukarna	Jakarta Stock Exchange Building, Tower 2, 12th Floor 53	Jakarta	12180	Indonesia	62 21 5299 3000	62 21 5299 3111	Risikaerna@worldbank.org	2/19/2008	Met to discuss environmental sector projects in Indonesia. The discussion focused on LFG carbon credit (Certified Emission Reductions) projects being implemented under the stewardship of the World Bank
World Bank	Ina	Pronoto	Jl. Jenderal Sudirman Kav. 52- Tower 2, 12th Floor	Jakarta	12190	Indonesia	62 21 5299 3183	62 21 5299 3111	ipranoto@worldbank.org	2/19/2008	Met to discuss the details of the Indonesia DM.
USCS	Richard	Rehman	Wisma Metropolitan II, 3rd Fl.	Jakarta	12920	Indonesia	62 21 526 2850		richard.rehman@mail.doc.gov	2/19/2008	Met to discuss the details of the Indonesia DM.
USCS	Aulia	Rochaini	Wisma Metropolitan II, 3rd Fl.	Jakarta	12920	Indonesia	62 21 526 2850	62 21 526 2855	aulia.rochaini@mail.doc.gov	2/19/2008	Met to discuss the details of the Indonesia DM.
USAID	Suzzana	Bilfratz	Jl. Taman Sutopati No. 2 Bldg 4th Floor	Jakarta	10310	Indonesia	62 21 3435 9469	62 21 390 0412	SullimarZ@usaid.gov	2/20/2008	Discussed USAID HZW projects in Indonesia.
BAPPENAS	Penny	Luhito	Jl. HR. Rasuna Serang Lantai 10	Jakarta Pusat	10310	Indonesia	62 21 380 0412	62 21 390 0412	penyulkipto@alum.mit.edu	2/21/2008	Discussed BAPPENAS interest in USTDA technical assistance.
West Java Province	Daniel	Abbas	Jl. HR. Rasuna Serang Lantai 10	Jakarta Selatan	10340	Indonesia	62 522 8435	62 522 8443	danial@jabarprov.go.id	2/21/2008	Discussed West Java Province interest in USTDA technical assistance.
West Java Province	Rina	Suryani	Jl. HR. Rasuna Serang Lantai 10	Jakarta Selatan	10340	Indonesia	62 522 8435	62 522 8443	denvalis@yahoo.com	2/21/2008	Discussed West Java Province interest in USTDA technical assistance.
Information Center	Ahmad	Safudin	Jl. Timur No.10 Menteng Floor	Jakarta	10340	Indonesia	62 21 319 06807	62 21 315 3401	ahmadsafudin@yahoo.com	2/21/2008	Discussed Lead Fuel Policies. Contacted his office to discuss their interest in USTDA technical assistance for a LFG to Energy project at the Banjar Gebang Landfill.
Capital City of Jakarta	Ir. Eko	Banuna	Mandala 5 Celestian Besar	Jakarta, Timur	Indonesia	Indonesia	0812 820 7090, Office 021 809 1056	809 1056	eko@indonesiainfo.org	2/21/2008	Discussed the projects under consideration for USTDA assistance.
Selig International	Jeff	Beliaup	4E Hidaigo Place, Hidalgo Drive 88 Corporate Center	Makati City, Manila	The Philippines	Philippines	09 18 250 4922	632 856 8820	jeffbeliaup@aol.com	2/20/2008	Discussed the projects under consideration for USTDA assistance.
Falbon	Ditmar	Gorgies	141 Valero St., Unit 1602 Center	Makati City, Manila	The Philippines	Philippines	632 812 7048	632 812 8147	ditmar@falbonwaterfire.com	2/25/2008	Met to discuss Mactan current proposal for Laguna Lake water treatment
Mactan Rock Ind. Philippines Water Resources	Lito	Maderazo	Bangkai Macabulos St. Silo Kalubjahan, Talaanan	Makati City Cebu City	The Philippines The Philippines	Philippines	849 6628 032 345 53 66	843 8770 032 345 9541	lito@falbonwaterfire.com maderazo@chemrockph.com jamescook@yahoo.com.uk	2/26/2008 2/26/2008	Met to discuss Mactan current proposal for Laguna Lake water treatment Met to discuss Mactan current proposal for Laguna Lake water treatment
D.M. Wenceslao	Defin	Wenceslao	President Diosdado Macapagal Boulevard, corner Braddock Ave., 3/F Aseana Powerstation Bldg. Bachran	Paranaque City	The Philippines	Philippines	632 854 5711	632 853 2590	wendef@bahni.net	2/26/2008	Met to discuss the AMBD desalination facility project
Federaland	Peter	Glendon	2/F GT Tower International Costa	Makati City	The Philippines	Philippines	632 857 9570	632 729 4785	pmorales@federaland.com.ph	2/26/2008	Met to discuss the AMBD desalination facility project
D.M. Wenceslao	Paolo	Wenceslao	President Diosdado Macapagal Boulevard, corner Braddock Ave., 3/F Aseana Powerstation Bldg. Bachran	Paranaque City	The Philippines	Philippines	632 854 5711	632 853 2590	paolo@bahni.net	2/26/2008	Met to discuss the AMBD desalination facility project
MWC	Lyn	Almarito	MWSS Administration Bldg. 1105 Balara	Quezon City	The Philippines	Philippines	632 981 8162	632 981 8164	lyn.almarito@manilawater.com	2/26/2008	Met to discuss MWC request for USTDA technical assistance
MWC	Ronald	Muena	MWSS Administration Bldg. 1105 Balara	Quezon City	The Philippines	Philippines	632 981 8165	632 981 8164	ronald.muena@manilawater.com	2/26/2008	Met to discuss MWC request for USTDA technical assistance
MWC	Lea	Sig	MWSS Administration Bldg. 1105 Balara	Quezon City	The Philippines	Philippines	632 981 8162	632 981 8164	leasig@manilawater.com	2/26/2008	Met to discuss MWC request for USTDA technical assistance
MWC	Ferdinand	Cunaraa	Makati South Sewage Treatment Plant The American Business Center, 25/F, Ayala Life- FGU Center	Makati City	The Philippines	Philippines	632 852 5103 or 63 917 892 6577		ferdinand@manilawater.com	2/27/2008	Met at tour of Makati South WWTP.
US Commercial Services Manila	Judy	Rehke	6811 Ayala Ave. FGU Center	Makati City	The Philippines	Philippines	632 888 6077	632 888 6006	judy.rehke@mail.doc.gov	2/28/2008	informed about the USTDA DM Fieldwork and discussed potential projects.
USAID	Boy	Dulze	8th Floor, PNB Financial Center Bldg.	Pasay City	The Philippines	Philippines	632 552 9826		boydulze@usaid.gov	2/27/2008	Discussed the MWS Project Status.
USAID	Mary	Jochico	8th Floor, PNB Financial Center Bldg.	Pasay City	The Philippines	Philippines	632 552 9830	632 552 9997	maryjochico@usaid.gov	2/28/2008	Discussed USAID PDE Program Status.
DAI	Alma	Perclunclua	Unit 240, Prestige Tower	Pasig City	The Philippines	Philippines	632 637 9265	632 637 9264	alma_perclunclua@daid.com	2/28/2008	Discussed USAID PDE Program Status.

Appendix N1  
Contact List

MOE	Ade	Paguna	Building B 4th F	Jl. D.I. Panjaitan Kav. 24, Kebon Nanas	Jakarta	10410	Indonesia	62 21 8591 1207	ade@menh.go.id	Met to discuss MOE plans and technical details for 2/18/2008 the proposed AQM-I project
MOE	Linda	Krisnawati	Building B 4th F	Jl. D.I. Panjaitan Kav. 24, Kebon Nanas	Jakarta	10410	Indonesia	62 21 8591 1207	linda@menh.go.id and krisnawati@yahoo.com	Met to discuss MOE plans and technical details for 2/18/2008 the proposed AQM-I project
Institute of Technology	Puji	Lestari		Jl. Ganesha No.10	Bandung	40132	Indonesia	62-811 220076	pujiest@indo.net.id	Phone call and meeting to discuss national monitoring strategy and technical capacity 2/20/2008
Jakarta Provincial Government	Daniel	Abbas		Jl. HR Rasuna Said Kav C 22, Gedung NVI Ageng Serang Lantai 10	Jakarta		Indonesia	62 21 8522 8435	deniabs@yahoo.com	Met to discuss MOE plans and technical details for 2/21/2008 the proposed AQM-I project
Indonesian Lead Information Center National	Ahmad	Sarudin	Ranua Biliang 3rd F	Jl. Timar No 10 Menteng	Jakarta	10340	Indonesia	62 21 3190 6807	puji@indonesian-ic.org	Met to discuss MOE plans and technical details for 2/21/2008 the proposed AQM-I project
Development Planning Agency	Perry	Lukito-Firdaus	Taman Suropati 2A bldg., 4th Floor	Jl. Taman Suropati No. 2	Jakarta	10310	Indonesia	62 21 390 0412	perrylukito@akum.mti.edu	Met to discuss MOE plans and coordination for the proposed AQM-I project 2/21/2008
Swisscontact	Tony	Pramanoro		Jl. Tebusan Harti Lektir II No. 15, Keayasan Lama	Jakarta	12220	Indonesia	62 21 788 4041	tony@swisscontact.or.id	Phone call to discuss the UACI project successes and pitfalls 2/20/2008

## ANNEX 3



**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.*

## ANNEX 4

USDAT 88. 37033A

**GRANT AGREEMENT**

El J. D. M. C.  
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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 Manila Water Company, Inc. ("Grantee"). USTDA agrees to provide the Grantee under the terms of this Agreement US\$442,000 ("USTDA Grant") to fund the cost of goods and services required for a feasibility study ("Study") on the proposed Wastewater Treatment Systems and Facility Upgrades for Commercial Users project ("Project") in the Philippines ("Host Country").

**1. USTDA Funding**

The funding to be provided under this Grant Agreement shall be used to fund the costs of a contract between the Grantee and the U.S. firm selected by the Grantee ("Contractor") under which the Contractor will perform the Study ("Contract"). Payment to the Contractor 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 Study ("Terms of Reference") are attached as Annex I and are hereby made a part of this Grant Agreement. The Study will examine the technical, financial, environmental, and other critical aspects of the proposed Project. The Terms of Reference for the Study shall also be included in the Contract.

**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 Contractor 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 Study.

**4. Grantee Responsibilities**

The Grantee shall undertake its best efforts to provide reasonable support for the Contractor, such as office space, secretarial support, and all responsibilities designated to it under the Terms of Reference of Annex I. In addition to the USTDA funding provided under this Agreement, the Grantee shall be responsible for any costs associated with the water quality laboratory work, topography, geotechnical survey and local transportation needed to complete the full Terms of Reference.

## **5. USTDA as Financier**

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

Selection of the U.S. Contractor 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 Contractor Selection**

The Grantee shall notify USTDA at the address of record set forth in Article 17 below upon selection of the Contractor to perform the Study. Upon approval of this selection by USTDA, the Grantee and the Contractor shall then enter into a contract for performance of the Study. The Grantee shall notify in writing the U.S. firms that submitted unsuccessful proposals to perform the Study that they were not selected.

### **(C) USTDA Approval of Contract Between Grantee and Contractor**

The Grantee and the Contractor shall enter into a contract for performance of the Study. This contract, 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 Contractor 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 contract or a final negotiated draft version of the contract.

### **(D) USTDA Not a Party to the Contract**

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 contract and any amendments thereto, including assignments, the selection of all contractors, the Terms of Reference, the Final Report, and any and all documents related to any contract 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 Study and shall not be construed as making USTDA a party to the contract. 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 contract or any subcontract, 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

Contractor, or relieve the Contractor of any liability which the Contractor 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 contract or subcontract thereunder must be consistent with this Grant Agreement. In the event of any inconsistency between the Grant Agreement and any contract or subcontract funded by the Grant Agreement, the Grant Agreement shall be controlling.

**6. Disbursement Procedures**

**(A) USTDA Approval of Contract Required**

USTDA will make disbursements of Grant funds directly to the Contractor only after USTDA approves the Grantee's contract with the Contractor.

**(B) Contractor Invoice Requirements**

The Grantee should request disbursement of funds by USTDA to the Contractor for performance of the Study 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. Study Schedule**

**(A) Study Completion Date**

The completion date for the Study, which is August 15, 2010, is the date by which the parties estimate that the Study 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 contracts funded under this Grant Agreement shall include the USTDA mandatory clauses set forth in Annex II to this Grant Agreement. All subcontracts 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 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 performance 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 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 Contractor 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 Study, 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 Study and the Grant Agreement adequate to demonstrate implementation of its responsibilities under the Grant Agreement, including the selection of contractors, receipt and approval of contract deliverables, and approval or disapproval of contractor 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 Study 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 President. 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: Mr. Antonino T. Aquino  
President  
Manila Water Company, Inc.  
MWSS Admin Bldg

Katipunan Road 1105 Balara  
Quezon City, Philippines

Phone: 632-981-8162  
Fax: 632-981-8164

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.: 118/91001  
Activity No.: 2008-31033A  
Reservation No.: 2008310049  
Grant No.: GH2008310013

#### **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 Study, 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 Study, 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 Manila Water Company Inc.,** 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 Manila Water Company Inc.**

By: Larry W Walther  
**Larry W. Walther**  
Director

By: Rene Almendras  
**Rene Almendras**  
Group Director for Business

Date: 25 July 2008

Date: JULY 25, 2008

Witnessed:

Witnessed:

By: H.E. Kristie A. Kenney  
**H.E. Kristie A. Kenney**  
United States Ambassador to the Philippines

By: Frank Beaumont  
**Frank Beaumont**  
Group Director for Operations

**Annex I -- Terms of Reference**

**Annex II -- USTDA Mandatory Clauses**

## Annex I

### **Terms of Reference**

The Grantee currently provides more than 317 Million Gallons per Day (MGD) of water to over one-million households. As of 2007, the Grantee also provides septage collection and treatment to over 270,000 households in the Manila Metropolitan Area. The Grantee documents that there are about 3,000 non-domestic water users that rely on septic tanks that do not meet current Philippine Department of Natural Resources' (DENR) water quality standards (50 ppm of BOD<sub>5</sub>, 75 ppm of TSS). To meet DENR standards, several of these potential non-domestic customers, including fast-food restaurants, have requested onsite wastewater treatment service. The Grantee has in turn requested USTDA funding to help identify appropriate onsite wastewater treatment solutions, which would improve wastewater discharge from commercial and industrial traders.

The Study will investigate onsite wastewater treatment options for potential non-domestic customers (also referred to as commercial and industrial traders) in the Host Country. The Study will also assess and identify the technology needed to upgrade four (4) treatment facilities to allow the Grantee to accept raw or pre-treated non-domestic wastewater for further treatment, without incurring non-compliance water quality liabilities. Lastly, the Study will identify necessary septage treatment technology, wastewater treatment technology for wastewater conditioning for reuse, and related water quality monitoring systems as it relates to the identification of onsite treatment options and necessary facility upgrades.

The Study will evaluate the technical, financial, economic, environmental, and regulatory feasibilities and the developmental impacts associated with the Project, in order to help the Grantee's commercial customer base meet DENR requirements. The Study and Project includes:

#### **Identification of Onsite Treatment Solutions Scenarios**

- Individual Onsite Treatment Systems – The Contractor shall identify onsite wastewater treatment systems for six (6) individual, different types of commercial customers. The Grantee shall identify the six (6) customers to be considered under this scenario; and,
- Cluster Onsite Treatment System – The Contractor shall identify onsite wastewater treatment systems for six (6) groupings or clusters of commercial waste generators (each grouping shall be comprised of four to five individual commercial entities). The groupings shall be selected by the Grantee.

Note: The Grantee's identification and selection of the participating commercial wastewater generators will take into account wastewater generation and the availability of analytical data.

## Identification of Grantee Wastewater Facility Upgrades

- The Contractor shall identify the technology needed for four (4) of the Grantee's wastewater treatment plants, septage treatment plants or combined sewer overflow plants to accept raw or pretreated commercial and industrial wastewater or septage for further treatment. The recommendations shall ensure that the Grantee will not incur non-compliance water quality liabilities. The four (4) facilities to be considered for upgrades are:
  - (1) South Septage Treatment Plant (FTI Complex, Taguig): The Grantee's biggest septage treatment plant (SpTP) is designed to accept a maximum of 814 m<sup>3</sup>/day (0.215 MGD) of septage. This facility was completed as part of the Manila Third Sewerage Projects (MTSP) in 2007.
  - (2) North Septage Treatment Plant (San Mateo, Rizal): This is the second septage treatment facility constructed under MTSP and was completed in 2007. Design capacity is 586 m<sup>3</sup>/day (0.15 MGD). Both North SpTP and South SpTP have the potential to accept sewage and sludge from commercial and industrial establishments. The two facilities were initially designed for domestic septage using conventional activated sludge. Modification of these facilities is necessary if they are to treat non-domestic wastes. Aside from trade effluent related improvements, waste-to-energy components are also planned for both the North and South SpTPs. Waste-to-energy improvements are not part of this USTDA Study.
  - (3) Makati South Sewage Treatment Plant (Magallanes Village, Makati, MSTP): This is currently the country's largest sewage treatment plant with a 40,000 m<sup>3</sup>/day (11 MGD) capacity. It treats wastewater from the Makati Commercial Business District, the country's premier financial & commercial district.
  - (4) MTSP STPs: Currently there are at least 10 sewage treatment plants (STPs) being funded by the MTSP. These STPs are combined sewage-drainage (combined sewer overflow) systems and will treat substantially larger volumes of wastewater. Examples of such developments include the 90MLD (23.76 MGD) Taguig Sewer System STP, the 40MLD (10.56 MGD) Makati South STP2, the 15MLD (3.96 MGD) East Ave. Regional STP, the 10MLD (2.64 MGD) Olandes STP and the 120 MLD (31.7 MGD) Marikina City Sewer Masterplan STPs. the Grantee will select one (1) of these 10 facilities for the Study.

## **Task 1            DETAILED BACKGROUND REVIEW**

The Contractor shall review the DENR water quality regulatory requirements including those that apply to commercial customers. The Contractor shall assess and become familiar with the Study area and type of commercial customers that require the Grantee's services in order to comply with the DENR requirements.

### **Subtask 1.1        Onsite Treatment Solution Scenario Background Review**

The Contractor shall review all existing and available background information on the six (6) individual and six (6) groupings of commercial wastewater generators. The background information shall include, but not be limited to, water supply data, wastewater analytical data and their commercial operations, and environmental settings. The Grantee is responsible for providing the water supply and wastewater analytical data requested by the Contractor. As part of this task, the Contractor shall meet with Grantee officials, wastewater generators representatives from both individual customers and groupings, DENR, and other relevant stakeholders. The Contractor shall become familiar with the procurement mechanisms for acquiring the onsite wastewater treatment systems.

### **Subtask 1.2        Grantee Wastewater Facility Upgrades Background Review**

The Contractor shall inspect each of the four (4) facilities identified for the Study. The Contractor shall review reports, water quality data, engineering drawings and technical information pertaining to the four (4) wastewater systems identified. The Contractor shall also review and identify the level of onsite wastewater pre-treatment required from various commercial wastewater generators for discharge to the four (4) Grantee facilities. At the completion of this subtask, the Contractor shall be thoroughly familiar with the each facility.

As a result of this subtask the Contractor shall be fully acquainted with DENR, the Grantee, the commercial wastewater generators and their institutional requirements. The Contractor shall also be familiar with all requirements of the Study.

## **Task 2            STUDY MANAGEMENT PLAN**

The Contractor shall organize a meeting at the start of the Study to exchange ideas and develop an integrated study plan for all components of the Study. The Contractor shall coordinate activities with all Study team members including the Contractor staff, Grantee personnel and commercial wastewater generators. The Contractor shall prepare a detailed project management plan outlining the responsibilities of each entity including the Grantee, participating commercial wastewater generators and other stakeholders.

Deliverable: Technical Memorandum detailing the background review and study management plan.

### **Task 3            WASTEWATER TREATMENT TECHNOLOGY EVALUATION**

#### **Subtask 3.1    Onsite Wastewater Treatment Technology Assessments**

The Contractor shall investigate technical solutions for the six (6) individual commercial wastewater treatment customers and for the six (6) groupings of commercial wastewater generators. The Contractor shall provide all technical specifications necessary for the immediate installation of the identified onsite wastewater treatment systems. The Contractor shall also provide all technical requirements needed for the Grantee to prepare the procurement documents to acquire the technology and proficiency to operate the onsite wastewater treatment systems identified.

It is the Grantee's responsibility, not the Contractor's, to provide technical specifications for civil work and civil work construction cost estimates as it relates to the onsite systems identified. The Grantee shall also be responsible for the collection of wastewater flow data, wastewater sampling and analysis, and the provision of other data deemed necessary to conduct the Study, such as, but not be limited to, power source data, topographical and geotechnical information and utilities surveys.

The Contractor shall work closely with the Grantee and commercial wastewater generators to determine the technology needed to meet the goals of the Study. The Contractor shall evaluate and identify all the hardware, staffing capability and other resource requirements necessary for implementing and supporting the long-term operation of the onsite wastewater treatment and monitoring technology for each of the onsite treatment scenarios addressed as part of the Study.

Deliverable: Technical Memorandum detailing the findings of the abovementioned subtask.

#### **Subtask 3.2            Grantee Wastewater Facility Upgrade Technology Assessment**

The Contractor shall identify the wastewater, septage and combined sewer overflow facility treatment and monitoring technology needed to upgrade wastewater treatment capability in order to comply with all applicable water quality standards at the four (4) wastewater treatment facilities selected for the Study.

Deliverable: Technical Memorandum detailing the findings of the abovementioned subtask.

#### **Subtask 3.3            Wastewater Pre-Treatment Technology Assessment**

The Contractor shall identify the wastewater pre-treatment and monitoring technology options for the Project. The identification of the wastewater pre-treatment technology shall take into account the capacity of the Grantee's wastewater treatment facilities and DENR water quality standards and permitting requirements. The Contractor shall identify pre-treatment technology that can be installed and operated at the commercial

wastewater locations. The Grantee shall provide the water supply data and wastewater analytical data power source data and topographical and geotechnical information requested by the Contractor for this work.

The Contractor shall identify and determine the requirements of the wastewater pre-treatment systems including monitoring, operation and control of the processes involved. The Contractor shall also estimate the cost of the required systems and developing information and data for the Study report.

Deliverable: Technical Memorandum detailing the findings of the abovementioned subtask.

#### **Task 4            FEASIBILITY ANALYSIS OF THE PROJECT**

The Contractor shall conduct and articulate a detailed feasibility analysis of the Project developed above. The Contractor shall assess the technical, economic, financial, environmental and regulatory feasibility of the Project. The Contractor shall provide a detailed Project implementation cost for the onsite treatment solution and Grantee wastewater facility upgrades (this shall also include all wastewater pre-treatment technology identified as part of the Study).

The Contractor shall estimate the economic and financial impacts of the investment by comparing current socioeconomic conditions (without the Project) to future socioeconomic scenarios (successful implementation of the Project). Socioeconomic factors that could be used for the analysis may include, but shall not be limited to, income, employment, taxes, impacts on business and property owners, increased short-term and long-term employment, project construction, cost of environmental deterioration and loss of valuable water resources.

The Contractor shall provide the technical specifications and related documentation necessary for the Grantee to procure the equipment and monitoring technology needed for the full implementation of the Project. The Contractor shall identify training needs to ensure that the Grantee's technical personnel and commercial wastewater customers acquire the technical proficiency needed to operate and maintain the onsite wastewater treatment systems and facility upgrades in accordance with their operational capacity.

##### **Subtask 4.1            Technical Assessment of the Project**

The Contractor shall prepare a technical assessment of the Project which shall include, but not be limited to, the analysis of the following factors:

- Systems engineering and design parameters, complexities, and limitations;
- Constructability and identification of major problem areas;
- Operability including operating costs and personnel needs to operate;
- Maintenance requirements, personnel needs and costs;
- Long-term adaptability and its effects on the existing wastewater management system; and

- Life cycle costs.

#### **Subtask 4.2 Economic Analysis of the Project**

The Contractor shall prepare an economic analysis to assess the benefits/disadvantages of Project implementation based on a set of socioeconomic indicators. The Contractor shall examine the economic benefits of using onsite wastewater treatment or wastewater pre-treatment as compared to using the existing wastewater management technology. To this end, the analysis shall take into account all avoidable wastewater management impacts and economic costs associated with them.

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

#### **Subtask 4.3 Financial Analysis of the Project**

The Contractor shall prepare a financial analysis for the implementation of the Project. The financial analysis shall help the Grantee and commercial wastewater generators to seek and obtain project financing. The financial analysis shall satisfy the requirements of prospective funding institutions, which shall be identified by the Grantee at the onset of the Study. In concert with the Grantee, the Contractor shall assess the potential interest of the Development Bank of the Philippines (DBP), local commercial banks and other local and international financial institutions in lending support to the Project. The financial analysis shall include, but shall not be limited to, a detailed analysis of the proposed debt-equity structure and a full description of the cost-recovery program required for the self-sustainability of the Project.

The cost-recovery program shall take into account the costs associated with the operation and maintenance of the Project, in addition to the debt service and the cost of replacement. Future significant capital expenditures are expected to be required to replace, update, and/or upgrade Project capability and equipment, thus the Contractor shall include these cost components in the wastewater management charges that are recommended. The Contractor shall also identify all potential sources of revenue for the Project.

#### **Subtask 4.4 Human Health and Environmental Impact Analysis of the Project**

The Contractor shall identify, discuss, and analyze the human health and environmental impacts that would result from the Project's implementation. The environmental impact analysis shall consider all relevant Philippine government laws, regulations, and requirements of potential lending agencies in order to ensure that the Project meets all requirements. This analysis shall be based on the information and data provided by the Grantee and commercial wastewater generators. The Contractor shall document compliance with all relevant standards of the Philippines National Water Resources

Board ([www.NWRB.gov.ph](http://www.NWRB.gov.ph)), Department of Health ([www.doh.gov.ph](http://www.doh.gov.ph)) and the DENR ([www.DENR.gov.ph](http://www.DENR.gov.ph)). The Contractor shall consult these agencies as part of this Task. In compliance with the Philippines environmental regulatory framework, the Contractor shall prepare an Initial Environmental Examination (IEE) as part of the Study. Environmental control and mitigation measures shall be assessed and specified by the Contractor. This environmental impact analysis does not include the preparation of a full Environmental Impact Assessment (EIA) report; the Contractor is only responsible for the preparation of the IEE under these Terms of Reference.

#### **Subtask 4.5 Water Resources System Impact Analysis of the Project**

Using baseline data, the Contractor shall identify the positive and negative short-term and long-term impacts on groundwater and surface water systems which could result from the Project's implementation. The analysis shall include the identification and discussion of mitigation measures available to reduce potential negative surface water and groundwater impacts. The Grantee and commercial wastewater generators shall provide all data and information required for the analysis of the Project's water quality impacts.

#### **Subtask 4.6 Ecological Impact Analysis of the Project**

The Contractor shall analyze the short-term and long-term impacts on sensitive life forms and ecological systems resulting from the Project's implementation. The analysis shall include the identification and discussion of available mitigation measures that reduce negative impacts to the greatest extent possible. The Grantee shall provide all the required data and information for the analysis of the Project's potential ecological impacts.

#### **Subtask 4.7 Socioeconomic Impact Analysis of the Project**

The Contractor 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 the implementation of the Project.

#### **Subtask 4.8 Developmental Impact Assessment of the Project**

The socioeconomic analysis discussed in Task 4.7 shall provide the basis for assessing the potential developmental impact of the Project. For the benefit of those interested in the Project, the Contractor shall assess the Project's developmental benefits and the methodology for measuring those benefits for up to five years following the completion of the Study. The assessment shall include examples of what is expected to result if the Project is implemented as outlined in the Final Report. The Contractor shall focus specifically on examples from the categories listed below and develop a methodology for assessing these impacts over time (up to five years). The Contractor shall identify how to obtain the information to assess these impacts in the future (e.g., the Grantee, trade statistics, or U.S. Embassy in the Host Country). The Contractor shall only list benefits

in the categories that are applicable to the Project. The categories to be considered are as follows:

- Infrastructure: Estimate the expected scale of infrastructure construction and comment on the capabilities of any recommended infrastructure improvements.
- Human capacity building: Estimate the number and type of jobs created during the construction or installation phases if the Contractor's recommendations are implemented. Distinguish between temporary construction jobs and the number of jobs that would be created or sustained once construction is complete. Comment on any prospective training recommended in the Final Report, including an estimate of the number of persons to be trained, type of training needed, and the desired outcome of the training. The estimated job creation can be approximate or based on order of magnitude.
- Technology transfer and productivity improvements: Discuss recommended commercial contracts for licensing new technologies, as well as the expected productivity benefits of any such technologies. Moreover, discuss the expected efficiency gains stemming from these recommendations such as improved systems or processes that enhance productivity or result in a more efficient use of resources. The Contractor shall also describe the improvements in the water quality that could result. The Contractor shall provide current baseline estimates of all anticipated productivity gains 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, privatization of previously state-owned assets, or increased competition in a given sector.
- Other: Discuss prospective, indirect developmental impacts of the key recommendations, such as enhanced safety and economic benefits (including increases in tourism, investment, and indirect job creation) that are not captured in the four categories listed above.

Deliverable: Feasibility analysis detailing the findings of the abovementioned Task.

#### **Task 5 IDENTIFICATION OF U. S. SOURCES OF TECHNOLOGY**

The Contractor shall assess the availability of U.S. sources of technology for the recommended components of the onsite wastewater treatment systems and for the recommended upgrades to the Grantee's wastewater treatment facilities and pre-treatment needs. The Contractor shall provide detailed prescriptive technical specifications for each piece of equipment as well as the manufacturer's business name, point of contact, address, website, telephone and fax numbers, and email address. The Contractor shall

contact the identified U.S. manufacturers to notify and discuss this Project and its potential business opportunities. The Contractor shall gauge U.S. manufacturers' interest in participating in the workshop in Task 6 and procurement process associated with this Project documenting these findings in the Final Report.

Deliverable: Technical Memorandum detailing the findings of the abovementioned Task.

#### **Task 6           PROJECT WORKSHOP**

The Contractor shall organize and carry out a workshop to present the findings of the Study and showcase, promote and demonstrate the benefits of wastewater treatment technology manufactured in the U.S. The workshop shall aim at providing Philippine businesses a direct opportunity to learn how U.S. wastewater technology can be used to cost-effectively meet DENR water quality requirements. The workshop shall be a full day event divided into three sessions. The first session shall discuss the results and recommendations of the Study. The second session shall discuss the capability of U.S. wastewater technology in meeting DENR water quality standards and shall also provide a listing of U.S. sources of supply including the information developed in Task 5. In the third session the Contractor shall address audience questions regarding specific applications. The Contractor shall contact the local U.S. Commercial Service to include their participation in the workshop. The workshop audience shall include:

- Relevant industrial organizations such as Chemical Industries Associations of the Philippines, fast food traders representatives, and commercial wastewater dischargers identified by the Contractor during the course of the Study;
- Government Institutions such as Metropolitan Waterworks and Sewerage System (MWSS), Philippines National Water Resources Board, Department of Health, DENR and Local Water Utilities Administration;
- Water purveyors, the Grantee and Maynilad Water Services, Inc., relevant Water Districts;
- U.S. Manufacturers of wastewater treatment systems; and
- University representatives.

Deliverable: Workshop hand-outs, presentation audio and visual aids.

#### **Task 7           PROJECT IMPLEMENTATION PLAN**

The Contractor shall prepare an overall plan for the implementation of each of the Project's components; the onsite treatment solution scenario recommendations as well as the wastewater facility upgrade recommendations. The implementation plan shall include, but not be limited to, recommended technology, maintenance needs, and training needs as it relates to the Project as well as a detailed procurement plan that describes the

steps necessary to implement the Project, technical specifications to acquire the recommended wastewater technology and related services needed for the Project's implementation. The Contractor shall not be responsible for any work associated with publicizing the bidding documents or evaluating proposals under any procurement related activity for this Project.

Deliverable: Project implementation plan detailing the findings of the above Task.

**Task 7            FINAL REPORT**

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

Notes:

- (1) The Contractor is responsible for compliance with U.S. export licensing requirements, if applicable, in the performance of the Terms of Reference.
- (2) The Contractor and the Grantee shall be careful to ensure that the public version of the Final Report contains no security or confidential information.
- (3) The Grantee 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) The Grantee shall be responsible for all procurement-related final decisions.

## Annex II

### USTDA Mandatory Contract Clauses

#### A. USTDA Mandatory Clauses Controlling

The parties to this contract acknowledge that this contract 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 Manila Water Company Inc. ("Client"), dated \_\_\_\_\_ ("Grant Agreement"). The Client has selected \_\_\_\_\_ ("Contractor") to perform the feasibility study ("Study") for the Wastewater Treatment Systems and Facility Upgrades for Commercial Users project ("Project") in the Philippines ("Host Country"). Notwithstanding any other provisions of this contract, the following USTDA mandatory contract clauses shall govern. All subcontracts entered into by Contractor funded or partially funded with USTDA Grant funds shall include these USTDA mandatory contract 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 contract or subcontract thereunder, the Grant Agreement shall be controlling.

#### B. USTDA as Financier

##### (1) USTDA Approval of Contract

All contracts 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 contract has been formally approved by USTDA or until the contract conforms to modifications required by USTDA during the contract review process.

##### (2) USTDA Not a Party to the Contract

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 contract and amendments thereto, including assignments, the selection of all contractors, the Terms of Reference, the Final Report, and any and all documents related to any contract 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 Study and shall not be construed as making USTDA a party to the contract. 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 contract or any subcontract, 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 Contractor, or relieve the Contractor of any liability which the Contractor 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 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 performance 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 provisions upon request.

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

The Contractor 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 contract. 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 contract term and for a period of three (3) years after final disbursement by USTDA. The Contractor 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 Contractor shall provide adequate Workman's Compensation Insurance coverage for work performed under this Contract.

## **G. Reporting Requirements**

The Contractor 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 Study. In addition, if at any time the Contractor receives follow-on work from the Client, the Contractor shall so notify USTDA and designate the Contractor'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 Contractor 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 Contract**

Disbursement of Grant funds will be made only after USTDA approval of this contract. To make this review in a timely fashion, USTDA must receive from either the Client or the Contractor a photocopy of an English language version of a signed contract 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 Contractor shall be included in this Contract. 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 contract 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) Contractor Invoice Requirements**

USTDA will make all disbursements of USTDA Grant funds directly to the Contractor. The Contractor 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 Contractor for performance of the contract by submitting the following to USTDA:

#### **(a) Contractor's Invoice**

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

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

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

##### **(ii) For contract performance milestone payments:**

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

##### **(iii) For final payment:**

"The Contractor has performed the work described in this invoice in accordance with the terms of its contract with the Client and is entitled to payment thereunder. Specifically, the Contractor has submitted the Final Report to the Client, as required by the Contract, and received the Client's approval of the Final Report. To the extent the Contractor has not complied with the terms and conditions of the Contract, 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 Contractor's Invoice**

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

(ii) For contract 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 Contractor have been performed satisfactorily, in accordance with applicable Contract 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 Contractor have been performed satisfactorily, in accordance with applicable Contract provisions and terms and conditions of the USTDA Grant Agreement. The Final Report submitted by the Contractor 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 Contract is terminated prior to completion, the Contractor 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 Contractor all USTDA Grant funds previously disbursed to the Contractor (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 Contractor 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 Contractor 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 Contractor to ensure that no confidential information is contained on the CD-ROMs.

The Contractor 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 Contractor 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 Contractor shall be responsible for labeling the front cover of that version of the Final Report with the term "Confidential Version." The Contractor 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 Contractor 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 Contractor who prepared the report, a report title, and the following language:

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

(d) The Contractor 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 Contractor 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 contract, including the appendices, shall be made only by written agreement by the parties hereto, subject to written USTDA approval.

## **K. Study Schedule**

### **(1) Study Completion Date**

The completion date for the Study, which is August 15, 2010, is the date by which the parties estimate that the Study 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 contract 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 Contractor 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 Study. The Client agrees not to receive any such payment. The Contractor and the Client agree that each will require that any agent or representative hired to represent them in connection with the Study will comply with this paragraph and all laws which apply to activities and obligations of each party under this Contract, 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 Contract 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.: 118/91001

Activity No.: 2008-31033A

Reservation No.: 2008310049

Grant No.: GH2008310013

## **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 Contractor will seek reimbursement from USTDA for such taxes, tariffs, duties, fees or other levies.

## ANNEX 5

## Annex I

### **Terms of Reference**

The Grantee currently provides more than 317 Million Gallons per Day (MGD) of water to over one-million households. As of 2007, the Grantee also provides septage collection and treatment to over 270,000 households in the Manila Metropolitan Area. The Grantee documents that there are about 3,000 non-domestic water users that rely on septic tanks that do not meet current Philippine Department of Natural Resources' (DENR) water quality standards (50 ppm of BOD<sub>5</sub>, 75 ppm of TSS). To meet DENR standards, several of these potential non-domestic customers, including fast-food restaurants, have requested onsite wastewater treatment service. The Grantee has in turn requested USTDA funding to help identify appropriate onsite wastewater treatment solutions, which would improve wastewater discharge from commercial and industrial traders.

The Study will investigate onsite wastewater treatment options for potential non-domestic customers (also referred to as commercial and industrial traders) in the Host Country. The Study will also assess and identify the technology needed to upgrade four (4) treatment facilities to allow the Grantee to accept raw or pre-treated non-domestic wastewater for further treatment, without incurring non-compliance water quality liabilities. Lastly, the Study will identify necessary septage treatment technology, wastewater treatment technology for wastewater conditioning for reuse, and related water quality monitoring systems as it relates to the identification of onsite treatment options and necessary facility upgrades.

The Study will evaluate the technical, financial, economic, environmental, and regulatory feasibilities and the developmental impacts associated with the Project, in order to help the Grantee's commercial customer base meet DENR requirements. The Study and Project includes:

#### **Identification of Onsite Treatment Solutions Scenarios**

- Individual Onsite Treatment Systems – The Contractor shall identify onsite wastewater treatment systems for six (6) individual, different types of commercial customers. The Grantee shall identify the six (6) customers to be considered under this scenario; and,
- Cluster Onsite Treatment System – The Contractor shall identify onsite wastewater treatment systems for six (6) groupings or clusters of commercial waste generators (each grouping shall be comprised of four to five individual commercial entities). The groupings shall be selected by the Grantee.

Note: The Grantee's identification and selection of the participating commercial wastewater generators will take into account wastewater generation and the availability of analytical data.

## Identification of Grantee Wastewater Facility Upgrades

- The Contractor shall identify the technology needed for four (4) of the Grantee's wastewater treatment plants, septage treatment plants or combined sewer overflow plants to accept raw or pretreated commercial and industrial wastewater or septage for further treatment. The recommendations shall ensure that the Grantee will not incur non-compliance water quality liabilities. The four (4) facilities to be considered for upgrades are:
  - (1) South Septage Treatment Plant (FTI Complex, Taguig): The Grantee's biggest septage treatment plant (SpTP) is designed to accept a maximum of 814 m<sup>3</sup>/day (0.215 MGD) of septage. This facility was completed as part of the Manila Third Sewerage Projects (MTSP) in 2007.
  - (2) North Septage Treatment Plant (San Mateo, Rizal): This is the second septage treatment facility constructed under MTSP and was completed in 2007. Design capacity is 586 m<sup>3</sup>/day (0.15 MGD). Both North SpTP and South SpTP have the potential to accept sewage and sludge from commercial and industrial establishments. The two facilities were initially designed for domestic septage using conventional activated sludge. Modification of these facilities is necessary if they are to treat non-domestic wastes. Aside from trade effluent related improvements, waste-to-energy components are also planned for both the North and South SpTPs. Waste-to-energy improvements are not part of this USTDA Study.
  - (3) Makati South Sewage Treatment Plant (Magallanes Village, Makati, MSTP): This is currently the country's largest sewage treatment plant with a 40,000 m<sup>3</sup>/day (11 MGD) capacity. It treats wastewater from the Makati Commercial Business District, the country's premier financial & commercial district.
  - (4) MTSP STPs: Currently there are at least 10 sewage treatment plants (STPs) being funded by the MTSP. These STPs are combined sewage-drainage (combined sewer overflow) systems and will treat substantially larger volumes of wastewater. Examples of such developments include the 90MLD (23.76 MGD) Taguig Sewer System STP, the 40MLD (10.56 MGD) Makati South STP2, the 15MLD (3.96 MGD) East Ave. Regional STP, the 10MLD (2.64 MGD) Olandes STP and the 120 MLD (31.7 MGD) Marikina City Sewer Masterplan STPs. the Grantee will select one (1) of these 10 facilities for the Study.

## **Task 1            DETAILED BACKGROUND REVIEW**

The Contractor shall review the DENR water quality regulatory requirements including those that apply to commercial customers. The Contractor shall assess and become familiar with the Study area and type of commercial customers that require the Grantee's services in order to comply with the DENR requirements.

### **Subtask 1.1            Onsite Treatment Solution Scenario Background Review**

The Contractor shall review all existing and available background information on the six (6) individual and six (6) groupings of commercial wastewater generators. The background information shall include, but not be limited to, water supply data, wastewater analytical data and their commercial operations, and environmental settings. The Grantee is responsible for providing the water supply and wastewater analytical data requested by the Contractor. As part of this task, the Contractor shall meet with Grantee officials, wastewater generators representatives from both individual customers and groupings, DENR, and other relevant stakeholders. The Contractor shall become familiar with the procurement mechanisms for acquiring the onsite wastewater treatment systems.

### **Subtask 1.2            Grantee Wastewater Facility Upgrades Background Review**

The Contractor shall inspect each of the four (4) facilities identified for the Study. The Contractor shall review reports, water quality data, engineering drawings and technical information pertaining to the four (4) wastewater systems identified. The Contractor shall also review and identify the level of onsite wastewater pre-treatment required from various commercial wastewater generators for discharge to the four (4) Grantee facilities. At the completion of this subtask, the Contractor shall be thoroughly familiar with the each facility.

As a result of this subtask the Contractor shall be fully acquainted with DENR, the Grantee, the commercial wastewater generators and their institutional requirements. The Contractor shall also be familiar with all requirements of the Study.

## **Task 2            STUDY MANAGEMENT PLAN**

The Contractor shall organize a meeting at the start of the Study to exchange ideas and develop an integrated study plan for all components of the Study. The Contractor shall coordinate activities with all Study team members including the Contractor staff, Grantee personnel and commercial wastewater generators. The Contractor shall prepare a detailed project management plan outlining the responsibilities of each entity including the Grantee, participating commercial wastewater generators and other stakeholders.

Deliverable: Technical Memorandum detailing the background review and study management plan.

### **Task 3            WASTEWATER TREATMENT TECHNOLOGY EVALUATION**

#### **Subtask 3.1    Onsite Wastewater Treatment Technology Assessments**

The Contractor shall investigate technical solutions for the six (6) individual commercial wastewater treatment customers and for the six (6) groupings of commercial wastewater generators. The Contractor shall provide all technical specifications necessary for the immediate installation of the identified onsite wastewater treatment systems. The Contractor shall also provide all technical requirements needed for the Grantee to prepare the procurement documents to acquire the technology and proficiency to operate the onsite wastewater treatment systems identified.

It is the Grantee's responsibility, not the Contractor's, to provide technical specifications for civil work and civil work construction cost estimates as it relates to the onsite systems identified. The Grantee shall also be responsible for the collection of wastewater flow data, wastewater sampling and analysis, and the provision of other data deemed necessary to conduct the Study, such as, but not be limited to, power source data, topographical and geotechnical information and utilities surveys.

The Contractor shall work closely with the Grantee and commercial wastewater generators to determine the technology needed to meet the goals of the Study. The Contractor shall evaluate and identify all the hardware, staffing capability and other resource requirements necessary for implementing and supporting the long-term operation of the onsite wastewater treatment and monitoring technology for each of the onsite treatment scenarios addressed as part of the Study.

Deliverable: Technical Memorandum detailing the findings of the abovementioned subtask.

#### **Subtask 3.2            Grantee Wastewater Facility Upgrade Technology Assessment**

The Contractor shall identify the wastewater, septage and combined sewer overflow facility treatment and monitoring technology needed to upgrade wastewater treatment capability in order to comply with all applicable water quality standards at the four (4) wastewater treatment facilities selected for the Study.

Deliverable: Technical Memorandum detailing the findings of the abovementioned subtask.

#### **Subtask 3.3            Wastewater Pre-Treatment Technology Assessment**

The Contractor shall identify the wastewater pre-treatment and monitoring technology options for the Project. The identification of the wastewater pre-treatment technology shall take into account the capacity of the Grantee's wastewater treatment facilities and DENR water quality standards and permitting requirements. The Contractor shall identify pre-treatment technology that can be installed and operated at the commercial

wastewater locations. The Grantee shall provide the water supply data and wastewater analytical data power source data and topographical and geotechnical information requested by the Contractor for this work.

The Contractor shall identify and determine the requirements of the wastewater pre-treatment systems including monitoring, operation and control of the processes involved. The Contractor shall also estimate the cost of the required systems and developing information and data for the Study report.

Deliverable: Technical Memorandum detailing the findings of the abovementioned subtask.

#### **Task 4 FEASIBILITY ANALYSIS OF THE PROJECT**

The Contractor shall conduct and articulate a detailed feasibility analysis of the Project developed above. The Contractor shall assess the technical, economic, financial, environmental and regulatory feasibility of the Project. The Contractor shall provide a detailed Project implementation cost for the onsite treatment solution and Grantee wastewater facility upgrades (this shall also include all wastewater pre-treatment technology identified as part of the Study).

The Contractor shall estimate the economic and financial impacts of the investment by comparing current socioeconomic conditions (without the Project) to future socioeconomic scenarios (successful implementation of the Project). Socioeconomic factors that could be used for the analysis may include, but shall not be limited to, income, employment, taxes, impacts on business and property owners, increased short-term and long-term employment, project construction, cost of environmental deterioration and loss of valuable water resources.

The Contractor shall provide the technical specifications and related documentation necessary for the Grantee to procure the equipment and monitoring technology needed for the full implementation of the Project. The Contractor shall identify training needs to ensure that the Grantee's technical personnel and commercial wastewater customers acquire the technical proficiency needed to operate and maintain the onsite wastewater treatment systems and facility upgrades in accordance with their operational capacity.

##### **Subtask 4.1 Technical Assessment of the Project**

The Contractor shall prepare a technical assessment of the Project which shall include, but not be limited to, the analysis of the following factors:

- Systems engineering and design parameters, complexities, and limitations;
- Constructability and identification of major problem areas;
- Operability including operating costs and personnel needs to operate;
- Maintenance requirements, personnel needs and costs;
- Long-term adaptability and its effects on the existing wastewater management system; and

- Life cycle costs.

#### **Subtask 4.2 Economic Analysis of the Project**

The Contractor shall prepare an economic analysis to assess the benefits/disadvantages of Project implementation based on a set of socioeconomic indicators. The Contractor shall examine the economic benefits of using onsite wastewater treatment or wastewater pre-treatment as compared to using the existing wastewater management technology. To this end, the analysis shall take into account all avoidable wastewater management impacts and economic costs associated with them.

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

#### **Subtask 4.3 Financial Analysis of the Project**

The Contractor shall prepare a financial analysis for the implementation of the Project. The financial analysis shall help the Grantee and commercial wastewater generators to seek and obtain project financing. The financial analysis shall satisfy the requirements of prospective funding institutions, which shall be identified by the Grantee at the onset of the Study. In concert with the Grantee, the Contractor shall assess the potential interest of the Development Bank of the Philippines (DBP), local commercial banks and other local and international financial institutions in lending support to the Project. The financial analysis shall include, but shall not be limited to, a detailed analysis of the proposed debt-equity structure and a full description of the cost-recovery program required for the self-sustainability of the Project.

The cost-recovery program shall take into account the costs associated with the operation and maintenance of the Project, in addition to the debt service and the cost of replacement. Future significant capital expenditures are expected to be required to replace, update, and/or upgrade Project capability and equipment, thus the Contractor shall include these cost components in the wastewater management charges that are recommended. The Contractor shall also identify all potential sources of revenue for the Project.

#### **Subtask 4.4 Human Health and Environmental Impact Analysis of the Project**

The Contractor shall identify, discuss, and analyze the human health and environmental impacts that would result from the Project's implementation. The environmental impact analysis shall consider all relevant Philippine government laws, regulations, and requirements of potential lending agencies in order to ensure that the Project meets all requirements. This analysis shall be based on the information and data provided by the Grantee and commercial wastewater generators. The Contractor shall document compliance with all relevant standards of the Philippines National Water Resources

Board ([www.NWRB.gov.ph](http://www.NWRB.gov.ph)), Department of Health ([www.doh.gov.ph](http://www.doh.gov.ph)) and the DENR ([www.DENR.gov.ph](http://www.DENR.gov.ph)). The Contractor shall consult these agencies as part of this Task. In compliance with the Philippines environmental regulatory framework, the Contractor shall prepare an Initial Environmental Examination (IEE) as part of the Study. Environmental control and mitigation measures shall be assessed and specified by the Contractor. This environmental impact analysis does not include the preparation of a full Environmental Impact Assessment (EIA) report; the Contractor is only responsible for the preparation of the IEE under these Terms of Reference.

#### **Subtask 4.5 Water Resources System Impact Analysis of the Project**

Using baseline data, the Contractor shall identify the positive and negative short-term and long-term impacts on groundwater and surface water systems which could result from the Project's implementation. The analysis shall include the identification and discussion of mitigation measures available to reduce potential negative surface water and groundwater impacts. The Grantee and commercial wastewater generators shall provide all data and information required for the analysis of the Project's water quality impacts.

#### **Subtask 4.6 Ecological Impact Analysis of the Project**

The Contractor shall analyze the short-term and long-term impacts on sensitive life forms and ecological systems resulting from the Project's implementation. The analysis shall include the identification and discussion of available mitigation measures that reduce negative impacts to the greatest extent possible. The Grantee shall provide all the required data and information for the analysis of the Project's potential ecological impacts.

#### **Subtask 4.7 Socioeconomic Impact Analysis of the Project**

The Contractor 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 the implementation of the Project.

#### **Subtask 4.8 Developmental Impact Assessment of the Project**

The socioeconomic analysis discussed in Task 4.7 shall provide the basis for assessing the potential developmental impact of the Project. For the benefit of those interested in the Project, the Contractor shall assess the Project's developmental benefits and the methodology for measuring those benefits for up to five years following the completion of the Study. The assessment shall include examples of what is expected to result if the Project is implemented as outlined in the Final Report. The Contractor shall focus specifically on examples from the categories listed below and develop a methodology for assessing these impacts over time (up to five years). The Contractor shall identify how to obtain the information to assess these impacts in the future (e.g., the Grantee, trade statistics, or U.S. Embassy in the Host Country). The Contractor shall only list benefits

in the categories that are applicable to the Project. The categories to be considered are as follows:

- Infrastructure: Estimate the expected scale of infrastructure construction and comment on the capabilities of any recommended infrastructure improvements.
- Human capacity building: Estimate the number and type of jobs created during the construction or installation phases if the Contractor's recommendations are implemented. Distinguish between temporary construction jobs and the number of jobs that would be created or sustained once construction is complete. Comment on any prospective training recommended in the Final Report, including an estimate of the number of persons to be trained, type of training needed, and the desired outcome of the training. The estimated job creation can be approximate or based on order of magnitude.
- Technology transfer and productivity improvements: Discuss recommended commercial contracts for licensing new technologies, as well as the expected productivity benefits of any such technologies. Moreover, discuss the expected efficiency gains stemming from these recommendations such as improved systems or processes that enhance productivity or result in a more efficient use of resources. The Contractor shall also describe the improvements in the water quality that could result. The Contractor shall provide current baseline estimates of all anticipated productivity gains 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, privatization of previously state-owned assets, or increased competition in a given sector.
- Other: Discuss prospective, indirect developmental impacts of the key recommendations, such as enhanced safety and economic benefits (including increases in tourism, investment, and indirect job creation) that are not captured in the four categories listed above.

Deliverable: Feasibility analysis detailing the findings of the abovementioned Task.

## **Task 5 IDENTIFICATION OF U. S. SOURCES OF TECHNOLOGY**

The Contractor shall assess the availability of U.S. sources of technology for the recommended components of the onsite wastewater treatment systems and for the recommended upgrades to the Grantee's wastewater treatment facilities and pre-treatment needs. The Contractor shall provide detailed prescriptive technical specifications for each piece of equipment as well as the manufacturer's business name, point of contact, address, website, telephone and fax numbers, and email address. The Contractor shall

contact the identified U.S. manufacturers to notify and discuss this Project and its potential business opportunities. The Contractor shall gauge U.S. manufacturers' interest in participating in the workshop in Task 6 and procurement process associated with this Project documenting these findings in the Final Report.

Deliverable: Technical Memorandum detailing the findings of the abovementioned Task.

## **Task 6 PROJECT WORKSHOP**

The Contractor shall organize and carry out a workshop to present the findings of the Study and showcase, promote and demonstrate the benefits of wastewater treatment technology manufactured in the U.S. The workshop shall aim at providing Philippine businesses a direct opportunity to learn how U.S. wastewater technology can be used to cost-effectively meet DENR water quality requirements. The workshop shall be a full day event divided into three sessions. The first session shall discuss the results and recommendations of the Study. The second session shall discuss the capability of U.S. wastewater technology in meeting DENR water quality standards and shall also provide a listing of U.S. sources of supply including the information developed in Task 5. In the third session the Contractor shall address audience questions regarding specific applications. The Contractor shall contact the local U.S. Commercial Service to include their participation in the workshop. The workshop audience shall include:

- Relevant industrial organizations such as Chemical Industries Associations of the Philippines, fast food traders representatives, and commercial wastewater dischargers identified by the Contractor during the course of the Study;
- Government Institutions such as Metropolitan Waterworks and Sewerage System (MWSS), Philippines National Water Resources Board, Department of Health, DENR and Local Water Utilities Administration;
- Water purveyors, the Grantee and Maynilad Water Services, Inc., relevant Water Districts;
- U.S. Manufacturers of wastewater treatment systems; and
- University representatives.

Deliverable: Workshop hand-outs, presentation audio and visual aids.

## **Task 7 PROJECT IMPLEMENTATION PLAN**

The Contractor shall prepare an overall plan for the implementation of each of the Project's components; the onsite treatment solution scenario recommendations as well as the wastewater facility upgrade recommendations. The implementation plan shall include, but not be limited to, recommended technology, maintenance needs, and training needs as it relates to the Project as well as a detailed procurement plan that describes the

steps necessary to implement the Project, technical specifications to acquire the recommended wastewater technology and related services needed for the Project's implementation. The Contractor shall not be responsible for any work associated with publicizing the bidding documents or evaluating proposals under any procurement related activity for this Project.

Deliverable: Project implementation plan detailing the findings of the above Task.

#### **Task 7            FINAL REPORT**

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

#### Notes:

- (1) The Contractor is responsible for compliance with U.S. export licensing requirements, if applicable, in the performance of the Terms of Reference.
- (2) The Contractor and the Grantee shall be careful to ensure that the public version of the Final Report contains no security or confidential information.
- (3) The Grantee 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) The Grantee shall be responsible for all procurement-related final decisions.