

REQUEST FOR PROPOSALS

TECHNICAL ASSISTANCE FOR

BALANCING BIOFUELS AND FOOD SECURITY

Submission Deadline: **4:00 P.M.**

LOCAL TIME

November 7, 2008

Submission Place: **Godfrey Ndawala**
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SEALED PROPOSALS SHALL BE CLEARLY MARKED AND RECEIVED PRIOR TO THE TIME AND DATE SPECIFIED ABOVE. PROPOSALS RECEIVED AFTER SAID TIME AND DATE WILL NOT BE ACCEPTED OR CONSIDERED.

REQUEST FOR PROPOSALS

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Section 1: INTRODUCTION

The U.S. Trade and Development Agency (USTDA) has provided a grant to the Grantee, the Ministry of Energy and Mineral Development (MEMD) of Uganda. The grant agreement is attached at Annex 4 for reference. The Grantee is soliciting technical proposals from qualified U.S. firms to provide expert consulting services to carry out the Technical Assistance.

1.1 BACKGROUND SUMMARY

Currently, the growth of the Ugandan economy is extremely constrained by the lack of affordable energy sources. Rising oil prices have increased the costs of transport and thermal power production, and the country's hydropower production has been reduced by regional drought. As a result, the Government of Uganda (GOU) is considering the development of a domestic biofuels industry to help Uganda reduce its oil imports, satisfy its own energy needs, and potentially begin exporting biofuels and electricity to neighboring countries.

The GOU is concerned that without proper guidance and regulation the development of a biofuels industry could have adverse effects on local farmers and potentially raise the cost of food. Since the majority of Uganda's population lives below the poverty line, the GOU does not want to inadvertently develop an industry that would have a detrimental impact on the majority of its population. Therefore, the government has requested USTDA assistance to conduct the following: (1) perform an analysis of the potential biofuel market within Uganda; (2) compare potential biofuel resources and technologies, and provide cost-benefit analyses to show the true impact of developing one resource versus another; and (3) recommend appropriate regulations to govern the market and potential incentives for the development of safe and responsible biofuel production. By funding this technical assistance, USTDA will help to open a new market for U.S. biofuel technologies, estimated at \$49 million, while providing regulatory assistance to ensure that Uganda's food security is not compromised by local energy needs.

Uganda's per capita energy consumption of 0.3 tons of oil equivalent (TOE) is among the lowest in the world. Overall energy consumption stands at about 5 million TOE/year, of which, approximately 94% is biomass (wood, charcoal and agricultural residue). Wood fuel is the dominant energy source, accounting for 80% of the total energy consumed in the country. Of Uganda's 25.4 million people, only about 5% have access to electricity. Demand for electricity increases 7-8% per annum, whereas production only increases by 3% per annum. The consumption of petroleum products has increased by 38% in the last five years, now accounting for about 5% of the country's energy consumption. All petroleum products are imported. It is a period of both serious crisis and enormous opportunity for Uganda's energy sector.

Uganda's rapidly growing demand for energy necessitates further investment in the energy sector. Moreover, Uganda has experienced prolonged drought, coupled with increased discharges from Lake Victoria. As a result, the water level in Lake Victoria has decreased by 2 meters, significantly reducing the production of the Nalubale and Kiira hydropower plants at Jinja.

In response to this demand, the GOU has introduced a number of measures, including load shedding and increased lease and import of more expensive thermal energy which has caused a significant increase in tariffs. The problem is further exasperated by the global increase in oil prices given that the thermal power plants run on diesel or heavy fuel oil. These price increases have hit the industrial and business sectors particularly hard. However, Uganda has an abundance of indigenous energy resources including biomass, hydropower, solar and geothermal energy, which are gradually beginning to be exploited. This creates hope that not only might the current crisis be abated, but Uganda may become a significant exporter of power to the region. The development of biomass energy sources alone has an estimated potential 1,650 MW.

There are currently three bio-mass factories in Uganda, namely Kakira Sugar Works Ltd., Kinyara Sugar Works Ltd., and Sugar Corporation of Uganda Ltd. (SCOUL). These plants are using bagasse fired cogeneration with a total electricity generation of over 10 MW. Kakira will soon commission an additional plant with a capacity of 23 MW, and further potential still exists at Kinyara and SCOUL. Other industries with agricultural wastes, like tea and coffee, could also potentially employ modern cogeneration technologies.

To take further the current exploitation of this resource, the Ugandan government is currently pursuing a new set of policies, including the recently passed Renewable Energy Policy (REP), to encourage the development of renewable energy resources, especially biofuels. In order to support those efforts, the government has requested assistance in designing regulatory framework which will encourage the development of a biofuels industry without jeopardizing the country's food supply. Specifically, the USTDA-funded technical assistance will assist the government in establishing biofuel quality regulations, content monitoring, regulations for testing facilities, tax incentives, blending requirements, and analysis of potential feedstocks and tariff requirements.

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

1.2 OBJECTIVE

This Technical Assistance project is to support the GOU's pursuit of a new set of policies, including the recently passed REP, to encourage the development of renewable energy resources, especially biofuels. In order to support those efforts, the government will need technical assistance in designing an effective regulatory framework. Specifically, the government requires assistance establishing:

- regulations on biofuel quality requirements for biofuel government vehicle fleets;
- regulations on biofuel quality requirements for public use of biofuels;
- legal acts on fuel/biofuel quality and content monitoring;
- legal acts on required minimum contents of biofuel in fuels distributed publicly;
- licensing regulations for the analytical laboratories;
- regulations concerning blending of biofuels with fossil fuels;
- regulations establishing biofuels quality testing methods;
- legal acts on tax exemptions for blended and 100% biofuels; and
- regulations on markings of public fuel distributors.

The selected contractor will perform the following tasks:

- Task 1: Conduct Project Kick-Off Meeting
- Task 2: Prepare Market Estimates
- Task 3: Identify and Compare Potential Biofuel Resources
- Task 4: Prepare an Investment Plan to Implement the Strategic Blueprint
- Task 5: Conduct Economic Analysis for Generic Biofuel Refineries
- Task 6: Review Regulation and Incentives for Development
- Task 7: Determine Developmental Impacts
- Task 8: Prepare Lists of Proposed Equipment and Services
- Task 9: Conduct Preliminary Socio-Economic and Environmental Impact Analysis
- Task 10: Prepare Final Report

The full Terms of Reference (TOR) for this Technical Assistance 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 amount for the negotiated contract has been established by a USTDA grant of U.S. \$527,280.

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 "Balancing Biofuels and Food Security."

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 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 Technical assistance.

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

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

2.5 PROJECT FUNDING SOURCE

The Technical Assistance will be funded under a grant from USTDA. The total amount of the grant is not to exceed U.S. \$527,280.

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. 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:

Godfrey Ndawala
Head Procurement and Disposal Unit
Amber House 1st Floor Room C109
Plot 23/29 Kampala Road
P. O. Box 7270
Kampala, Uganda

Phone: +256 41 311 111/ 41 234 733

An Original and eight (8) copies of your proposal must be received at the above address no later than 4:00 p.m., on November 7, 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 Technical assistance services similar to those required in the TOR. Specifically, the Grantee has requested a team with expertise in Agronomy, Biomass Energy, Chemistry, Energy Economics, Environment, Sociology, Mechanical Engineering, and Food Science.

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. No cost proposal is required as the value of the USTDA grant is established at U.S. \$527,280.

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 Technical assistance 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 Technical assistance. 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 Technical assistance.

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 Technical assistance.

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 Technical assistance. If a subcontractor(s) is being used, similar information must be provided for the prime and each subcontractor firm proposed for the project. 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 Technical assistance as described in this RFP.

Section 4: AWARD CRITERIA

Individual proposals will be initially evaluated by a Procurement Selection Committee of representatives from the Grantee. The Committee will then conduct a final evaluation and completion of ranking of qualified Offerors, 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.

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

- 1) Experience in preparing biofuel sector strategies for developing countries (30%)
- 2) Experience undertaking transportation fuels market studies in developing countries (30%)
- 3) Experience in preparing biofuels sector regulation and incentive mechanisms (30%)
- 4) Experience in Uganda and sub-Saharan Africa (10%)

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

Price will not be a factor in contractor selection.

ANNEX 1

Godfrey Ndawula; Head Procurement and Disposal Unit; Amber House; 1st Floor Room C109; Plot 23/29; Kampala Road; P. O. Box 7270; Kampala, Uganda

B- Uganda: Balancing Biofuels and Food Security Technical Assistance

POC Evangela Kunene, USTDA, 1000 Wilson Boulevard, Suite 1600, Arlington, VA 22209-3901, Tel: (703) 875-4357, Fax: (703) 875-4009. The Ministry of Energy and Mineral Development (MEMD) of Uganda, 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 provide technical assistance for Balancing Biofuels and Food Security.

Uganda's rapidly growing demand for electricity necessitates further public and private investment in power infrastructure projects. Recently, Uganda has experienced prolonged drought, significantly reducing the production of its hydroelectric power plants. This, combined with the sharp increase of global fuel prices, has led to substantial increases in energy costs in Uganda, hitting the industrial and business sectors particularly hard. Fortunately, Uganda has an abundance of indigenous energy resources including biomass, hydropower, solar and geothermal energy, which are gradually beginning to be exploited.

To take advantage of these resources, the Ugandan government is currently pursuing a new set of policies, including the recently passed Renewable Energy Policy, to encourage the development of renewable energy resources, especially biofuels. In order to support those efforts, the government has requested assistance in designing regulatory framework which will encourage the development of a biofuels industry without jeopardizing the country's food supply. Specifically, the US Trade and Development Agency (USTDA)-funded technical assistance will assist the government in establishing biofuel quality regulations, content monitoring, regulations for testing facilities, tax incentives, blending requirements, and analysis of potential feedstocks and tariff requirements.

The Government of Uganda (GOU) is concerned that without proper guidance and regulation the development of a biofuels industry could have adverse effects on local farmers and potentially raise the cost of food. Since the majority of Uganda's population lives below the poverty line, the GOU does not want to inadvertently develop an industry that would have a detrimental impact on the majority of its population. Therefore, the government has requested USTDA assistance to conduct the following:

- (1) perform an analysis of the potential biofuel market within Uganda;
- (2) compare potential biofuel resources and technologies, and provide cost-benefit analyses to show the true impact of developing one resource versus another; and
- (3) recommend appropriate regulations to govern the market and potential incentives for the development of safe and responsible biofuel production.

Technical Assistance Components:

- Task 1: Conduct Project Kick-Off Meeting
- Task 2: Prepare Market Estimates
- Task 3: Identify and Compare Potential Biofuel Resources

- Task 4: Prepare an Investment Plan to Implement the Strategic Blueprint
- Task 5: Conduct Economic Analysis for Generic Biofuel Refineries
- Task 6: Review Regulation and Incentives for Development
- Task 7: Determine Developmental Impacts
- Task 8: Prepare Lists of Proposed Equipment and Services
- Task 9: Conduct Preliminary Socio-Economic and Environmental Impact Analysis
- Task 10: Prepare Final Report

The U.S. firm selected will be paid in U.S. dollars from a \$527,280 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/desk study 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 4:00 p.m., November 7, 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.

ANNEX 2

Project #2: Preparation of a Strategic Blueprint, Investment Plan and Regulatory and Incentive Mechanisms to Encourage Development of a Biofuels Industry in Uganda

A. Project Description – Uganda Biofuels

Project Summary Information	
Host Country	Uganda
Project Name	Preparation of a Strategic Blueprint, Investment Plan and Regulatory and Incentive Mechanisms to Encourage Development of a Biofuels Industry in Uganda
Sector	Energy
Region	East Africa
Project Location	Kampala
Total Capital Requirement	US\$ 80 million
Potential US Exports	US\$ 48.8 million
Grant Amount	US\$ 527,280
Grantee	Ministry of Energy and Mineral Development

1. Introduction

The Ministry of Energy and Mineral Development (MEMD) has through the Government of Uganda (GoU) requested USTDA assistance to fund Technical Assistance Consultant services to prepare a strategy for MEMD to achieve the goals for development of an indigenous biofuels industry which have been embodied in the recently adopted

Renewable Energy Policy (REP). Specifically, the selected consultant would provide an assessment of the regulatory and economic requirements/issues to encourage development of a Biofuels Industry capable of in the near and medium term displacing foreign imports of gasoline and diesel, which are causing a serious drain on the economy. In the long term, as recent oil finds in Uganda may materialize into significant domestic petroleum production, an indigenous Biofuels industry will remain important for its role in helping to reduce Uganda’s air pollution problems and for the substantial rural economic development benefits that can result. The GoU strongly embraces these goals in seeking to establish an enduring Biofuels industry in Uganda.

All three major sugar manufacturers, Kakira, Lugazi and Kinyara are already producing ethanol in Uganda on a very small-scale level as a byproduct from molasses. Maize is another abundant crop which could be processed to ethanol fuel. In 2006 over 24 million metric tons of maize was harvested in Uganda. There are also already several small cottage industries producing ethanol from cereals and fruits on a pilot basis.

Biodiesel fuels are a product of fatty acids (like vegetable oils or animal fat) and alcohols like ethanol. In Uganda vegetable oils can be produced from jatropha, hemp, sunflower, soya bean, groundnuts, castor plant and palm oil. There is no biodiesel production yet in Uganda, however, there are three local companies that have been licensed to start production and these according to MEMD are all likely seeking foreign partners. The USAID mission in Kampala has indicated that there are several US companies, which have

expressed some interest in developing biofuels projects in Uganda, including Taylor Biomass Energy and Blue Research. GreenMax found that Taylor's plans are mainly to produce electricity from biomass crops and are only at a very early stage of discussion. We were unable to make contact with Blue Research.

MEMD has estimated that in the year 2010 Uganda will import and consume 360 million liters of diesel and 385 million liters of gasoline. The REP has set the goal that all dealers in petroleum products will be obligated to blend fossil fuels with biofuels up to 20% as appropriate. MEMD has established a target of 10% by 2012 and the full 20% by 2017. . The next step will be for MEMD to prepare the strategy and legislative framework to mandate these goals as law. This is the purpose of the proposed Technical Assistance.

GreenMax has prepared a rough estimation that to achieve this level of biofuels production investments totaling approximately USD 80 million will be required in biofuel refining facilities and that this will result in US export potential of almost USD 50 million.

The Technical Assistance is therefore requested for Preparation of a Strategic Blueprint, Investment Plan and Regulatory and Incentive Mechanisms to Encourage Development of a Biofuels Industry in Uganda.

2. Petroleum and Transportation Fuels Use in Uganda

MEMD has estimated that in the year 2010 Uganda will import and consume 360 million liters of diesel and 385 million liters of gasoline.

As the middle class increases, more people own cars. Uganda today still only has 40 vehicles per 1,000 persons (India 120; South Africa 1,460; USA 7,650) so we may expect Uganda's growth in transportation fuels to spurt.

Unfortunately, all the fossil fuel currently consumed in Uganda is imported. Uganda's Commissioner Petroleum exploration Reuben Kashambuzi says Uganda currently spends USD 413 million annually on oil imports.

According to the East African Community, regionally, East Africa spent \$ 1 billion on petroleum products in 2005 and the demand is continuing to go up.

Being a land-locked country, the fossil fuel import has to pass through Kenya or Tanzania. The custom taxes levied on the imports makes the pump prices of petroleum products in Uganda, currently at about US\$ 1.1 per liter for diesel and US\$1.3 per liter for petrol, one of the highest in the world.

The recent significant finds of domestic petroleum reserves and the construction of the Eldoret-Kampala petroleum pipeline extension will dramatically alter the economics of oil supply in Uganda over the coming decade, reducing costs and hard currency outflow. However, the environmental, social and economic development benefits of fostering an indigenous biofuels industry are so substantial that the GoU intends to vigorously pursue the REP goals.

Apart from fuel prices, the economic viability of a biofuels industry would depend on the cost and availability of raw feedstock, government regulation and the efficiency of conversion technology.

It has recently been reported by the South

African Ethanol Association that in Sub Saharan Africa, at oil price of \$40 a barrel (a price not seen for years), biofuel market penetration of 10 percent could be expected. At \$50 a barrel the penetration of 30 percent could be expected. However, a price of more than \$60 a barrel for the next three decades is considered by most analysts to be likely.

3. Biofuels Overview

Biofuels, depending on production technologies and feedstock, can be divided into the following main groups: bioethanol, biodiesel, biogas, syngas and biobutanol. bioethanol and biodiesel groups, the main ones, are described below.

i. Bioethanol

Ethanol (ethyl alcohol) is a high-performance motor fuel that cuts poisonous exhaust emissions and is better for the environment. Ethanol is made by fermenting and then distilling starch and sugar crops -- maize, sorghum, potatoes, wheat, sugar-cane, sugar molasses, cornstalks, fruit and vegetable waste.

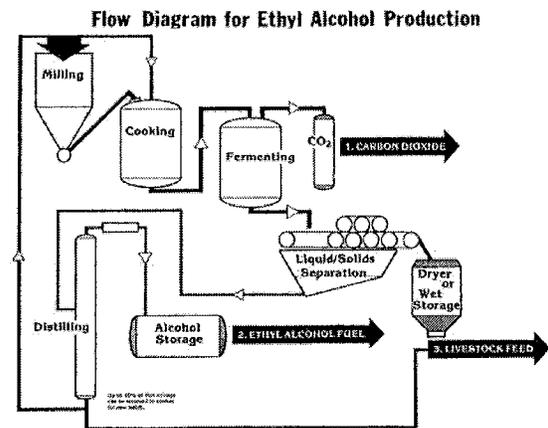
Ethanol is used as an additive to petrol (gasoline), however it is a much cleaner fuel. Most popular blend in the US is a 10% blend, but 85% and even 95% blends are now being tested.

Ethanol blends are increasingly used in South Africa, while Brazil, the world leader, produces four billion gallons of ethanol a year: all Brazilian fuel contains at least 24% ethanol, and much of it is 100% ethanol (engines can be designed to run on 100% ethanol).

The biggest car manufacturers recommend ethanol fuels, and nearly

every car manufacturer in the world approves ethanol blends in their warranty coverage.

The below diagram shows the basics of ethyl alcohol production utilized on the large, industrial scale. The technology is based on two main processes: fermentation and distillation.



The sugar extracted from cane or sweet sorghum can be directly fermented with little or no alteration, but the starches present in grains must be converted into sugars. Starch itself is a long chain of individual glucose molecules, which must be broken apart or *hydrolyzed* with *enzymes*. However, the conversion process must be very carefully carried out, or your final alcohol yield will be seriously reduced.

The below tables show the yield of almost pure ethanol per ton and per acre and give an indication when determining the most suitable feedstock for ethanol production for Uganda farming conditions.

Table 1. Average yield of 99.5 percent alcohol per ton**

Material	Gallons	Material	Gallons
Wheat (all varieties)	85.0	Yams	27.3
Corn	84.0	Potatoes	22.9
Buckwheat	83.4	Sugar beets	22.1
Raisins	81.4	Figs, fresh	21.0
Grain sorghum	79.5	Jerusalem artichokes	20.0
Rice, rough	79.5	Pineapples	15.6
Barley	79.2	Sugarcane	15.2
Dates, dry	79.0	Grapes (all varieties)	15.1
Rye	78.8	Apples	14.4
Prunes, dry	72.0	Apricots	13.6
Molasses, blackstrap	70.4	Pears	11.5
Sorghum cane	70.4	Peaches	11.5
Oats	63.6	Plums (nonprunes)	10.9
Figs, dry	59.0	Carrots	9.8
Sweet potatoes	34.2		

Table 2. Average yield of 99.5 percent alcohol per acre**

Material	Gallons	Material	Gallons
Jerusalem artichokes****	1200.0	Grapes (all varieties)	90.4
Sugarcane		Peaches	84.0
(Hawaii, 18 to 22 months)	889.0	Barley***	83.0
Sugar cane (Louisiana)****	555.0	Prunes, dry	82.8
Sorghum cane***	500.0	Wheat (all varieties)****	79.0
Sugar beet***	412.0	Pineapples	78.0
Potatoes****	299.0	Oats****	57.0
Corn***	214.0	Rye***	54.0
Sweet potatoes***	190.0	Pears	49.3
Rice, rough***	175.0	Molasses, blackstrap	45.0
Apples	140.0	Apricots	41.0
Dates, dry	126.0	Buckwheat	34.2
Grain sorghum***	125.0	Figs, fresh	31.5
Carrots	121.0	Figs, dry	29.5
Raisins	101.7	Plums (nonprunes)	21.8
Yams	94.0		

The benefits of ethanol are listed below.

- It is a renewable fuel made from plants
- It is not a fossil-fuel: manufacturing it and burning it does not increase the greenhouse effect
- It provides high octane at low cost as an alternative to harmful fuel additives
- Ethanol blends can be used in all petrol engines without modifications
- Ethanol is biodegradable without harmful effects on the environment
- It significantly reduces harmful exhaust emissions
- Ethanol's high oxygen content reduces carbon monoxide levels

more than any other oxygenate: by 25-30%, according to the US EPA

- Ethanol blends from cellulosic and sugar-cane based ethanol (unfortunately not maize based ethanol) reduce carbon dioxide emissions 80 percent relative to petrol.
- High-level ethanol blends reduce nitrogen oxide emissions by up to 20%
- High-level ethanol blends can reduce emissions of Volatile Organic Compounds (VOCs) by 30% or more (VOCs are major sources of ground-level ozone formation).
- As an octane enhancer, ethanol can cut emissions of cancer-causing benzene and butadiene by more than 50%
- Sulphur dioxide and Particulate Matter (PM) emissions are significantly decreased with ethanol.

The largest producer of ethanol is Brazil, where it is produced mainly from molasses and sugar cane juice. The US produces mostly corn alcohol and in France, sugar beets are being used.

ii. Biodiesel

Biodiesel is methyl (ethyl) ester derived from esterification of vegetable oils: methanol (ethanol) is added to vegetable oil in ratio 1:9 together with small amount of base or acidic catalyst, than the mix is processed in a cavitation reactor. The output products of such reaction are biodiesel and technical glycerol. Both products have high commodity cost and wide seller's market. Furthermore glycerol is the excellent high-energy fuel for heating boilers.

For production of biodiesel any kind of vegetable oils can be used – sunflower oil, rapeseed oil, linseed oil etc. However biodiesel derived from various oils has some differences. For example, palm oil biodiesel has the highest calorificity, but also the highest temperature of filterability and solidification. Rapeseed biodiesel has lower calorificity, but is more cold-resistant, that is why it is more suitable for European countries and Russia.

For fueling a vehicle one can use pure biodiesel or add it to diesel fuel. The most popular blend consists of 20% biodiesel and 80% diesel fuel.

Vegetable oil can be used as diesel fuel just as it is, without being converted to biodiesel, however this requires alterations to a car fuel system to prevent damage to the engine.

There are many manufacturers of biodiesel production equipment which utilize different technology concepts.

iii. Developing a Regulatory Environment for Biofuels

A key element to successful development of biofuel supply is the country regulatory environment created mainly by the government.

An example of an array of biofuels regulations required for successful promotion of biofuels is given below.

- Government regulation on biofuel quality requirements for biofuel vehicle fleets own use only.
- Government regulation on biofuel quality requirements for public use of biofuels

- Legal act on fuel/biofuel quality and content monitoring
- Legal act on required minimum contents of biofuel in fuels distributed publicly
- Licensing regulations for the analytical laboratories
- Regulations concerning blending of biofuels with fossil fuels
- Regulations establishing biofuels quality testing methods
- Legal act on tax exemptions for blended and 100% biofuels
- Regulations on markings of public fuel distributors

The issue of introducing biofuels to the market is very complex. The number of technical regulations which pertain to biofuels is substantial.

4. Biofuels Potential in Uganda

i. Ethanol

There is ongoing debate about whether Uganda should favor maize-ethanol production over sugar-ethanol production. While sugar ethanol production is generally acknowledged to be substantially more cost effective and ethanol produced from maize provides little net carbon dioxide mitigation relative to that of petrol, maize ethanol is still considered as an option in Sub-Saharan Africa largely because of its accessibility to small and subsistence farmers.

Nonetheless, production of ethanol from sugar molasses and sugar cane juice has received the most attention in Uganda.

The Madhvani Group's Kakira Sugar Works is planning to increase its 100,000 tons of sugar output up to over 150,000 tons and potentially to develop a new

sugar factory and ethanol refinery in the north. The group's President, Nitin Madhvani told the GreenMax team that "We are ready to invest. All we need is clear legislation mandating a 10% ethanol blend. We don't need any tax incentives or subsidies." The Madhvanis operated Africa's first ethanol refinery in Kenya during the 1970s-1980s, which was subsequently shut down when world oil prices declined. (GreenMax discloses that it has a business relationship with the Madhvani Group. We are advising them on the development of peat fired power plants in both Uganda and Rwanda and on several energy sector projects in Europe).

The Mehta Group, which operates the Sugar Company of Uganda Ltd. (SCOUL) in Lugazi plans to double its sugar production capacity in Uganda from current 55,000 tons per annum. The group already requested additional land from the Government of Uganda for increasing its sugar production for making ethanol.

A controversial plan to allocate to SCOUL some one-third, about 7,000 hectares, of the Mabira Forest Reserve, one of Uganda's most important intact and protected rainforests, to produce sugar for biofuels has met stiff resistance. Three people were killed in the suppression of protests there in April of this year.

The proposed Technical Assistance will help the GoU to take sound environmental decisions regarding land utilization for cultivation of bio-energy crops.

ii. Biodiesel

According to the Renewable Energy Project at MEMD, among the best

options for producing biodiesel in Uganda are presently in palm oil and sunflower. Presently, large palm plantations are being established in Kalangala District, although a recent plan to allocate rainforest land there to the Kenyan vegetable oil producer BIDCO has been scrapped due to opposition from environmentalists. While earmarked for vegetable cooking oil, any excess oil from palm harvesting can be used for energy purposes.

To understand the dynamics of producing biofuel from vegetable oil in Uganda we use sunflower as an example. Sunflower is presently grown in the Northern Region, especially around Lira District. More farmers are taking up sunflower growing, especially through the efforts of the Uganda Oil Seed Producers and Processors Association (UOSPA). A hectare currently produces about 1,500 Kgs which with current processing techniques, gives about 400 litres of oil and about one ton of cake, which is used for poultry and cattle feed. Higher yields per hectare and more oil per Kg of sunflower can however be achieved with improved pressing technologies. A liter of oil is sold for about Ushs 2,000 and cake Ushs 200 per kg.

The present sunflower and oil yields are good enough to encourage uptake of sunflower production and processing. UOSPA, through training farmers' groups on agronomy, harvesting and post-harvesting techniques is already achieving higher yields per hectare. It also gives seeds to the farmers and links them to millers.

There are presently about 25 millers who process between 2.5 - 20 tons a day (their collective capacity is about 200 tons - 50,000 liters a day, and a small press taking in 3 tons of sunflower - 750 liters

of oil, a day costs about Ushs 4 million). Because of insufficient amounts of sunflower, all of them operate only part of the year. Other farmers press their own oil using a Ram Press, which can yield about 20 liters a day. This costs about Ushs 400,000 and can be produced locally. Own-pressing increases a farmer's return.

To achieve the target of 10 million liters set out in the Renewable Energy Policy, sunflower plantations have to be cultivated at the rate of 30,000 ha/year at current yields and processing rates. Assuming bi-annual plantation, this comes to 15,000 ha (Lira district presently has 2,800 ha). However, assuming that half of the sunflower will be used as cooking oil, it is in fact 30,000 ha which would need to be planted if the full REP goal is to be met with sunflower derived biofuels. The thrust of the sunflower planting can be in the Northern Region where it is concentrated.

Considering that the capacity of the 25 millers is 50,000 liters, investments for 50 other millers with a milling capacity of 750 liters a day distributed in various market centers and an additional 500 ram presses in the households would be required. Presses with higher recovery (770 liters a hectare) can be invested in, later on.

B. About the Grantee (MEMD)

The Ministry of Energy and Mineral Development (MEMD) will act as the Grantee for this project.

MEMD Mission

To establish, promote the development, strategically manage and safeguard the rational and sustainable exploitation and utilization of energy and mineral

resources for social and economic development.

MEMD Objectives

- To put in place enabling policies and legislation for sustainable development and exploitation of the country's energy and mineral resources.
- To establish the country's energy and mineral potential.
- To produce petroleum and mineral resources for local consumption and export.
- To increase electricity production, rural electricity access and renewable energy installed capacity.
- To increase competition in petroleum supply and distribution in order to curb products' adulteration and attain reasonable pump prices.
- To reduce the impact of geotectonic disturbances and radioactive emissions for disaster preparedness.

Roles and Functions

- To attain efficient utilization of energy resources.
- To provide policy guidance in the development and exploitation of the energy and mineral resources.
- To acquire, process and interpret technical data in order to establish the energy and mineral resource potential of the country.
- To create an enabling environment in order to attract investment in the development, provision and utilization of energy and mineral resources.
- To inspect, regulate, monitor and evaluate activities of private companies in energy and mineral sectors so that the resources are

developed, exploited and used on rational and sustainable basis.

Departments

The Ministry of Energy and Mineral Development consists of four technical departments under one Directorate and Support Services. The four technical departments are Energy Resources Department, Geological Survey and Mines Department, Petroleum Exploration and Production Department, and Petroleum Supplies Department.

C. Development Impact

The proposed project, when fully implemented, would have a significant development impact on the transportation fuels sector in Uganda by providing a clear plan and important regulatory infrastructure to allow Uganda to develop its indigenous biofuels industry at a moment when the world market for biofuels is exploding.

In short, the project is expected to have the following Development Impacts:

(a) Infrastructure / Industry.

The groundwork will be laid for the development of an entirely new industry in Uganda. At least several new industrial grade biofuel-refineries will need to be built as the centerpiece of this sector. New distribution and logistics networks will be developed to handle the transport and storage of the feedstock and the processed biofuel

(b) Market-Oriented Reforms.

The regulatory framework will be put in place to facilitate private sector investment in biofuels production.

(c) Human Capacity Building.

Indirectly, the development of a new biofuels industry will require new agricultural labor skills in the cultivation, harvesting, distribution and storage of the bio-crop feedstock and new industrial labor skills in the operation of the biofuel refineries.

(d) Technology Transfer and Productivity

The development of a new biofuels industry will result in the introduction of new, sophisticated technologies for the processing of bio-crops and wastes into biofuel. The experience in other countries is that agricultural productivity increases as crop yields improve by the introduction of better farming practices to meet the now dual demands of food and fuel production.

(e) Rural Economic Development.

Development of an indigenous biofuels sector can be expected to lead to new opportunities for farmers to supply an array of bio-crops, often at higher price per hectare of yield.

D. Project Sponsor Commitment

GreenMax held high level meetings with the Minister of Energy, the Minister of State for Energy and the Permanent Secretary for Energy as well as with the Commissioners of three MEMD departments. The request for assistance on this project was issued directly by the Ministers and the PS. An Assistant Commissioner was placed in charge of the project and MEMD's full time biofuels specialist worked closely with GreenMax in developing the project.

MEMD has officially agreed to the proposed Terms of Reference herein.

E. Implementation Financing

Because this is a Technical Assistance project, no implementation financing will be directly required. However, GreenMax has estimated that investment on the order of US\$ 80 million will be required to build the bio-refinery capacity needed to meet the REP 20% biofuel blend goal. It is GreenMax's opinion that this investment is likely to come from mainly private sources. Two of Uganda's three large sugar producers, Madhavani's Kakira factory and Mehta's SCOUL operation in Lugazi are already preparing to make such investments. A significant number of international companies, including several from the US are already exploring partnerships with local firms. The largest producer of vegetable oils in the region, Kenya's BIDCO, is also already making plans for biodiesel production. All are waiting for the proper signals from the government sector in the form of a strategic plan and clear regulation and standards.

F. US Export Potential

The MEMD has estimated that in the year 2010 Uganda will import and consume 360 million liters of diesel and 385 million liters of gasoline. The newly adopted Renewable Energy Policy has set the goal that "all dealers in petroleum products will be obligated to blend fossil fuels with biofuels up to 20% as appropriate."

The 20% blend then results in a projected biofuels use of approximately 150 million liters per year which equates to approximately 40 million gallons per year.

Capital costs for bio-refineries typically run \$2U.S. for each gallon of yearly capacity. This results in an overall estimate of the capital required for the bio-refineries for approximately \$80 Million \$U.S. The costs for the refinery are broken down into the following categories along with an estimate of U.S. Export Potential.

Table 3 Estimated US Export Potential for Development of Bio-refineries in Uganda

Cost Category	Estimated Cost 1000s \$	U.S. Supply Portion 1000s \$
Evaporators & Agitators	4000	4000
Tanks Field Erected	3200	0
Process Tanks & Vessels	4000	4000
Centrifuges	1600	1600
Pipes/Valves	4000	4000
Pumps	4000	4000
Feedstock Handling	8000	8000
Dryers	8000	8000
Thermal Oxidizers	4000	4000
Wire & Cable	1600	1600
Controls	800	800
Switchgear	3200	3200
Materials	8000	0
Construction	20000	0
Engineering	5600	5600
Project Mgmt		
Total	80000	48800

U.S. Export Potential is estimated at \$48.8 million U.S. Table 4 below shows the main US companies supplying goods and services which could be utilized in the design and construction of bio-refineries in Uganda.

Table 4 US Suppliers for Bio-refineries in Uganda

<p>Biofuels Technology</p>	<p>AMEC 1979 Lakeside Parkway Suite 500 Tucker, GA 30084, United States Phone: 177-068-82550 Website: http://www.amec.com</p> <p>BEI Engineers 3741 Red Bluff Rd. Suite 200 Pasadena, TX 77503, United States Phone: 713-579-0825 Website: http://www.bei-us.com</p> <p>BioEnergy Development Company P.O. Box 669 Fishers, IN 46038, United States Phone: 317-431-4932 Website: http://www.bioenergydevelopment.com</p> <p>ENGlobal Engineering Inc. 654 N. Sam Houston Pkwy E Suite 400 Houston, Texas 77060, United States Phone: 281-878-1000 Website: http://www.englobal.com</p>	<p>Biofuels Suppliers (there are dozens of biofuels producers today in the US, these are only a few which are BO-9000 accredited producers)</p>	<p>Archer Daniels Midland Company 4666 Faries Parkway Decatur, IL 62526 Phone: 1-800-637-5843 Website: http://www.admworld.com</p> <p>Headwaters Incorporated 10653 South River Front Parkway, Suite 300 South Jordan, UT 84095 Phone: (801) 984-9400</p> <p>Cargill, Inc. 15407 McGinty Road West Wayzata, MN 55391 Phone: 952 742-6100 http://www.cargill.com</p> <p>World Energy Alternatives, LLC 2 Constitution Center, 2nd Floor Charlestown, MA 02129 Phone: 617 889-7300 http://www.worldenergy.net</p> <p>Renewable Energy Group, Inc. 406 First Street Ralston, IA 51459 Phone: 712 667 3500 http://www.regfuel.com</p> <p>Western Iowa Energy, LLC 1220 S. Center Street Wall Lake, IA 51466 Phone: 712 664-2173 http://www.westerniowaenergy.com</p>
<p>Evaporators</p>	<p>Progressive Recovery, Inc. 618-286-5000 http://www.progressive-recovery.com/</p> <p>Pfaunder 585-235-1000 http://www.pfaunder.com/</p>	<p>Controls</p>	<p>Emerson Process Mgmt http://www.emersonprocess.com 847-956-8020</p> <p>Honeywell http://www.honeywell.com/ 973-455-2000</p> <p>Foxboro http://www.foxboro.com 866-746-6477</p>

Process Tanks & Vessels	<p>MPC Containment Systems LLC 773-927-4120 http://www.mpccontainment.com/</p> <p>Canamer Services Inc 608-687-9800 http://www.canamerservices.com/</p> <p>BMT 281-252-9809 http://www.bmt-tank.com/</p>	Switchgear	<p>EMSCO http://www.emscomn.com 800-328-1842</p> <p>General Electric http://www.ge.com 713-803-0446</p> <p>Enercon http://www.enercon.com/ 918-665-7693</p>
Centrifuges	<p>optek-Danulat, Inc 800-371-4288 http://www.optek.com/</p> <p>Chromalox 412-967-3828 http://www.chromalox.com/</p>	Engineering & Services	<p>Black & Veatch http://www.bv.com/ 913-458-2000</p> <p>MWH Global http://www.mwhglobal.com/ 303-533-1900</p> <p>Fluor http://www.fluor.com/ 469-398-7000</p> <p>Bechtel http://www.bechtel.com/ 415-768-1234</p> <p>Foster Wheeler http://www.fwc.com 908-730-4000</p>
Pipes & Valves	<p>Berg Pipe http://www.bergpipe.com/ 713-465-1600</p> <p>Ameron International http://www.ameron.com 626-683-4000</p> <p>B.F. Shaw http://www.shawgrp.com 864-682-4000</p>	Dryers	<p>Progressive Recovery, Inc. 618-286-5000 http://www.progressive-recovery.com/</p> <p>Heyl & Patterson Inc. 412-788-9810 http://www.heylpatterson.com/</p> <p>Epcon Industrial Systems, LP 936-273-3300 http://www.epconlp.com/</p> <p>FEECO International, Inc. 920-468-1000 http://www.feeco.com/</p>
Pumps	<p>Gould Crane ITT Industries http://www.goulds.com/ 315-568-7123</p> <p>Electric Machinery http://www.electricmachinery.com/ 612-378-8000</p> <p>Caterpillar http://www.cat.com 309-675-1000</p>	Thermal Oxidizers	<p>Anguil Environmental Systems, Inc. 414-365-6400 http://www.anguil.com</p> <p>Epcon Industrial Systems, LP 936-273-3300 http://www.epconlp.com/</p>

**Feedstock
Handling**

Rockwell Automation
<http://www.rockwellautomation.com/>
414-382-2000

Dresser
<http://www.dresser.com>
972-391-9800

FEECO International, Inc.
920-468-1000
<http://www.feeco.com/>

Cardinal Scale Mfg. Co.
800-441-4237
<http://www.cardinalscale.com>

**Wire &
Cable**

Rockwell Automation
<http://www.rockwellautomation.com/>
414-382-2000

Amer Cable
<http://www.amercable.com/>
800-643-1516

Northwire
<http://www.northwire.com/>
800-468-1516

G. Foreign Competition

U.S. equipment manufacturers face foreign competition in the ethanol and biodiesel markets just as they face foreign competition in other markets such as refining, power production, mining, etc. While there are many qualified U.S. manufacturers in the ethanol and biodiesel as evidenced by the table in Section F, there are also well qualified foreign suppliers (notably the Brazilians, Swedes and Austrians).

The U.S. is the world wide leader in corn based ethanol. The Brazilians are the leader in sugar cane based ethanol.

The use of a U.S based contractor to develop the Strategic Blueprint and Investment Plan will bring a U.S. point of view into the process. This should enable U.S. companies to more effectively compete for the equipment and services that will arise from the development of a biofuels industry in Uganda.

H. Social and Environmental Impact

Increased use of biofuels is generally considered to be a main component of the emerging global strategy to reduce Global Warming and Greenhouse Gas Emissions. These impacts would be especially strongly felt in Uganda where the burning of petroleum based gasoline in ever increasing numbers of automobiles and trucks is the single major cause of air pollution in the country. The import of petroleum by thousands of diesel fueled tanker trucks traveling from Mombassa is also a major polluter.

Utilizing agricultural, municipal and industrial wastes for biofuel production can also help to ease Uganda's

burgeoning solid waste management crisis.

Many developing countries, Uganda included, are looking to the growing demand for biofuel to create new economic and social development opportunities for smallholder farmers. More land would be cultivated for bio-crops and farmer earnings per hectare would increase as world demand for these crops creates upward price pressure for agricultural output.

However, the development of an indigenous biofuels sector must be carefully planned in order to avoid negative environmental and social impacts. The two most serious threats are the allocation of rainforest lands which now serve as critical "carbon sinks" to bio-crop production and possible negative impacts on the food supply and on food prices. The former has already arisen as a serious concern in Uganda with the GoU reconsidering earlier decisions to provide protected lands for sugar and palm cultivation.

The proposed Technical Assistance will help the GoU make sound decisions regarding these issues.

I. Impact on US Labor

This project will have no negative impact on U.S. labor. Instead, we expect that the project will have a positive impact on U.S. labor due to the assistance provided in developing the biofuels sector, which should increase the potential for export for U.S. equipment and services to Uganda.

Implementation of the underlying Project will in no way create:

- (a) financial incentive to any business enterprise currently located in the United States for the purpose of inducing such an enterprise to relocate outside the United States if such incentive or inducement is likely to reduce the number of employees of such business enterprise in the United States because United States production is being replaced by such enterprise outside the United States;
- (b) assistance for the purpose of establishing or developing in a foreign country any export processing zone or designated area in which the tax, tariff, labor, environment, and safety laws of that country do not apply, in part or in whole, to activities carried out within that zone or area;
- (c) assistance for any project or activity that contributes to the violation of internationally recognized workers rights; and
- (d) direct assistance for establishing or expanding production of any commodity for export by any country other than the United States, if the commodity is likely to be in surplus on world markets at the time the resulting productive capacity is expected to become operative and if the assistance will cause substantial injury to United States producers of the same, similar, or competing commodity.

J. Qualifications Required from the Technical Advisor (Contractor)

The selected firm should organize a team of US and Ugandan experts that brings

appropriate multi-disciplinary experience in the following areas:

- Transportation fuels market analysis
- Agricultural economics
- Biofuel technology
- Financial analysis
- Development of regulation and incentives
- Industrial site planning and development

The Contractor's team should be comprised of individuals with the skills set described below, understanding that specific skills may be found in different of the individual staff presented by the Contractor, than what is described below. The critical factor in evaluation will be that all skills are properly addressed. All the members should demonstrate high communication skills.

US Team:

Project Manager – A senior level biofuels sector professional with broad experience in all aspects of market analysis, policy and regulation, technology assessment, environmental and economic analysis. The Project Manager should have a proven track record in supervising a multi-disciplinary study of the biofuel industry, either at the national, state, regional or local level. He/she should have recent experience in a developing country context.

Market Analyst – A mid-level market analyst with strong background in the study of transportation fuel markets.

Biofuels Specialist – A senior technology specialist with proven experience evaluating biofuels strategies and technologies.

Financial Analyst – A mid-level financial analyst with proven experience modeling complex investment scenarios.

Plant Design Engineer – A seasoned industrial plant designer with experience in biofuel refineries.

Regulatory Attorney – A senior level attorney with extensive experience analyzing the legal aspects of energy sector regulation of developing countries under World Bank/IMF supervision.

Ugandan Team

Market Analyst – A junior market researcher to assist in collection of all data for the study of the transportation fuels sector.

Agro – Economist -- A senior expert on the Ugandan agricultural sector.

Regulatory Attorney – A senior attorney experienced with all aspects of energy and transportation sector regulation in Uganda.

Environmental Engineer – A senior level environmental expert with extensive experience preparing EIAs that meet both Uganda and World Bank requirements.

To qualify for selection for this consultancy, the Offeror should demonstrate the following qualifications, with references provided to specific hydropower facilities currently in operation:

- (i) Experience in preparing biofuel sector strategies for developing countries, 30%

- (ii) Experience undertaking transportation fuels market studies in developing countries, 30%

- (iii) Experience in preparing biofuels sector regulation and incentive mechanisms, 30%

- (iv) Experience in Sub Saharan Africa, 10%

J. Justification

MEMD is mandated to develop Uganda's indigenous energy resources. The recently adopted Renewable Energy Policy (REP) sets an ambitious goal for a 10% biofuel blend by 2012 and 20% by 2017. At this juncture, MEMD needs to prepare a strategy to achieve these goals including regulations, rules, standards and codes and possibly some incentive mechanisms. The timing is especially important as it coincides with rapid developments in the petroleum sector, likely to result in the start of domestic oil production as early as 2009. Development of biofuel refineries in this timeframe would allow more of the early domestic oil production to be allocated for desperately needed power production instead of for transportation fuels.

We expect USTDA's assistance to MEMD to have both a strong development impact, including on Infrastructure / Industry, Market-Oriented Reforms. Human Capacity Building and Technology Transfer and Productivity.

We also expect a positive impact on U.S. export potential, by laying the groundwork for development of a viable biofuels industry in Uganda.

K. Terms of Reference

Objectives

The objective of this study is to provide the Government of Uganda (GoU), under direction of the Ministry of Energy and Mineral Development (“MEMD” or the “Grantee”) with an assessment of the regulatory, environmental and economic requirements/issues to encourage development of a Biofuels Industry capable of displacing foreign imports of gasoline and diesel.

Sugar manufacturers are already producing ethanol in Uganda on a very small-scale level as a byproduct from molasses. There are also several small cottage industries producing ethanol from cereals and fruits. Biodiesel fuels are a product of fatty acids (like vegetable oils or animal fat) and alcohols like ethanol. In Uganda vegetable oils can be produced from jatropha, hemp, sunflower, soya bean, groundnuts, castor plant and palm oil.

MEMD has estimated that in the year 2010 Uganda will import and consume 360 million litres of diesel and 385 million litres of gasoline. The newly adopted Renewable Energy Policy (“REP”) has set the goal that “all dealers in petroleum products will be obligated to blend fossil fuels with biofuels up to 20% as appropriate.”

The study is designed to prepare an informed strategic blueprint for how Uganda can best meet the REP goal.

However, the development of an indigenous biofuels sector must be carefully planned in order to avoid negative environmental and social impacts. The two most serious threats are the allocation of rainforest lands which now serve as critical “carbon sinks” to bio-crop production and

possible negative impacts on the food supply and on food prices. The former has already arisen as a serious concern in Uganda with the GoU reconsidering earlier decisions to provide protected lands for sugar and palm cultivation. Therefore, the study shall also provide advice to the GoU on how best to mitigate potential negative land use and food supply impacts of biofuels development.

The study has five broad elements:

1. Identification, quantification and comparison of the primary different potential bio fuel feedstocks indigenous to Uganda
2. Market estimates of the level of bio fuel consumption over a 20 year period necessary to achieve the REP goal
3. Economic/financial projections of bio fuel cost and identification of other social impacts of biofuel feedstock choices
4. Evaluate and recommend changes to laws or regulations and/or development of incentives that would enhance the use of bio fuels towards meeting the REP goals
5. Evaluate environmental and social impacts, particularly relating to land use and food supply issues and identify approaches and solutions that will mitigate negative effects.

Tasks

Note: The Grantee (with assistance from Contractor if required) shall be responsible for forming a Technical Advisory Committee (“Advisory Committee”), composed of members of the MEMD and the Ministries of Finance (MoF), Agriculture (MoA) and Environment (MoEn) and Trade and Industry (MoTI). The Grantee shall

provide a Project Manager for the duration of the work in Uganda. In addition, the Grantee shall also provide at minimum the following types of project support:

- Office Space
- Administrative Support Staff
- Transportation and drivers
- Telephone, internet access, copy facilities, etc.

The purpose of the Advisory Committee will be to coordinate the Study, provide feedback to the Contractor's work, and take a pro-active role in assisting the Contractor's activities. It is expected that the members of the Advisory Committee shall convene, in Kampala for the Project Kick-Off meeting, and shall provide feedback to the Contractor in an expedited manner, when requested within 3 weeks of each request. The Grantee shall appoint a project manager to oversee and facilitate the Advisory Committee and be responsible for coordinating its inputs into the Study. Any costs related to the participation of members of the Advisory Committee in its meetings and deliberations, such as time, travel, lodging, per diem, meeting room space etc., will be borne by the participating Ministries and not paid for by the USTDA grant.

Task 1: Project Kick-Off Meeting

The Contractor shall travel to Kampala to meet with the representative government officials of the Advisory Committee to review and discuss the basis for the Project. At this time, the Contractor shall collect any documentation made available by the government required for the technical and economic analysis of the Project. Documents may include estimates of petroleum consumption, bio fuel development assessments, land use studies, etc.

Deliverable Task 1 (due at week 6):

The Contractor shall confirm the timeline for carrying out the Project with the Advisory Committee and the schedule for any deliverables and prepare an Inception Report indicating any changes from the proposed Study workplan as well as all specific areas of assistance expected from the Grantee (in accordance with the general areas of assistance to be provided as defined in the TOR).

Task 2 Market Estimates

The Contractor shall carry out market evaluations and demand forecasts through a survey of existing consumption patterns and collection of data on the existing market for diesel and gasoline products in Uganda and the countries of the East African Community ("EAC"). For Uganda and the other EAC countries, the Contractor shall rely on available data from government agencies and from previous donor funded studies in order to prepare estimates.

Based on the historical data, a 10-year forecast for the various products will be prepared of future demands for the diesel oil and gasoline products in Uganda and the other countries of the EAC, commensurate with alternative growth scenarios of the economies of the region (the "Overall Market Projection"). An estimate of the future demand and production of bio fuel products necessary to meet the REP goal will also be made (the "Biofuel Market Projection"). The Contractor will then recommend an appropriate capacity for the production of bio fuel. This analysis will also be used to project the demand-side analysis for the Economic Analysis in Task 6 of this Terms of Reference.

The Contractor is advised that significant uncertainty exists in projecting the demand for diesel and gasoline products in Uganda. In such instances, the Contractor, through review of relevant documentation and discussion with all interested parties, shall make best efforts to determine the most probable baseline scenario.

Task 2 Deliverable: The Contractor shall provide a Task 2 Report to the Advisory Committee regarding the Contractor's findings for Task 2 including the Overall Market Projection, the Biofuels Market Projection and a summary of all data collected and analysis supporting the conclusions drawn. The Advisory Committee will provide any comments or suggestions regarding the findings to the Contractor within three (3) weeks of the Contractor's delivery of the Task 2 Report, which the Contractor will incorporate into the remainder of the Study and the Final Report.

Task 3: Identify and Compare Potential Bio Fuel Resources

The Contractor shall perform the following tasks:

1. In consultation with the Grantee and the Advisory Committee confirm the potential biofuel feedstocks to be included in this analysis.
2. Review current agricultural practices, waste disposal and crop production for the targeted fuel sources. For each fuel source from agricultural crops, determine as appropriate estimates of:
 - the quantity of crop production,
 - the range of energy value of the crop,

- total land area currently devoted to cultivation of the crop
- typical land ownership and farming practices for the crop
- average crop yield and earnings per hectare for current sales of the crop
- available technologies for processing the crop to biofuel
- average cost per unit of biofuel production from this crop
- downstream segment investments that would be necessitated by different levels of blending biofuel produced from this crop with conventional transportation fuels (i.e. retooling of automotive engines or gas station pumps)
- new downstream segment labor skills and manpower that might need to be developed to properly service automotive engines burning a blend with biofuel produced from this crop
- other significant issues related to the use of this crop as a biofuel source

For each fuel source from agricultural, municipal or industrial wastes determine as appropriate estimates of:

- the quantity of waste generated
- the range of energy value of the wastes
- current practice and costs for disposal of the wastes
- environmental risks due to lack of proper waste disposal
- available technologies for processing the crop to biofuel

- average cost per unit of biofuel production from this crop
 - downstream segment investments that would be necessitated by different levels of blending biofuel produced from this crop with conventional transportation fuels (i.e. retooling of automotive engines or gas station pumps)
 - new downstream segment labor skills and manpower that might need to be developed to properly service automotive engines burning a blend with biofuel produced from this crop
 - other significant issues related to the use of this crop as a biofuel source
3. For fuel sources from agricultural crops, also estimate and evaluate:
 - the portion of each relevant crop yield or potential crop yield that could be devoted to bio fuel production factoring in human nutritional requirements in Uganda
 - the increase in production possible due to improved farming practices
 - the increase in production possible due to increased land allocation for each crop
 - new types of bio fuel crops and quantify impacts to current farm production and land use
 4. Using the data collected during performance of this Task 3 points 1-3 and the market projections performed in Task 2, conduct a comparative analysis to determine a recommendation on an optimum mix of biofuel

feedstocks which will allow meeting the REP goals (the “Strategic Blueprint”). In developing the recommendation the Contractor shall consider:

- Cost of biofuel production
- Ease of the organization, collection and processing of the fuel source
- Impacts on the food supply and food pricing
- Employment and Economic development impacts
- Environmental and social impacts

The Strategic Blueprint is not meant as a fixed “Master Plan” but as an advisory document to provide understanding and guidance to the GoU in steering development of a viable biofuels industry to meet the REP goal.

Task 3 Deliverable: The Contractor shall provide a Task 3 Report to the Advisory Committee regarding the Contractor's findings, including the recommended Strategic Blueprint and a summary of all collected data and analyses supporting the conclusions drawn. The Advisory Committee will provide any comments or suggestions regarding the findings to the Contractor within three (3) weeks of the Contractor's delivery of the Task 3 Report, which the Contractor will incorporate into the remainder of the Study and the Final Report.

Task 4 Prepare an Investment Plan to Implement the Strategic Blueprint

Expanding upon the analysis made in Task 3 the Contractor shall estimate the overall level of investment needed for implementation of the Strategic Blueprint (the “Investment Plan”). In preparing the Investment Plan the Contractor shall take into account the most economical

configuration and locations for an optimum mix of various bio fuel refineries with respect to topographical, geological, climatic and market conditions. Factors such as land availability, accessibility, proximity to the supply areas, presence of other infrastructure such as roads, railroads, etc. will be taken into account. Particular care should be given to unique areas such as wetlands and challenging geography such as river crossings when identifying the optimum locations.

The Contractor shall provide an estimate of capital costs for each anticipated refinery. Capital costs shall include direct costs such as feed stock receiving, distilling, fermentation, load out facilities, waste disposal, water make up, water treating, operations center, tank farms, and other relevant costs, plus indirect costs such as engineering, permitting, legal, construction management, etc.

Similarly to the Strategic Blueprint, the Investment Plan is not meant as a fixed planning document but as another advisory tool to guide the GoU.

Task 4 Deliverable: The Contractor shall provide a Task 4 Report to the Advisory Committee regarding the Contractor's findings, including the recommended Investment Plan and a summary of all collected data and analyses supporting the conclusions drawn. The Advisory Committee will provide any comments or suggestions regarding the findings to the Contractor within three (3) weeks of the Contractor's delivery of the Task 4 Report, which the Contractor will incorporate into the remainder of the Study and the Final Report.

Task 5: Economic Analysis for Generic Biofuel Refineries

The Contractor shall provide a representative "Economic Analysis" for one bio-fuel refinery of each of the types (i.e. type of feedstock and technology) proposed in the Investment Plan. The analysis shall include capital cost, operations cost, optimal debt/equity ratio, internal rate of return, economic life, and risk premium. Operations costs shall include personnel, power, consumables, feed stocks, and other applicable costs. The Biofuel Market Projection developed in Task 2 will be used as the base case. The Contractor shall provide a sensitivity analysis showing at a minimum how the economics would change given changes in demand, product mix, capital cost, operating cost, and financing arrangements.

Similarly to the Strategic Blueprint and the Investment Plan, the Economic Analysis is not meant as a fixed financial projection for given investment projects but as yet another advisory tool to guide the GoU.

Task 5 Deliverable: The deliverable for this Task 5 shall be a set of economic and financial models prepared in Excel format designed with the intention to be used by the Grantee to evaluate actual investments in biofuel refineries in the future. The Contractor shall provide training to the MEMD staff in the use of the models so that they can work with it independently. In addition, the complete findings of this Task 5 shall be included in the Final Report.

Task 6: Regulation and Incentives

The Contractor shall review the menu of regulatory, tax incentives, concessional financing and grants which have been deployed in other countries and regions to promote the development of indigenous biofuels industries. The

Contractor shall prepare a summary of “lessons learned” from successes and failures of these mechanisms in other country and regional markets.

The Contractor shall analyze at least the following array of potential regulations for successful promotion of biofuels:

- Government regulation on biofuel quality requirements for biofuel vehicle fleets own use only.
- Government regulation on biofuel quality requirements for public use of biofuels
- Legal act on fuel/biofuel quality and content monitoring
- Legal act on required minimum contents of biofuel in fuels distributed publicly
- Licensing regulations for the analytical laboratories
- Regulations concerning blending of biofuels with fossil fuels
- Regulations establishing biofuels quality testing methods
- Legal act on tax exemptions for blended and 100% biofuels
- Regulations on markings of public fuel distributors

Based on this analysis as well as the Biofuels Market Projection prepared in Task 2, the Strategic Blueprint prepared in Task 3 and the Investment Plan prepared in Task 4, the Contractor shall recommend the optimum mix of regulations and incentives (the “Regulatory and Incentive Plan”) to meet the REP goals. In selecting options for the Regulatory and Incentive Plan, the Contractor shall pay special attention to actions which will:

- Encourage private companies to grow biofuel crops, collect wastes as feedstock for biofuel

production and invest in biofuel refining and distribution

- Encourage petroleum companies to sell biofuel blends
- Allow for participation of smallholder growers and community based waste processing enterprises to participate in the development of the biofuels industry
- Maximize economic development and employment opportunities in rural areas

Task 6 Deliverable: The Contractor shall provide a Task 6 Report to the Advisory Committee regarding the Contractor's findings, including the recommended Regulatory and Incentives Plan and a summary of all collected data and analyses supporting the conclusions drawn. The Advisory Committee will provide any comments or suggestions regarding the findings to the Contractor within three (3) weeks of the Contractor's delivery of the Task 6, which the Contractor will incorporate into the report. In addition, the complete findings of this Task 6 shall be included in the Final Report.

Task 7: Development Impact

The Contractor shall report on the potential development impact of the Project in Uganda. The Contractor will focus on what the economic development outcomes will be if the Project is implemented according to the Study recommendations. While specific focus should be paid to the immediate impact of the Project, the Contractor will include, where appropriate, any additional developmental benefits to the Project, including spin-off and demonstration effects. The Contractor's analysis of potential benefits should be as concrete and detailed as possible. The

development impact factors are intended to provide the Project's decision-makers and interested parties with a broader view of the Project's potential effects on the Beneficiary Countries. The Contractor will provide estimates of the Project's potential benefits in the following areas:

(a) Infrastructure / Industry. The Contractor will provide a statement on the infrastructure impact giving a brief synopsis.

(b) Market-Oriented Reforms. The Contractor will provide a description of any regulation, laws, or institutional changes that are recommended and the effect they would have if implemented.

(c) Human Capacity Building. The Contractor will address the number and type of positions that would be needed to construct and operate the proposed Project as well as the number of people who will receive training and a brief description of the training program.

(d) Technology Transfer and Productivity Enhancement. The Contractor will provide a description of any advanced technologies that will be implemented as a result of the Project and a quantitative description of any efficiency that will be gained.

(e) Other. The Contractor will identify any other developmental benefits of the Project, including any spin-off or demonstration effects

Task 8: Proposed Equipment and Services

The Contractor shall prepare a list of the most appropriate potential equipment and services required for the Investment Plan prepared in Task 4. The Contractor, while aiming at optimum specifications and characteristics these equipment and

services, shall identify the availability of prospective U.S. sources of supply for each. Business name, point of contact, address, telephone and fax numbers shall be included for each commercial source. The Contractor shall contact U.S. suppliers and in turn put them in contact with the Grantee. The Contractor shall make substantive contact with at least 5 U.S. firms for each of the types of equipment and services identified. The Contractor shall provide detailed information, including company materials (i.e. annual reports, brochures) and credentials, to the Grantee.

Task 9: Preliminary Socio-Economic and Environmental Impact Analysis

The Contractor shall prepare a preliminary review of the environmental and social impacts of implementing the Strategic Blueprint prepared in Task 3 and the Investment Plan prepared in Task 4 with reference to local requirements and those of the World Bank. This review shall identify potential negative impacts, discuss the extent to which they can be mitigated, and develop plans for a full environmental impact assessment if and when the Project moves forward to the implementation stage.

Most importantly this review shall address issues related to potential land use decisions and impacts on the food supply chain from expanded cultivation of bio-energy crops. The Contractor shall place special emphasis on examining the current procedures and framework within Uganda for review of these issues and make recommendations on any improvements to the public review and input that might help avoid future conflicts over land use and ensure protection of rainforest and other ecologically sensitive areas.

This review will also include the impacts from transmission and distribution lines/sub-stations, roads, water use, other land uses, wetlands and other areas of sensitive biodiversity, historical sites, and availability of land for the Strategic Blueprint and Investment Plan, and soil erosion. The Contractor shall also conduct a socio-economic impact analysis of the Strategic Blueprint and Investment Plan, including (but not limited to), employment creation, the Strategic Blueprint and Investment Plan impacts on farming, land use, water consumption, etc; and an extensive analysis of the Strategic Blueprint and Investment Plan impacts on the most vulnerable members of society including the poor, women and children. The Contractor shall provide recommendations on the means and cost of mitigation of identified significant adverse impacts.

Task 10: Final Report

The Contractor shall prepare and deliver to the Grantee and USTDA a substantive and comprehensive final report of 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. The Contractor shall also prepare and executive summary discussing the Project, the key findings of the Study, and the recommendations for further development of the Project, to be included in the Final Report.

In addition the copies of the Report that will be provided to USTDA, as outlined in Clause I of Annex II of the Grant Agreement, the Contractor shall provide

six (6) copies of the report on CD –ROM to both the USTDA and the Grantee.

Tasks to be performed by the Grantee:

The Grantee shall provide the following services:

1. Set-up and coordination of meetings of the Advisory Committee and for all meetings of the Contractor's Technical Assistance team with all governmental ministries and representatives;
2. Provision of work space for the Technical Assistance team when on-site, including internet and telephone access;
3. Access to all laws, ordinances, agreements, feasibility studies as detailed pursuant to Task 1 herein;
4. An assigned Project Manager on the staff of MEMD for the Technical Assistance period.

Budget

The total cost for conducting the proposed Technical Assistance, in accordance with the Terms of Reference presented herein is US\$ 527,280.

Timeline: It is expected that the Study will be completed within nine (9) months of contract award.

Notes:

1. The Contractor is responsible for compliance with U.S. export licensing requirements, if applicable, in the performance of these 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.

L. Feasibility Study Budget and Schedule

Uganda Biofuels - PROJECT STUDY PRICING

PRIME CONTRACTOR DIRECT LABOR

TASK	Int'l Team			Local Team					Days in Ctry			
	Proj Mgr	Mkt Anlyst	Pol Anlyst	Biofls Spec	Fin Anlyst	Plt Dsgn Eng	Int'l Atty	Mkt Anlyst		Agr-Econ	Reg Atty	Env Eng
1 Background Research and Kick Off Meeting	10	10	0	10	1	1	1	1	1	1	1	12
2 Market Estimates	10	35	0	5	0	0	0	90	0	0	0	30
3 Identify and Compare Potential Bio Fuel Resources	15	0	0	25	0	5	0	0	30	0	0	20
4 Prepare an Investment Plan to Implement the Strategic Blueprint	10	0	0	10	10	15	0	0	0	0	0	10
5 Economic Analysis for Generic Biofuel Refineries	10	2	0	5	20	5	0	0	5	0	0	0
6 Regulation and Incentives	10	0	20	3	0	5	5	0	0	20	0	20
7 Development Impact	5	3	5	0	0	0	0	5	5	0	5	0
8 Proposed Equipment and Services	10	0	0	5	0	7	0	0	0	0	0	0
9 Preliminary Socio-Economic and Environmental Impact Analysis	5	0	2	2	0	0	0	0	5	0	45	0
10 Final Report	10	5	5	5	2	5	2	5	2	2	2	0
TOTAL LABOR EFFORT	95	55	32	70	33	43	8	101	48	23	53	92

TOTAL INDIVIDUAL COST	\$1,300	\$1,000	\$1,000	\$1,200	\$900	\$1,200	\$2,700	\$200	\$300	\$300	\$300	\$0
TOTAL DIRECT LABOR COSTS	\$123,500	\$55,000	\$32,000	\$84,000	\$29,700	\$51,600	\$21,600	\$20,200	\$14,400	\$6,900	\$15,900	\$0

Local Labor Costs
% Local Labor
\$57,400
13%

OTHER COSTS

US personnel only--Flights-US-Kampala
Per Diem - Kampala (US State Dept. Rates)
In country transportation(car+driver)
Local personnel only - per diem
TOTAL TRAVEL COSTS

# Trips/days*	Unit cost	Total Cost
11	\$3,000	\$33,000
92	\$285	\$26,220
92	\$30	\$2,760
30	\$150	\$4,500
		\$66,480

Report publication and distribution
Tel., Fax, Courier

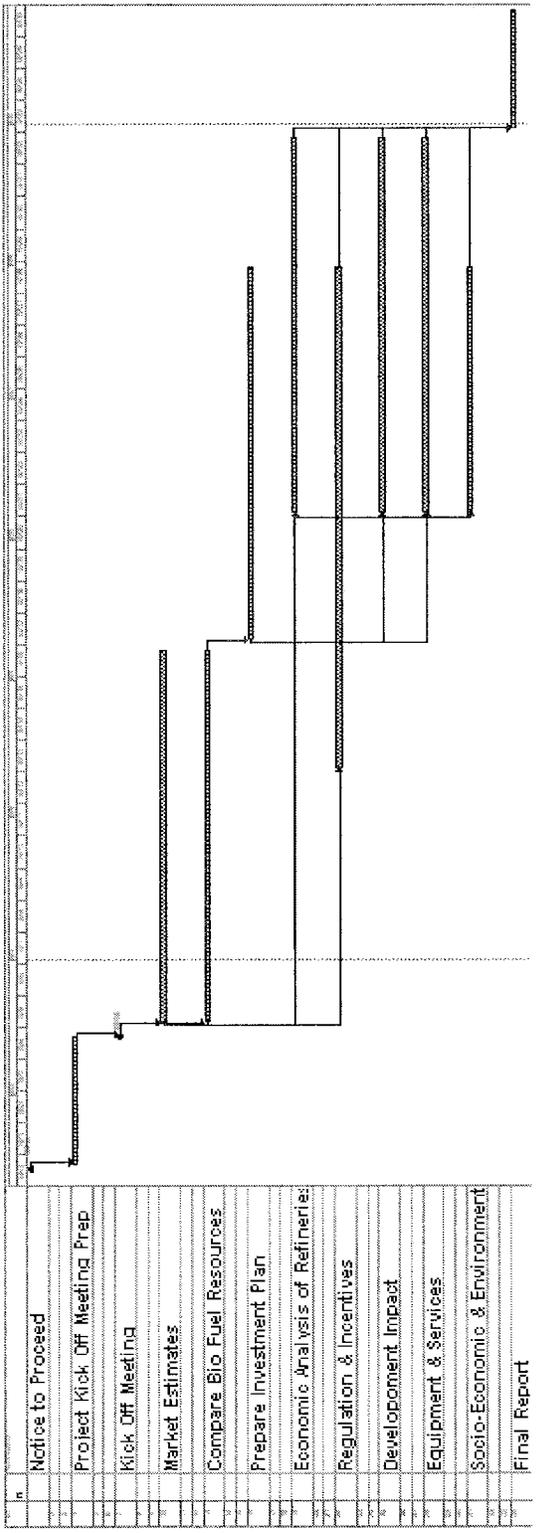
\$2,500
\$3,500

TOTAL OTHER COSTS

\$6,000

TOTAL PROJECT COSTS

\$527,280



G. Recommendation

GreenMax is recommending that USTDA approve a technical assistance grant to support Preparation of a Strategic Blueprint, Investment Plan and Regulatory and Incentive Mechanisms to Encourage Development of a Biofuels Industry in Uganda

The Grantee for this project would be MEMD. The total study cost is: \$527,280.

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.

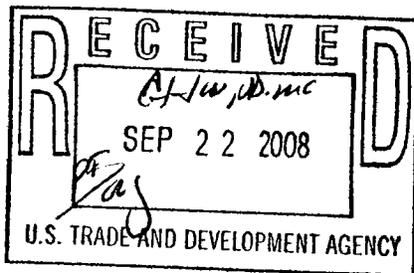
“Origin” means the place of production, through manufacturing, assembly or otherwise.

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

ANNEX 4

08-11020A

GRANT AGREEMENT



PM
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This Grant Agreement is entered into between:

- a) The Government of the United States of America, acting through the U.S. Trade and Development Agency ("USTDA") at 1000 Wilson Boulevard; Suite 1600; Arlington, VA; 22209; USA
- b) The Government of the Republic of Uganda, acting through the Ministry of Energy and Mineral Development (MEMD) ("Grantee") at P.O. Box 7270; Kampala, Uganda.

USTDA agrees to provide the Grantee under the terms of this Agreement US \$527,280 (five-hundred-twenty-seven-thousand-two-hundred-eighty U.S. dollars) ("USTDA Grant") to fund the cost of goods and services required for technical assistance ("TA") on the Balancing Biofuels and Food Security Project ("Project") in Uganda ("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 TA ("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 TA ("Terms of Reference") are attached as Annex I and are hereby made a part of this Grant Agreement. The TA will examine the technical, financial, environmental, and other critical aspects concerning the development of a biofuels sector. The Terms of Reference for the technical assistance 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 TA.

Handwritten mark

Handwritten signature

4. Grantee Responsibilities

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

5. USTDA as Financier

(A) USTDA Approval of Competitive Selection Procedures

Selection of the U.S. 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). 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 TA. Upon approval of this selection by USTDA, the Grantee and the Contractor shall then enter into a contract for performance of the TA. The Grantee shall notify in writing the U.S. firms that submitted unsuccessful proposals to perform the TA 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 TA. 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 TA 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




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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 TA by submitting invoices in accordance with the procedures set forth in the USTDA Mandatory Clauses in Annex II.

7. Effective Date

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

8. Technical Assistance Schedule

(A) Technical Assistance Completion Date

The completion date for the technical assistance, which is February 1, 2010, is the date by which the parties estimate that the technical assistance will have been completed.



(B) Time Limitation on Disbursement of USTDA Grant Funds

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

9. USTDA Mandatory Clauses

All 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

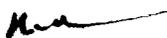
Transportation by air of persons or property funded under the Grant Agreement shall be on U.S. flag carriers in accordance with the Fly America Act, 49 U.S.C. 40118, to the extent service by such carriers is available, as provided under applicable U.S. Government regulations.

(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 TA 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 TA 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

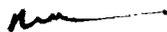
The parties will cooperate to assure that the purposes of the Grant Agreement are accomplished. For five (5) years following receipt by USTDA of the Final Report (as defined in Clause I of Annex II), the Grantee agrees to respond to any reasonable inquiries from USTDA about the status of the Project.

14. Implementation Letters

To assist the Grantee in the implementation of the TA, 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 TA 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 Permanent Secretary of MEMD. 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: Fred Kabagambe-Kaliisa
Permanent Secretary
Ministry of Energy and Mineral Development
2nd Floor, Room 217A, Amber House

Phone: +256 41 311 111
+256 41 234 733
Fax: +256 41 234 732
E-mail: psmemd@energy.go.ug

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 Economic 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.: 2008-11020A
Reservation No.: 2008110038
Grant No.: GH2008110009

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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 TA, 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.

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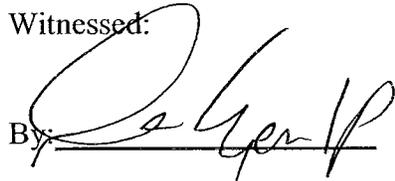
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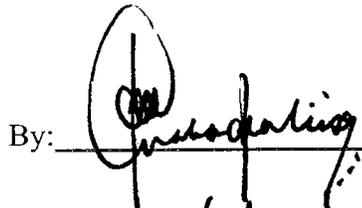
IN WITNESS WHEREOF, the **Government of the United States of America** and the **Government of the Republic of Uganda**, each acting through its duly authorized representative, have caused this Agreement to be signed in the English language in their names and delivered as of the day and year written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

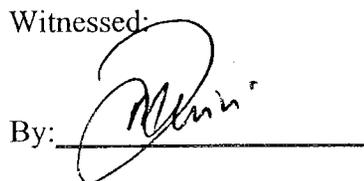
**For the Government of the
United States of America**

By: 
Date: 28 August 2008

Witnessed:
By: 

**For the Government of the
Republic of Uganda**

By: 
Date: 28/8/2008

Witnessed:
By: 

Annex I -- Terms of Reference

Annex II -- USTDA Mandatory Clauses

Annex I

Terms of Reference

Objectives

The objective of this TA is to provide the Grantee with an assessment of the regulatory, environmental and economic requirements and issues that need to be addressed to encourage development of a biofuels industry capable of displacing foreign imports of gasoline and diesel.

The TA is designed to prepare an informed strategic blueprint for how Uganda can best meet its Renewable Energy Policy (REP) goal to blend fossil fuels with biofuels up to 20 percent while balancing the need for food security.

This TA is further designed to help the Grantee to avert the negative environmental and social impacts that may arise from the unregulated development of an indigenous biofuels sector. The two most serious threats are the destruction of rainforests, which now serve as critical "carbon sinks" to bio-crop production, and possible negative impacts on the food supply and on food prices. Therefore, an important objective of this TA is to advise the Grantee on how best to mitigate the negative consequences of more intensive land use and food supply impacts of biofuels development.

Tasks

Note: The Grantee (with assistance from Contractor) shall form a Technical Advisory Committee ("Advisory Committee"), composed of members of the Ministry of Energy and Mineral Development ("MEMD") and the Ministries of Finance (MoF), Agriculture (MoA) and Environment (MoEn) and Trade and Industry (MoTI).

The purpose of the Advisory Committee shall be to coordinate the TA, provide feedback to the Contractor's work, and take a pro-active role in assisting the Contractor's activities. The members of the Advisory Committee shall convene in Kampala for the Project Kick-Off meeting, and shall provide feedback to the Contractor in an expedited manner. The Grantee shall appoint a Project Manager to oversee and facilitate the Advisory Committee and be responsible for coordinating its inputs into the TA. Any costs related to the participation of members of the Advisory Committee in its meetings and deliberations, such as time, travel, lodging, per diem, meeting room space etc., will be borne by the participating Ministries and not paid for by the USTDA Grant.

Task 1: Project Kick-Off Meeting

The Contractor shall travel to Kampala to meet with the representative government officials of the Advisory Committee to review and discuss the basis for the Project. At this time, the Contractor shall collect any documentation made available by the



government required for the Contractor's technical and economic analysis of the Project. Documents to be collected by the Contractor shall include, at a minimum, estimates of petroleum consumption, biofuel development assessments and use studies.

Task 1 Deliverable:

The Contractor shall confirm the timeline for carrying out the TA with the Advisory Committee and the schedule for any deliverables, and prepare an Inception Report describing final TA work plan as well as all specific areas of assistance expected from the Grantee in accordance with these Terms of Reference.

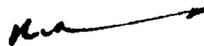
Task 2: Market Estimates

The Contractor shall carry out market evaluations and demand forecasts through a survey of existing consumption patterns and collection of data on the existing market for diesel and gasoline products in Uganda and the other countries of the East African Community (Uganda, Kenya, Tanzania, Rwanda, and Burundi "EAC"). For Uganda and the other EAC countries, the Contractor shall rely on available data from government agencies and from previous donor funded studies in order to prepare estimates.

Based on the historical data, the Contractor shall prepare a 10-year forecast of future demands for diesel, oil and gasoline products in Uganda and the other countries of the EAC, commensurate with alternative growth scenarios of the economies of the region (the "Overall Market Projection"). The Contractor shall also make an estimate of the future demand and production of biofuel products necessary to meet the REP goal (the "Biofuel Market Projection"). The Contractor shall then recommend an appropriate capacity for the production of biofuel. The Contractor shall utilize this analysis to project the demand-side analysis as part of the Economic Analysis in Task 5 of this Terms of Reference.

The Contractor is advised that significant uncertainty exists in projecting the demand for diesel and gasoline products in Uganda. In such instances, the Contractor, through review of relevant documentation and discussion with all interested parties, shall make best efforts to determine the most probable baseline scenario.

Task 2 Deliverable: The Contractor shall provide a written Task 2 Report to the Advisory Committee regarding the Contractor's complete and comprehensive findings for Task 2, including the Overall Market Projection, the Biofuels Market Projection and an executive summary of all data collected and analysis supporting the conclusions drawn. The Advisory Committee will provide any comments or suggestions regarding the findings to the Contractor within three (3) weeks of the Contractor's delivery of the Task 2 Report, which the Contractor shall incorporate into the remainder of the TA and the Final Report.



Task 3: Identify and Compare Potential Biofuel Resources

The Contractor shall perform the following tasks:

- A. In consultation with the Grantee and the Advisory Committee, confirm the potential biofuel feedstocks to be included in this analysis.
- B. Review current agricultural practices, waste disposal and crop production for the targeted fuel sources. For each fuel source from agricultural crops, the Contractor shall determine estimates of:
 - the quantity of production of each crop;
 - the range of energy value of each crop;
 - total land area currently devoted to cultivation of each crop;
 - typical land ownership and farming practices for each crop;
 - average crop yield and earnings per hectare for current sales of each crop;
 - available technologies for processing each crop to biofuel;
 - average cost per unit of biofuel production from each crop;
 - downstream segment investments that would be necessitated by different levels of blending biofuel produced from each crop with conventional transportation fuels (i.e. retooling of automotive engines or gas station pumps);
 - new downstream segment labor skills and manpower that might need to be developed to properly service automotive engines burning a blend with biofuel produced from each crop; and
 - other significant issues related to the use of each crop as a biofuel source.

For each fuel source from agricultural, municipal or industrial wastes the Contractor shall determine estimates of:

- the quantity of waste generated;
- the range of energy value of the wastes;
- current practice and costs for disposal of the wastes;
- environmental risks due to lack of proper waste disposal;
- available technologies for processing the wastes to biofuel;
- average cost per unit of biofuel production from each type of waste;
- downstream segment investments that would be necessitated by different levels of blending biofuel produced from each type of waste with conventional transportation fuels (i.e. retooling of automotive engines or gas station pumps);
- new downstream segment labor skills and manpower that might need to be developed to properly service automotive engines burning a blend with biofuel produced from each type of waste; and
- other significant issues related to the use of each type of waste as a biofuel source.

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C. For fuel sources from agricultural crops, the Contractor shall also estimate and evaluate:

- the portion of each relevant crop yield or potential crop yield that could be devoted to biofuel production factoring in human nutritional requirements in Uganda;
- the increase in production possible due to improved farming practices;
- the increase in production possible due to increased land allocation for each crop; and
- impacts of new biofuel crops on current farm production and land use.

D. Using the data collected during performance of Task 3, items A through C, and the market projections performed in Task 2, the Contractor shall conduct a comparative analysis to formulate a recommendation on an optimum mix of biofuel feedstocks which will facilitate meeting the REP goals (the “Strategic Blueprint”). In developing the recommendations, the Contractor shall consider:

- cost of biofuel production;
- ease of the organization, collection, and processing of the fuel source;
- impacts on the food supply and food pricing;
- employment and economic development impacts; and
- environmental and social impacts.

The Strategic Blueprint is not meant as a fixed “Master Plan”, but as an advisory document to provide understanding and guidance to the Grantee in steering the development of a viable biofuels industry to meet the REP goal.

Task 3 Deliverable: The Contractor shall provide a written Task 3 Report to the Advisory Committee setting forth the Contractor's complete and comprehensive findings, including the recommended Strategic Blueprint and an executive summary of all collected data and analyses supporting the conclusions drawn. The Advisory Committee will provide any comments or suggestions regarding the findings to the Contractor within three (3) weeks of the Contractor's delivery of the Task 3 Report, which the Contractor shall incorporate into the remainder of the TA and the Final Report.

Task 4: Prepare an Investment Plan to Implement the Strategic Blueprint

Expanding upon the analysis made in Task 3, the Contractor shall estimate the overall level of investment needed for implementation of the Strategic Blueprint (the “Investment Plan”). The Contractor shall identify optimum locations for the various biofuel refineries, and these locations shall be factored into the Investment Plan. In preparing the Investment Plan the Contractor shall take into account the most economical configuration and locations for an optimum mix of various biofuel refineries with respect to topographical, geological, climatic and market conditions. The Contractor shall take into account factors such as land availability, accessibility, proximity to the supply areas, presence of other infrastructure such as roads, railroads, etc. The Contractor shall also

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make careful note of the economic and environmental issues presented by locating in geographically challenging areas such as mountains, wetlands, and near river crossings, when identifying the optimum locations.

The Contractor shall provide an estimate of capital costs for each anticipated refinery. Capital costs shall include direct costs such as feed stock receiving, distilling, fermentation, loading facilities, waste disposal, water make up, water treating, operations center, tank farms, testing equipment, and other relevant costs, plus indirect costs such as research, testing, engineering, permitting, legal, construction management, etc.

Similar to the Strategic Blueprint, the Investment Plan is not meant to be a fixed planning document, but as another advisory tool to guide the Grantee.

Task 4 Deliverable: The Contractor shall provide a written Task 4 Report to the Advisory Committee setting forth the Contractor's complete and comprehensive findings, including the recommended Investment Plan and an executive summary of all collected data and analyses supporting the conclusions drawn. The Advisory Committee shall provide any comments or suggestions regarding the findings to the Contractor within three (3) weeks of the Contractor's delivery of the Task 4 Report, which the Contractor shall incorporate into the remainder of the TA and the Final Report.

Task 5: Economic Analysis for Generic Biofuel Refineries

The Contractor shall provide a representative "Economic Analysis" for one bio-fuel refinery of each of the types (i.e. type of feedstock and technology) proposed in the Investment Plan. The analysis shall include capital cost, operations cost, optimal debt/equity ratio, internal rate of return, economic life, and risk premium. Operations costs shall include personnel, power, consumables, feed stocks, and other applicable costs. The Contractor shall use the Biofuel Market Projection developed in Task 2 as the baseline. The Contractor shall provide a sensitivity analysis showing, at a minimum, how the economics would change given changes in demand, product mix, capital cost, operating cost, and financing arrangements.

Similar to the Strategic Blueprint and the Investment Plan, the Economic Analysis is not meant as a fixed financial projection for given investment projects, but as an advisory tool to guide the Grantee.

Task 5 Deliverable: The deliverable for Task 5 shall be a set of economic and financial models, prepared in Excel format, that will be used by the Grantee to evaluate actual investments in biofuel refineries in the future. The Contractor shall provide training to the MEMD staff in the use of the models so that they can work with them independently. In addition, the complete findings of Task 5 shall be included in the Final Report.

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Task 6: Review of Regulation and Incentives for Development

The Contractor shall review the regulatory requirements, tax incentives, concessional financing and grants which have been deployed in other countries and regions to promote the development of indigenous biofuels industries. The Contractor shall prepare a summary of “lessons learned” from successes and failures of these mechanisms in other country and regional markets.

The Contractor shall analyze at least the following types of regulations for successful promotion of biofuels:

- Government regulation on biofuel quality requirements for government biofuel vehicle fleets;
- Government regulation on biofuel quality requirements for public use of biofuels;
- Legal act on fuel/biofuel quality and content monitoring;
- Legal act on required minimum contents of biofuel in fuels distributed publicly;
- Licensing regulations for the analytical laboratories;
- Regulations concerning blending of biofuels with fossil fuels;
- Regulations establishing biofuels quality testing methods;
- Legal act on tax exemptions for blended and 100% biofuels; and
- Regulations on markings of public fuel distributors.

Based on this analysis, as well as the Biofuels Market Projection prepared in Task 2, the Strategic Blueprint prepared in Task 3, and the Investment Plan prepared in Task 4, the Contractor shall recommend the optimum mix of regulations and incentives (the “Regulatory and Incentive Plan”) to meet the REP goals. In selecting options for the Regulatory and Incentive Plan, the Contractor shall pay special attention to actions that will:

- Encourage private companies to grow biofuel crops, collect wastes as feedstock for biofuel production and invest in biofuel refining and distribution;
- Encourage petroleum companies to sell biofuel blends;
- Allow for participation of smallholder growers and community based waste processing enterprises in the development of the biofuels industry; and
- Maximize economic development and employment opportunities in rural areas.

Task 6 Deliverable: The Contractor shall provide a written Task 6 Report to the Advisory Committee setting forth the Contractor's complete and comprehensive findings, including the recommended Regulatory and Incentives Plan and an executive summary of all collected data and analyses supporting the conclusions drawn. The Advisory Committee will provide any comments or suggestions regarding the findings to the Contractor within three (3) weeks of the Contractor's delivery of Task 6, which the Contractor will incorporate into the report. In addition, the Contractor shall include the complete findings of Task 6 in the Final Report.



Task 7: Development Impact

The Contractor shall report on the potential development impact of the Project in Uganda. The Contractor shall focus on what the potential economic development outcomes shall be if implemented according to the TA recommendations. While specific focus should be paid to the immediate impact of the Project, the Contractor shall include, where appropriate, any additional developmental benefits of the Project, including spin-off and demonstration effects. The Contractor's analysis of potential benefits shall be as concrete and detailed as possible. The development impact factors are intended to provide the Project's decision-makers and interested parties with a broader view of the Project's potential effects on Uganda. The Contractor shall provide estimates of the Project's potential benefits in the following areas:

- (a) Infrastructure / Industry. The Contractor shall provide a statement on the infrastructure impact giving a brief synopsis.
- (b) Market-Oriented Reforms. The Contractor shall provide a description of any regulation, laws, or institutional changes that are recommended and the effect they would have if implemented.
- (c) Human Capacity Building. The Contractor shall address the number and type of positions that would be needed to construct and operate the proposed Project as well as the number of people who will receive training and a brief description of the training program.
- (d) Technology Transfer and Productivity Enhancement. The Contractor shall provide a description of any advanced technologies that will be implemented as a result of the Project and a quantitative description of any efficiency that will be gained.
- (e) Other. The Contractor shall identify any other developmental benefits of the Project.

The Contractor shall include the complete findings of Task 7 in the Final Report.

Task 8: Proposed Equipment and Services

The Contractor shall prepare a list of the most appropriate potential equipment and services required for the Investment Plan prepared in Task 4, as well as a list of potential U.S. suppliers of weights and measurement equipment which would allow the Grantee to test and monitor biofuel quality per Task 6. The Contractor shall identify the availability of prospective U.S. sources of supply for the equipment and services required for the Investment Plan described in Task 4, as well as for the biofuel quality testing described in Task 6. The Contractor shall include the business name, point of contact, address, telephone and fax numbers for each commercial source. The Contractor shall contact U.S. suppliers and put them in contact with the Grantee. The Contractor shall make substantive contact with at least 5 U.S. firms for each of the types of equipment and services identified. The Contractor shall provide detailed information, including company materials (i.e. annual reports, brochures) and credentials, to the Grantee.

The Contractor shall include the complete findings of Task 8 in the Final Report.

Task 9: Preliminary Socio-Economic and Environmental Impact Analysis

The Contractor shall prepare a preliminary review of the environmental and social impacts of implementing the Strategic Blueprint prepared in Task 3 and the Investment Plan prepared in Task 4 with reference to local requirements and those of the World Bank. This review shall identify potential negative impacts, discuss the extent to which they can be mitigated, and develop plans for a full environmental impact assessment, if and when the Project moves forward to the implementation stage.

Most importantly, the Contractor's review shall address issues related to potential land use decisions and impacts on the food supply chain from expanded cultivation of bio-energy crops. The Contractor shall place special emphasis on examining the current procedures and framework within Uganda for review of these issues and make recommendations on any improvements to the public review and input that might help avoid future conflicts over land use and ensure protection of rainforests and other ecologically sensitive areas.

The Contractor's review shall also include the impacts from transmission and distribution lines/sub-stations, roads, water use, other land uses, wetlands and other areas of sensitive biodiversity, historical sites, soil erosion, and availability of land for the Strategic Blueprint and Investment Plan. The Contractor shall also conduct a socio-economic impact analysis of the Strategic Blueprint and Investment Plan, including (but not limited to), employment creation, the Strategic Blueprint and Investment Plan's impacts on farming, land use, water consumption, etc; and an extensive analysis of the Strategic Blueprint and Investment Plan's impacts on the most vulnerable members of society including the poor, women and children. The Contractor shall provide recommendations on the means and cost of mitigation of identified adverse impacts.

The complete findings of Task 9 shall be included in the Final Report.

Task 10: Final Report

The Contractor shall prepare and deliver to the Grantee and USTDA a substantive and comprehensive final report of 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. The Contractor shall also prepare and executive summary discussing the Project, the key findings of the TA, and the recommendations for further development of the Project, to be included in the Final Report.

Tasks to be performed by the Grantee:

The Grantee shall provide the following services:



1. Set-up and coordination of meetings of the Advisory Committee and for all meetings of the Contractor's TA team with all governmental ministries and representatives;
2. Provision of reasonable work space for the TA team when on-site;
3. Access to all laws, ordinances, agreements, feasibility studies as detailed pursuant to Task 1 herein; and
4. An assigned Project Manager on the staff of MEMD for the TA, throughout the duration of the Contractor's work.

Notes:

- 1. The Contractor is responsible for compliance with U.S. export licensing requirements, if applicable, in the performance of these 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.*



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 the Government of the Republic of Uganda, acting through the Ministry of Energy and Mineral Development (MEMD) ("Client"), dated _____ ("Grant Agreement"). The Client has selected _____ ("Contractor") to perform the technical assistance ("TA") for the Balancing Biofuels and Food Security Project ("Project") in Uganda ("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 TA 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 TA 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 TA 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.

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(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 TA. 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

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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. Technical Assistance Schedule

(1) Technical Assistance Completion Date

The completion date for the TA, which is February 1, 2010, is the date by which the parties estimate that the TA 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 TA. 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 TA 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.: 2008-11020A
Reservation No.: 2008110038
Grant No.: GH2008110009

N. Definitions

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

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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.

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ANNEX 5

Annex I

Terms of Reference

Objectives

The objective of this TA is to provide the Grantee with an assessment of the regulatory, environmental and economic requirements and issues that need to be addressed to encourage development of a biofuels industry capable of displacing foreign imports of gasoline and diesel.

The TA is designed to prepare an informed strategic blueprint for how Uganda can best meet its Renewable Energy Policy (REP) goal to blend fossil fuels with biofuels up to 20 percent while balancing the need for food security.

This TA is further designed to help the Grantee to avert the negative environmental and social impacts that may arise from the unregulated development of an indigenous biofuels sector. The two most serious threats are the destruction of rainforests, which now serve as critical “carbon sinks” to bio-crop production, and possible negative impacts on the food supply and on food prices. Therefore, an important objective of this TA is to advise the Grantee on how best to mitigate the negative consequences of more intensive land use and food supply impacts of biofuels development.

Tasks

Note: The Grantee (with assistance from Contractor) shall form a Technical Advisory Committee (“Advisory Committee”), composed of members of the Ministry of Energy and Mineral Development (“MEMD”) and the Ministries of Finance (MoF), Agriculture (MoA) and Environment (MoEn) and Trade and Industry (MoTI).

The purpose of the Advisory Committee shall be to coordinate the TA, provide feedback to the Contractor's work, and take a pro-active role in assisting the Contractor's activities. The members of the Advisory Committee shall convene in Kampala for the Project Kick-Off meeting, and shall provide feedback to the Contractor in an expedited manner. The Grantee shall appoint a Project Manager to oversee and facilitate the Advisory Committee and be responsible for coordinating its inputs into the TA. Any costs related to the participation of members of the Advisory Committee in its meetings and deliberations, such as time, travel, lodging, per diem, meeting room space etc., will be borne by the participating Ministries and not paid for by the USTDA Grant.

Task 1: Project Kick-Off Meeting

The Contractor shall travel to Kampala to meet with the representative government officials of the Advisory Committee to review and discuss the basis for the Project. At this time, the Contractor shall collect any documentation made available by the



government required for the Contractor's technical and economic analysis of the Project. Documents to be collected by the Contractor shall include, at a minimum, estimates of petroleum consumption, biofuel development assessments and use studies.

Task 1 Deliverable:

The Contractor shall confirm the timeline for carrying out the TA with the Advisory Committee and the schedule for any deliverables, and prepare an Inception Report describing final TA work plan as well as all specific areas of assistance expected from the Grantee in accordance with these Terms of Reference.

Task 2: Market Estimates

The Contractor shall carry out market evaluations and demand forecasts through a survey of existing consumption patterns and collection of data on the existing market for diesel and gasoline products in Uganda and the other countries of the East African Community (Uganda, Kenya, Tanzania, Rwanda, and Burundi "EAC"). For Uganda and the other EAC countries, the Contractor shall rely on available data from government agencies and from previous donor funded studies in order to prepare estimates.

Based on the historical data, the Contractor shall prepare a 10-year forecast of future demands for diesel, oil and gasoline products in Uganda and the other countries of the EAC, commensurate with alternative growth scenarios of the economies of the region (the "Overall Market Projection"). The Contractor shall also make an estimate of the future demand and production of biofuel products necessary to meet the REP goal (the "Biofuel Market Projection"). The Contractor shall then recommend an appropriate capacity for the production of biofuel. The Contractor shall utilize this analysis to project the demand-side analysis as part of the Economic Analysis in Task 5 of this Terms of Reference.

The Contractor is advised that significant uncertainty exists in projecting the demand for diesel and gasoline products in Uganda. In such instances, the Contractor, through review of relevant documentation and discussion with all interested parties, shall make best efforts to determine the most probable baseline scenario.

Task 2 Deliverable: The Contractor shall provide a written Task 2 Report to the Advisory Committee regarding the Contractor's complete and comprehensive findings for Task 2, including the Overall Market Projection, the Biofuels Market Projection and an executive summary of all data collected and analysis supporting the conclusions drawn. The Advisory Committee will provide any comments or suggestions regarding the findings to the Contractor within three (3) weeks of the Contractor's delivery of the Task 2 Report, which the Contractor shall incorporate into the remainder of the TA and the Final Report.

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Task 3: Identify and Compare Potential Biofuel Resources

The Contractor shall perform the following tasks:

- A. In consultation with the Grantee and the Advisory Committee, confirm the potential biofuel feedstocks to be included in this analysis.
- B. Review current agricultural practices, waste disposal and crop production for the targeted fuel sources. For each fuel source from agricultural crops, the Contractor shall determine estimates of:
 - the quantity of production of each crop;
 - the range of energy value of each crop;
 - total land area currently devoted to cultivation of each crop;
 - typical land ownership and farming practices for each crop;
 - average crop yield and earnings per hectare for current sales of each crop;
 - available technologies for processing each crop to biofuel;
 - average cost per unit of biofuel production from each crop;
 - downstream segment investments that would be necessitated by different levels of blending biofuel produced from each crop with conventional transportation fuels (i.e. retooling of automotive engines or gas station pumps);
 - new downstream segment labor skills and manpower that might need to be developed to properly service automotive engines burning a blend with biofuel produced from each crop; and
 - other significant issues related to the use of each crop as a biofuel source.

For each fuel source from agricultural, municipal or industrial wastes the Contractor shall determine estimates of:

- the quantity of waste generated;
- the range of energy value of the wastes;
- current practice and costs for disposal of the wastes;
- environmental risks due to lack of proper waste disposal;
- available technologies for processing the wastes to biofuel;
- average cost per unit of biofuel production from each type of waste;
- downstream segment investments that would be necessitated by different levels of blending biofuel produced from each type of waste with conventional transportation fuels (i.e. retooling of automotive engines or gas station pumps);
- new downstream segment labor skills and manpower that might need to be developed to properly service automotive engines burning a blend with biofuel produced from each type of waste; and
- other significant issues related to the use of each type of waste as a biofuel source.

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C. For fuel sources from agricultural crops, the Contractor shall also estimate and evaluate:

- the portion of each relevant crop yield or potential crop yield that could be devoted to biofuel production factoring in human nutritional requirements in Uganda;
- the increase in production possible due to improved farming practices;
- the increase in production possible due to increased land allocation for each crop; and
- impacts of new biofuel crops on current farm production and land use.

D. Using the data collected during performance of Task 3, items A through C, and the market projections performed in Task 2, the Contractor shall conduct a comparative analysis to formulate a recommendation on an optimum mix of biofuel feedstocks which will facilitate meeting the REP goals (the “Strategic Blueprint”). In developing the recommendations, the Contractor shall consider:

- cost of biofuel production;
- ease of the organization, collection, and processing of the fuel source;
- impacts on the food supply and food pricing;
- employment and economic development impacts; and
- environmental and social impacts.

The Strategic Blueprint is not meant as a fixed “Master Plan”, but as an advisory document to provide understanding and guidance to the Grantee in steering the development of a viable biofuels industry to meet the REP goal.

Task 3 Deliverable: The Contractor shall provide a written Task 3 Report to the Advisory Committee setting forth the Contractor's complete and comprehensive findings, including the recommended Strategic Blueprint and an executive summary of all collected data and analyses supporting the conclusions drawn. The Advisory Committee will provide any comments or suggestions regarding the findings to the Contractor within three (3) weeks of the Contractor's delivery of the Task 3 Report, which the Contractor shall incorporate into the remainder of the TA and the Final Report.

Task 4: Prepare an Investment Plan to Implement the Strategic Blueprint

Expanding upon the analysis made in Task 3, the Contractor shall estimate the overall level of investment needed for implementation of the Strategic Blueprint (the “Investment Plan”). The Contractor shall identify optimum locations for the various biofuel refineries, and these locations shall be factored into the Investment Plan. In preparing the Investment Plan the Contractor shall take into account the most economical configuration and locations for an optimum mix of various biofuel refineries with respect to topographical, geological, climatic and market conditions. The Contractor shall take into account factors such as land availability, accessibility, proximity to the supply areas, presence of other infrastructure such as roads, railroads, etc. The Contractor shall also

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make careful note of the economic and environmental issues presented by locating in geographically challenging areas such as mountains, wetlands, and near river crossings, when identifying the optimum locations.

The Contractor shall provide an estimate of capital costs for each anticipated refinery. Capital costs shall include direct costs such as feed stock receiving, distilling, fermentation, loading facilities, waste disposal, water make up, water treating, operations center, tank farms, testing equipment, and other relevant costs, plus indirect costs such as research, testing, engineering, permitting, legal, construction management, etc.

Similar to the Strategic Blueprint, the Investment Plan is not meant to be a fixed planning document, but as another advisory tool to guide the Grantee.

Task 4 Deliverable: The Contractor shall provide a written Task 4 Report to the Advisory Committee setting forth the Contractor's complete and comprehensive findings, including the recommended Investment Plan and an executive summary of all collected data and analyses supporting the conclusions drawn. The Advisory Committee shall provide any comments or suggestions regarding the findings to the Contractor within three (3) weeks of the Contractor's delivery of the Task 4 Report, which the Contractor shall incorporate into the remainder of the TA and the Final Report.

Task 5: Economic Analysis for Generic Biofuel Refineries

The Contractor shall provide a representative "Economic Analysis" for one bio-fuel refinery of each of the types (i.e. type of feedstock and technology) proposed in the Investment Plan. The analysis shall include capital cost, operations cost, optimal debt/equity ratio, internal rate of return, economic life, and risk premium. Operations costs shall include personnel, power, consumables, feed stocks, and other applicable costs. The Contractor shall use the Biofuel Market Projection developed in Task 2 as the baseline. The Contractor shall provide a sensitivity analysis showing, at a minimum, how the economics would change given changes in demand, product mix, capital cost, operating cost, and financing arrangements.

Similar to the Strategic Blueprint and the Investment Plan, the Economic Analysis is not meant as a fixed financial projection for given investment projects, but as an advisory tool to guide the Grantee.

Task 5 Deliverable: The deliverable for Task 5 shall be a set of economic and financial models, prepared in Excel format, that will be used by the Grantee to evaluate actual investments in biofuel refineries in the future. The Contractor shall provide training to the MEMD staff in the use of the models so that they can work with them independently. In addition, the complete findings of Task 5 shall be included in the Final Report.

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Task 6: Review of Regulation and Incentives for Development

The Contractor shall review the regulatory requirements, tax incentives, concessional financing and grants which have been deployed in other countries and regions to promote the development of indigenous biofuels industries. The Contractor shall prepare a summary of “lessons learned” from successes and failures of these mechanisms in other country and regional markets.

The Contractor shall analyze at least the following types of regulations for successful promotion of biofuels:

- Government regulation on biofuel quality requirements for government biofuel vehicle fleets;
- Government regulation on biofuel quality requirements for public use of biofuels;
- Legal act on fuel/biofuel quality and content monitoring;
- Legal act on required minimum contents of biofuel in fuels distributed publicly;
- Licensing regulations for the analytical laboratories;
- Regulations concerning blending of biofuels with fossil fuels;
- Regulations establishing biofuels quality testing methods;
- Legal act on tax exemptions for blended and 100% biofuels; and
- Regulations on markings of public fuel distributors.

Based on this analysis, as well as the Biofuels Market Projection prepared in Task 2, the Strategic Blueprint prepared in Task 3, and the Investment Plan prepared in Task 4, the Contractor shall recommend the optimum mix of regulations and incentives (the “Regulatory and Incentive Plan”) to meet the REP goals. In selecting options for the Regulatory and Incentive Plan, the Contractor shall pay special attention to actions that will:

- Encourage private companies to grow biofuel crops, collect wastes as feedstock for biofuel production and invest in biofuel refining and distribution;
- Encourage petroleum companies to sell biofuel blends;
- Allow for participation of smallholder growers and community based waste processing enterprises in the development of the biofuels industry; and
- Maximize economic development and employment opportunities in rural areas.

Task 6 Deliverable: The Contractor shall provide a written Task 6 Report to the Advisory Committee setting forth the Contractor's complete and comprehensive findings, including the recommended Regulatory and Incentives Plan and an executive summary of all collected data and analyses supporting the conclusions drawn. The Advisory Committee will provide any comments or suggestions regarding the findings to the Contractor within three (3) weeks of the Contractor's delivery of Task 6, which the Contractor will incorporate into the report. In addition, the Contractor shall include the complete findings of Task 6 in the Final Report.



Task 7: Development Impact

The Contractor shall report on the potential development impact of the Project in Uganda. The Contractor shall focus on what the potential economic development outcomes shall be if implemented according to the TA recommendations. While specific focus should be paid to the immediate impact of the Project, the Contractor shall include, where appropriate, any additional developmental benefits of the Project, including spin-off and demonstration effects. The Contractor's analysis of potential benefits shall be as concrete and detailed as possible. The development impact factors are intended to provide the Project's decision-makers and interested parties with a broader view of the Project's potential effects on Uganda. The Contractor shall provide estimates of the Project's potential benefits in the following areas:

- (a) Infrastructure / Industry. The Contractor shall provide a statement on the infrastructure impact giving a brief synopsis.
- (b) Market-Oriented Reforms. The Contractor shall provide a description of any regulation, laws, or institutional changes that are recommended and the effect they would have if implemented.
- (c) Human Capacity Building. The Contractor shall address the number and type of positions that would be needed to construct and operate the proposed Project as well as the number of people who will receive training and a brief description of the training program.
- (d) Technology Transfer and Productivity Enhancement. The Contractor shall provide a description of any advanced technologies that will be implemented as a result of the Project and a quantitative description of any efficiency that will be gained.
- (e) Other. The Contractor shall identify any other developmental benefits of the Project.

The Contractor shall include the complete findings of Task 7 in the Final Report.

Task 8: Proposed Equipment and Services

The Contractor shall prepare a list of the most appropriate potential equipment and services required for the Investment Plan prepared in Task 4, as well as a list of potential U.S. suppliers of weights and measurement equipment which would allow the Grantee to test and monitor biofuel quality per Task 6. The Contractor shall identify the availability of prospective U.S. sources of supply for the equipment and services required for the Investment Plan described in Task 4, as well as for the biofuel quality testing described in Task 6. The Contractor shall include the business name, point of contact, address, telephone and fax numbers for each commercial source. The Contractor shall contact U.S. suppliers and put them in contact with the Grantee. The Contractor shall make substantive contact with at least 5 U.S. firms for each of the types of equipment and services identified. The Contractor shall provide detailed information, including company materials (i.e. annual reports, brochures) and credentials, to the Grantee.

The Contractor shall include the complete findings of Task 8 in the Final Report.

Task 9: Preliminary Socio-Economic and Environmental Impact Analysis

The Contractor shall prepare a preliminary review of the environmental and social impacts of implementing the Strategic Blueprint prepared in Task 3 and the Investment Plan prepared in Task 4 with reference to local requirements and those of the World Bank. This review shall identify potential negative impacts, discuss the extent to which they can be mitigated, and develop plans for a full environmental impact assessment, if and when the Project moves forward to the implementation stage.

Most importantly, the Contractor's review shall address issues related to potential land use decisions and impacts on the food supply chain from expanded cultivation of bio-energy crops. The Contractor shall place special emphasis on examining the current procedures and framework within Uganda for review of these issues and make recommendations on any improvements to the public review and input that might help avoid future conflicts over land use and ensure protection of rainforests and other ecologically sensitive areas.

The Contractor's review shall also include the impacts from transmission and distribution lines/sub-stations, roads, water use, other land uses, wetlands and other areas of sensitive biodiversity, historical sites, soil erosion, and availability of land for the Strategic Blueprint and Investment Plan. The Contractor shall also conduct a socio-economic impact analysis of the Strategic Blueprint and Investment Plan, including (but not limited to), employment creation, the Strategic Blueprint and Investment Plan's impacts on farming, land use, water consumption, etc; and an extensive analysis of the Strategic Blueprint and Investment Plan's impacts on the most vulnerable members of society including the poor, women and children. The Contractor shall provide recommendations on the means and cost of mitigation of identified adverse impacts.

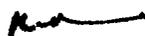
The complete findings of Task 9 shall be included in the Final Report.

Task 10: Final Report

The Contractor shall prepare and deliver to the Grantee and USTDA a substantive and comprehensive final report of 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. The Contractor shall also prepare and executive summary discussing the Project, the key findings of the TA, and the recommendations for further development of the Project, to be included in the Final Report.

Tasks to be performed by the Grantee:

The Grantee shall provide the following services:



1. Set-up and coordination of meetings of the Advisory Committee and for all meetings of the Contractor's TA team with all governmental ministries and representatives;
2. Provision of reasonable work space for the TA team when on-site;
3. Access to all laws, ordinances, agreements, feasibility studies as detailed pursuant to Task 1 herein; and
4. An assigned Project Manager on the staff of MEMD for the TA, throughout the duration of the Contractor's work.

Notes:

- 1. The Contractor is responsible for compliance with U.S. export licensing requirements, if applicable, in the performance of these 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.*

