

REQUEST FOR PROPOSALS

FEASIBILITY STUDY FOR THE

KOTOKA INTERNATIONAL AIRPORT AIR TRAFFIC CONTROL CENTER

Submission Deadline: **5:00 PM**

LOCAL TIME

JULY 24, 2009

Submission Place: The Director General
Ghana Civil Aviation Authority
Private Mail Bag
Kotoka International Airport
Accra, Ghana
Phone: +233 21 776171

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 to support development of a new Air Traffic Control Center (ATCC) at Kotoka International Airport, or ACC in Accra, Ghana. 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 Feasibility Study.

1.1 BACKGROUND SUMMARY

Ghana has experienced strong growth in air traffic over the past 10 years, with annual aircraft movements almost doubling since 2002, and has an extensive Flight Information Region (FIR) including the upper air space for Benin, Togo, and a significant portion of the Atlantic Ocean. The current Air Traffic Control Center (ATCC) at the country's primary international airport is overcrowded and poorly located. This feasibility study will provide GCAA with the specifications and location for the new facility as well as recommend the equipment needed to accommodate both near-term traffic and projected traffic over the next 15 years.

Ghana's current ATCC, which falls under the responsibility of GCAA, is located in the tower building at ACC and is directly adjacent to the main passenger terminal. The ATCC space is very constrained, housing personnel for air traffic control for Ghana, Benin and Togo as well as emergency services. GCAA has determined that air traffic control and emergency services should be re-located to a new facility. GCAA's plans are for a facility with six air traffic control positions, which will allow for supervisory and training stations. Additionally, there will be facilities for an emergency rescue control center. The new ATCC will permit safer handling of Ghana's airspace, the adoption of the latest air traffic control technologies and a self-contained, more secure facility.

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

1.2 OBJECTIVE

The objective of this grant is to provide GCAA with an evaluation of its current assumptions and plans and propose specifications and location for the new facility as well as related equipment requirements.

The Terms of Reference (TOR) for this Feasibility Study is attached as Annex 5.

1.3 PROPOSALS TO BE SUBMITTED

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

COST will not be a factor in the evaluation and therefore, cost proposals should not be submitted; upon detailed evaluation of technical proposals, one firm will be selected for contract negotiations. The amount for the negotiated contract has been established by a USTDA grant of U.S. \$295,000 dollars.

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 "Kotoka International Airport Air Traffic Control Center Project"

2.2 DEFINITIONS

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

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

The term "Offeror" means the U.S. 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 Feasibility Study.

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

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

2.5 PROJECT FUNDING SOURCE

The Feasibility Study will be funded under a grant from USTDA. The total amount of the grant is not to exceed U.S. \$295,000 dollars.

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:

The Director General
Ghana Civil Aviation Authority
Private Mail Bag
Kotoka International Airport
Accra, Ghana
Phone: +233 21 776171

An Original and eight (8) copies of your proposal must be received at the above address no later than 5 p.m. local time on July 24, 2009.

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

2.17 EXCEPTIONS

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

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

2.18 OFFEROR QUALIFICATIONS

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

2.19 RIGHT TO REJECT PROPOSALS

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

2.20 PRIME CONTRACTOR RESPONSIBILITY

Offerors have the option of subcontracting parts of the services they propose. The Offeror's proposal must include a description of any anticipated subcontracting arrangements, including the name, address, and qualifications of consultants and subcontractors. USTDA nationality provisions are set forth in detail in Annex 3. The successful Offeror shall cause appropriate provisions of its contract, including all mandatory USTDA clauses, to be inserted in all subcontracts ensuing to ensure fulfillment of all contractual provisions by subcontractors.

2.21 AWARD

An award resulting from this RFP shall be made to the best qualified Offeror, taking into consideration the evaluation factors set forth herein; however, the right is reserved to reject any and all proposals received and, in all cases, the Grantee will be the judge as to whether a proposal has or has not satisfactorily met the requirements of this RFP.

2.22 COMPLETE SERVICES

The successful Offeror shall be required to (a) furnish all supplies, supervision, transportation, and other execution accessories, services, and facilities; (b) provide and perform all necessary labor; and (c) in accordance with good technical practice, with due diligence, and in accordance with the requirements, stipulations, provisions and conditions of this RFP and the resultant contract, execute and complete all specified work to the satisfaction of the Grantee.

2.23 INVOICING AND PAYMENT

Deliverables under the contract shall be delivered on a schedule to be agreed upon in a contract with the Grantee. The Contractor may submit invoices to the designated Grantee Project Director in accordance with a schedule to be negotiated and included in the contract. Upon approval of each invoice, the Grantee will forward the invoice to USTDA which will process payment to the Contractor. All payments by USTDA under the Grant Agreement will be made in U.S. currency.

Section 3: PROPOSAL FORMAT AND CONTENT

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

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

The proposal shall consist of a technical proposal only. No cost proposal is required as the value of the USTDA grant is established at U.S. \$295,000 dollars.

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

The following sections and content are required for each proposal:

Transmittal Letter,
Cover/Title Page,

Table of Contents,
Introduction and Executive Summary,
Company Information,
Organizational Structure, Management Plan, and Key Personnel,
Technical Approach and Work Plan,
Experience and Qualifications, and
Miscellaneous.

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

3.1 SECTION 1: INTRODUCTION AND EXECUTIVE SUMMARY

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

3.2 SECTION 2: COMPANY INFORMATION

3.2.1 Company Profile

Provide the information listed below relative to the Offeror's firm. If the Offeror is proposing to subcontract some of the proposed work to another firm(s), similar information must be provided for each subcontractor. Offerors are requested to limit the length of the Company Profile Information to one (1) page per firm.

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

3.2.2 Offeror's Authorized Negotiator

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

3.2.3 Negotiation Prerequisites

1. Discuss any impact of any current or anticipated commitments which may impact the ability of the Offeror or its subcontractors to complete the Feasibility Study as proposed and within the project schedule.

2. Identify any specific information which is needed from the Grantee before commencing contract negotiations.

3.3 SECTION 3: ORGANIZATIONAL STRUCTURE, MANAGEMENT, AND KEY PERSONNEL

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

Provide a listing of personnel (including subcontractors and consultants) to be engaged in the project, either U.S. or local with the following information for key staff: position in the project; pertinent experience, curriculum vitae; other relevant information. If subcontractors are to be used, the organizational relationship between the firms must be described.

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

3.4 SECTION 4: TECHNICAL APPROACH AND WORK PLAN

Describe in detail the proposed technical approach and work plan. Discuss the project requirements as perceived by the Offeror. Include a brief narrative of tasks within each activity series. Begin with the information gathering phase and continue through delivery and approval of all required reports.

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

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

3.5 SECTION 5: EXPERIENCE AND QUALIFICATIONS

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

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

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

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

Section 4: AWARD CRITERIA

Individual proposals will be initially evaluated by a Procurement Selection Committee of representatives from the Grantee. The Committee will then conduct a final evaluation and completion of ranking of qualified Offerors, and the Grantee shall promptly negotiate a contract with the best qualified Offeror. If a satisfactory contract cannot be negotiated with the best qualified Offeror, negotiations will be formally terminated. Negotiations shall then be undertaken with the second most qualified Offeror and so forth.

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

Technical Experience (50 points): Firm and team experience, including value of previous contracts, in preparing feasibility studies for air traffic control centers, including design, equipment, operation, workload demand estimation, air space allocation/management, environmental impact, procurement procedures. This should include a demonstrated understanding of ICAO and FAA regulations and requirements as well as detailed resumes of the project participants.

Finance (15 points): Firm and team experience in forecasting air traffic demand, cost analysis, cost estimating, and development of a capital investment program for similar air traffic center projects. Experience with, and understanding of, the requirements of the international development banks, such as the ADB, that are likely to support the ACC Project.

Regional Experience (10 points): Firm and team's familiarity with the air traffic control situation in West Africa and the issues within the region.

Work Plan and Methodology (25 points): Adequacy of the proposed work plan and suggested overall approach in responding to the Terms of Reference. Soundness and thoroughness of the

technical approach and work plan detailed in the proposal and the overall quality of the presentation should be evaluated. The proposal should provide an organization chart of key personnel with their qualifications and a staffing schedule for each key activity.

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

Price will not be a factor in contractor selection.

ANNEX 1

The Director General Ghana Civil Aviation Authority, Private Mail Bag, Kotoka International Airport, Accra, Ghana, Phone: +233 21 776171

Kotoka International Airport Air Traffic Control Center Project

POC John Kusnierek, USTDA, 1000 Wilson Boulevard, Suite 1600, Arlington, VA 22209-3901, Tel: (703) 875-4357, Fax: (703) 875-4009. The Grantee, the Ghana Civil Aviation Authority (GCAA), invites submission of qualifications and proposal data (collectively referred to as the "Proposal") from interested U.S. firms which are qualified on the basis of experience and capability to develop a feasibility study for the Kotoka International Airport Air Traffic Control Center Project in Ghana.

Ghana has experienced strong growth in air traffic over the past 10 years, with annual aircraft movements almost doubling since 2002, and has an extensive Flight Information Region (FIR) including the upper air space for Benin and Togo. The current Air Traffic Control Center (ATCC) at the country's primary international airport is overcrowded and poorly located. This feasibility study will provide GCAA with the specifications and location for the new facility as well as recommend the equipment needed to accommodate both near-term traffic and projected traffic over the next 15 years.

Ghana's current ATCC, which falls under the responsibility of GCAA, is located in the tower building at ACC and is directly adjacent to the main passenger terminal. The ATCC space is very constrained, housing personnel for air traffic control for Ghana, Benin and Togo as well as emergency services. GCAA has determined that air traffic control and emergency services should be re-located to a new facility. GCAA's plans are for a facility with six air traffic control positions, which will allow for supervisory and training stations. Additionally, there will be facilities for an emergency rescue control center. The new ATCC will permit safer handling of Ghana's airspace, the adoption of the latest air traffic control technologies and a self-contained, more secure facility.

The objective of this grant is to provide GCAA with an evaluation of its current assumptions and plans and propose specifications and location for the new facility as well as related equipment requirements.

The U.S. firm selected will be paid in U.S. dollars from a \$295,000 grant to the Grantee from the U.S. Trade and Development Agency (USTDA).

A detailed Request for Proposals (RFP), which includes requirements for the Proposal, the Terms of Reference, and a background definitional mission report are available from USTDA, at 1000 Wilson Boulevard, Suite 1600, Arlington, VA 22209-3901. To request the RFP in PDF format, please go to: <https://www.ustda.gov/USTDA/FedBizOpps/RFP/rfpform.asp>. Requests for a mailed hardcopy version of the RFP may also be faxed to the IRC, USTDA at 703-875-4009. In the fax, please include your firm's name, contact person, address, and telephone number. Some firms have found that RFP materials sent by U.S. mail do not reach them in time for preparation of an adequate response. Firms that want USTDA to use an overnight delivery service should include the name of the delivery service and your firm's account number in the

request for the RFP. Firms that want to send a courier to USTDA to retrieve the RFP should allow one hour after faxing the request to USTDA before scheduling a pick-up. Please note that no telephone requests for the RFP will be honored. Please check your internal fax verification receipt. Because of the large number of RFP requests, USTDA cannot respond to requests for fax verification. Requests for RFPs received before 4:00 PM will be mailed the same day. Requests received after 4:00 PM will be mailed the following day. Please check with your courier and/or mail room before calling USTDA.

Only U.S. firms and individuals may bid on this USTDA financed activity. Interested firms, their subcontractors and employees of all participants must qualify under USTDA's nationality requirements as of the due date for submission of qualifications and proposals and, if selected to carry out the USTDA-financed activity, must continue to meet such requirements throughout the duration of the USTDA-financed activity. All goods and services to be provided by the selected firm shall have their nationality, source and origin in the U.S. or host country. The U.S. firm may use subcontractors from the host country for up to 20 percent of the USTDA grant amount. Details of USTDA's nationality requirements and mandatory contract clauses are also included in the RFP.

Interested U.S. firms should submit their Proposal in English directly to the Grantee by 5:00 p.m. local time, July 24, 2009 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 Description

Ghana Civil Aviation Authority ("GCAA") has determined that it needs a new Air Traffic Control Center ("ACC") in Accra, which would permit it to move from its limited facilities in the control tower at Kotoka International Airport ("KIA") to a new location on or near the airport. The DM recommends the funding of a feasibility study ("Study") for the construction and equipping of a new ACC in Accra, to include facilities and equipment for an emergency rescue services control center. The Study will establish the specifications and location for the new facility and specify the equipment required in the near term and over the next 15 years to accommodate expected growth in air traffic and to incorporate the latest ATC and communications technologies.

Ghana has experienced strong growth in air traffic over the past 5 years, with annual aircraft movements almost doubling since 2002, and it needs to expand its ATC capabilities to ensure continuing safe operations. GCAA handles Ghana FIR, including over-ocean areas, and also controls the upper airspace over Benin and Togo. Ghana's ACC is currently located in the tower building at KIA, which is located directly adjacent to the main passenger terminal. ACC space is very constrained in the tower with only three active positions, one for KIA approach, and two for controlling both north and south geographic sectors. Adding to the overcrowding, Agence pour la Sécurité de la Navigation Aérienne ("ASECNA"), which controls the lower airspace for Benin and Togo, intends to send several employees to the ACC as part of Ghana's agreement to manage its neighbors' air space. In addition, emergency rescue services are currently headquartered in the airport tower in cramped space with inadequate communications and tracking equipment.

GCAA has determined that ACC and emergency services should be relocated out of the tower into a new facility. Plans call for a facility with eight (8) ATC positions including Accra North, Accra South, Accra Oceanic, Approach Control Operations, and allowing for both supervisory and training stations, as well as facilities for an emergency rescue control center.

The primary benefit of the ACC Project is the improved capability inherent in the new ACC, which will permit safer handling of Ghana's airspace and the adoption of the latest ATC technologies by Ghana. A secondary benefit is to increase the security of Ghana's ATC system by providing a self-contained, more secure environment away from the main terminal area at KIA.

Sponsor Capabilities and Commitment

The DM, in addition to speaking to GCAA, confirmed the Ghanaian government's support for the project in discussions with Joe Baidoe-Ansah, Minister of Aviation, who is very supportive of the new ACC. The modernization of ATC is an important part of the government's commitment to the creation of a safe and efficient aviation sector which will stimulate and support the growth of tourism.

Implementation Financing

As a result of the reorganization of the aviation sector by the separation of the Ghana Airports Company ("GACL") from the GCAA, this ACC Project should be self-sustaining with revenues from flight fees that can be isolated and used as collateral for funding by multi-lateral lenders as well as private banking institutions.

African Development Bank ("ADB") – This organization's strategy towards Ghana in the 2007 – 2011 timeframe is to help the revitalization of the economy through the support of projects to create new employment opportunities and to sustain high economic growth rates. It has funded infrastructure projects in Ghana in the past, most recently an upgrade of sections of the rail system.

In addition, the following organizations could be sources of financing for the ACC Project.

World Bank Group ("WBG") – As of July 2007, WBG had 13 projects in Ghana with an aggregate net commitment of some \$820 million. WBG's Country Assistance Strategy for Ghana for the period 2005-2009 sets a framework for lending, assistance, and development dialogue with other partners. WBG believes that an efficient transportation system nurtures economic growth and that it would provide continued support to the development of transportation related projects.

Export-Import Bank of the United States ("Ex-Im") – Ex-Im is open for medium-term business in Ghana in both the public and private sectors with its full range of support. As is the norm, projects need to be well-founded and offer a reasonable assurance of repayment.

U.S. Export Potential

ACA estimates that the total ACC Project provides the potential for the export of U.S. equipment and services with a value of some \$36 million over 15 years. This includes ATC and communications equipment and consulting and engineering services.

Ghana New ACC and ATC Modernization Project		
15-year Cost Estimates U.S.\$ million		
Tasks/Equipment	Total	U.S. Export Potential
ADS/B/C /MULTILATERATION/CPDLC	\$5,000,000	\$5,000,000
AIM AUTOMATION	\$400,000	\$400,000
ATC SIMULATOR	\$1,000,000	\$1,000,000
ATS/SAR COMMUNICATION EQUIPMENT	\$2,000,000	\$2,000,000
STANDBY COMMUNICATION EQUIPMENT	\$1,000,000	\$1,000,000
NAVIGATION AIDS/MET MONITORS	\$1,000,000	\$1,000,000
DATIS	\$500,000	\$500,000
OFFICE EQUIPMENT	\$500,000	\$0
AIS CARTOGRAPHY/CHARTS /GENERATING EQUIPMENT	\$2,000,000	\$2,000,000
STANDBY ELECTRICAL GENERATOR/UPS	\$2,500,000	\$2,500,000
NEXTGEN RADAR	\$10,000,000	\$10,000,000
NON-CIVIL GOODS	\$30,500,000	\$30,000,000
CONTINGENCY	\$6,100,000	\$6,000,000
TOTAL NON-CIVIL GOODS	\$36,600,000	\$36,000,000
CIVIL WORK- AIR NAVIGATION CENTER	\$10,000,000	\$0
TRAINING	\$4,600,000	\$4,600,000
TOTAL PROJECT	\$46,600,000	\$36,000,000
Source: GCAA & ACA estimates		

U.S. Suppliers

There are a large number of U.S. companies supplying air traffic control equipment, communications equipment, and consulting and engineering services that could be used to complete the construction and equipping of a new ACC in Accra. These suppliers are identified in Appendix A.

Foreign Competition and Market Entry Issues

The U.S. and Ghana have a Trade and Investment Framework Agreement with a goal of expanding trade and diversifying the economic relationships between the two nations. There are no structural impediments for U.S. firms exporting goods and services to Ghana. Indeed, the fact that GACL contracted with U.S.-based The LPA Group to create the Master Plan for KIA is evidence that GCAA and GACL are open to using U.S. suppliers.

There are a number of companies based outside the U.S. selling air traffic control and communications equipment that will provide strong competition for U.S. companies, in particular the European companies SITA, Indra, and Thales.

Developmental Impact

The ACC Project will allow Ghana to safely and efficiently manage its skies for both local airport traffic and over flights.

Infrastructure: The primary benefits of the ACC Project are to provide Ghana with expanded ATC capability and to allow for a more secure environment away from the passenger terminal and daily administrative personnel. The relocation and the reequipping of the emergency rescue service will provide for more reliable and effective search and rescue services in the event of accident or natural disaster.

Market Oriented Reforms: The ACC Project will support safe and efficient management of Ghana's FIR, enhancing Ghana's reputation as a modern country with safe skies and encouraging both new air service, such as Delta's new operations, and the use of KIA as a regional hub airport. In turn, this increased traffic will stimulate Ghana's economy, creating opportunities for private investors.

Human Capacity Building: Ghana's ATC system currently employs some 200 flight controllers and maintenance mechanics. GCAA anticipates the ACC Project will expand its workforce by at least 20 additional highly trained flight controllers and communications and maintenance technicians over the next 5 years. In addition, the existing flight controllers and technicians will need training updates to deal with the newly acquired ATC and communications equipment. This will add to the technical skill base of Ghana's labor pool.

Technology Transfer and Productivity Improvement: The new ACC will incorporate the latest ATC and communications technologies and will upgrade the existing communications infrastructure to facilitate communications between the ACC and aircraft operating in the region.

Impact on Environment

The DM expects that the new ACC will have minimal environmental impact. In fact, more efficient handling of aircraft in Ghana's FIR may allow more direct flight paths and reduce delays with the effect of lower aircraft fuel burn – hence, reduced pollution and greenhouse gas emissions, producing a positive impact on the environment.

The Study will evaluate the environmental impact of the new ACC and will provide recommendations on how to minimize any negative environmental impact.

Impact on U.S. Labor

The new ACC will not cause any dislocation of U.S. jobs. It is not expected to: (a) provide any incentive to induce a business enterprise currently located in the U.S. to relocate outside the U.S. or to reduce the number of employees in the U.S. by relocating production currently in the U.S. to overseas facilities; (b) contribute to the violation of internationally recognized workers' rights; or (c) contribute to the production of any commodity that is in surplus in the global markets.

The new ACC should have a positive impact on the U.S. labor market because it will provide business opportunities in Ghana for U.S. firms to supply ATC and communications goods and services.

Study Team Qualifications

ACA recommends that the selection of the Consultants for the Study be carried out by the GCAA through a USTDA competitive RFP offering. The following are recommended qualification criteria for evaluating the proposals:

Technical Experience (40 points): Firm experience (15 points) plus the experience of proposed personnel (25 points) in preparing feasibility studies for air traffic control centers, including design, equipment, operation, workload demand estimation, air space allocation/management, environmental impact, procurement procedures. This should include a demonstrated understanding of ICAO and FAA regulations and requirements, as well as the Civil Aviation Regulations of Ghana. Detailed resumes of the project participants should be included.

Finance (15 points): Firm and team experience in forecasting air traffic demand, cost analysis, cost estimating, and development of a capital investment program for similar air traffic center projects. Experience with, and understanding of, the requirements of the international development banks, such as the ADB, that are likely to support the ACC Project.

Regional Experience (20 points): Firm and team's familiarity with the air traffic control situation in West Africa and the issues within the region.

Work Plan and Methodology (25 points): Adequacy of the proposed work plan and suggested overall approach in responding to the Terms of Reference. Soundness and thoroughness of the technical approach and work plan detailed in the proposal and the overall quality of the

presentation should be evaluated. The proposal should provide an organization chart of key personnel with their qualifications and a staffing schedule for each key activity.

Justification

The government of Ghana has placed a high priority on the development of its airlines and airports and on the safe operation of its airspace to ensure the air transportation infrastructure necessary to support Ghana's economic development through the facilitation of foreign trade and tourism. A new ACC is needed because the current facilities, based in the tower at KIA, are too small to handle the increased number of movements in Ghanaian airspace and airports safely and efficiently, and there is no space to expand in the existing building.

The current ATC facility contains only three controller positions with no back up, supervisory, or training positions. The new facility will allow for at least six ATC stations in addition to communications and training areas. It will also allow for an emergency response center, including command center, communications, and marine rescue coordination. The new facility will also provide air traffic control services to Togo and Benin.

USTDA support for the new ACC would signal the continuing support of the United States for this friendly African nation. Significant potential exists for U.S. firms to export goods and services to a business sector where the U.S. has a true center of excellence and to a nation with which the U.S. has a Trade and Investment Framework Agreement.

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.

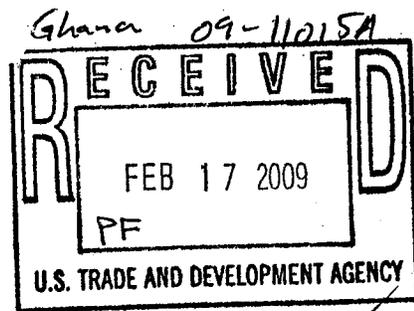
3) Definitions

“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



GRANT AGREEMENT

This Grant Agreement is entered into between the Government of the United States of America, acting through the U.S. Trade and Development Agency ("USTDA") and the Government of the Republic of Ghana, acting through the Ghana Civil Aviation Authority ("Grantee"). USTDA agrees to provide the Grantee under the terms of this Agreement US \$295,000 ("USTDA Grant") to fund the cost of goods and services required for a feasibility study ("Study") on the proposed Kotoka International Airport Air Traffic Control Center Project ("Project") in Ghana ("Host Country").

NG
CC:
PM
NI
JK

1. USTDA Funding

The funding to be provided under this Grant Agreement shall be used to fund the costs of a contract between the Grantee and the U.S. firm selected by the Grantee ("Contractor") under which the Contractor will perform the Study ("Contract"). Payment to the Contractor will be made directly by USTDA on behalf of the Grantee with the USTDA Grant funds provided under this Grant Agreement.

CS:
LZ
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MC
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JW
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2. Terms of Reference

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

3. Standards of Conduct

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

4. Grantee Responsibilities

The Grantee shall undertake its best efforts to provide reasonable support for the Contractor, such as 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 Study. Upon approval of this selection by USTDA, the Grantee and the Contractor shall then enter into a contract for performance of the Study. The Grantee shall notify in writing the U.S. firms that submitted unsuccessful proposals to perform the Study that they were not selected.

(C) USTDA Approval of Contract Between Grantee and Contractor

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

(D) USTDA Not a Party to the Contract

It is understood by the parties that USTDA has reserved certain rights such as, but not limited to, the right to approve the terms of the contract and any amendments thereto, including assignments, the selection of all contractors, the Terms of Reference, the Final Report, and any and all documents related to any contract funded under the Grant Agreement. The parties hereto further understand and agree that USTDA, in reserving any or all of the foregoing approval rights, has acted solely as a financing entity to assure the proper use of United States Government funds, and that any decision by USTDA to exercise or refrain from exercising these approval rights shall be made as a financier in the course of funding the Study and shall not be construed as making USTDA a party to the contract. The parties hereto understand and agree that USTDA may, from time to time, exercise the foregoing approval rights, or discuss matters related to these rights and the Project with the parties to the contract or any subcontract, jointly or separately, without thereby incurring any responsibility or liability to such parties. Any approval or failure to approve by USTDA shall not bar the Grantee or USTDA from asserting any right they might have against the

Contractor, or relieve the Contractor of any liability which the Contractor might otherwise have to the Grantee or USTDA.

(E) Grant Agreement Controlling

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

6. Disbursement Procedures

(A) USTDA Approval of Contract Required

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

(B) Contractor Invoice Requirements

The Grantee should request disbursement of funds by USTDA to the Contractor for performance of the Study by submitting invoices in accordance with the procedures set forth in the USTDA Mandatory Clauses in Annex II.

7. Effective Date

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

8. Study Schedule

(A) Study Completion Date

The completion date for the Study, which is December 30, 2009 is the date by which the parties estimate that the Study will have been completed.

(B) Time Limitation on Disbursement of USTDA Grant Funds

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

9. USTDA Mandatory Clauses

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

10. Use of U.S. Carriers

(A) Air

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

(B) Marine

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

11. Nationality, Source and Origin

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

12. Taxes

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

13. Cooperation Between Parties and Follow-Up

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

14. Implementation Letters

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

15. Recordkeeping and Audit

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

16. Representation of Parties

For all purposes relevant to the Grant Agreement, the Government of the United States of America will be represented by the U. S. Ambassador to Host Country or USTDA and Grantee will be represented by the Director General. 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: The Director General
Ghana Civil Aviation Authority
Private Mail Bag

Kotoka International Airport
Accra, Ghana

Phone: +233 21 776171
Fax: +233 21 773293
Email: info@gcaagh.com

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

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

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

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

Appropriation No.: 11 9/10 1001
Activity No.: 2009-11015A
Reservation No.: 2009110017
Grant No.: GH2009110004

18. Termination Clause

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

19. Non-waiver of Rights and Remedies

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

20. U.S. Technology and Equipment

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

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IN WITNESS WHEREOF, the Government of the United States of America and the Government of the Republic of Ghana 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: *Eric K. Brown*

Date: 11 February 2009

Witnessed:

By: *Paul A. Ma...*

For the Government of the
Republic of Ghana

GHANA CIVIL AVIATION AUTHORITY
By: *[Signature]*
.....
Director General

Date: 11th February, 2009

Witnessed:

By: *[Signature]*

Annex I -- Terms of Reference

Annex II -- USTDA Mandatory Clauses

Annex I

Terms of Reference

Background:

The Ghana Civil Aviation Authority ("Grantee") has determined that it needs a new air traffic control center ("ATCC") in Accra, permitting it to move from its limited facilities in the control tower at Kotoka International Airport ("ACC", the International Air Travel Association code for the airport) to a new location on or near the airport. USTDA has approved funding for a feasibility study ("Study") for the construction and equipping of a new ATCC in Accra, to include facilities and equipment for an emergency rescue services control center. The Study will establish the specifications and location for the new facility and specify the equipment required in the near term and over the next 15 years to accommodate expected growth in air traffic and to incorporate the latest air traffic control ("ATC") and communications technologies.

Ghana has experienced strong growth in air traffic over the past 5 years, with annual aircraft movements almost doubling since 2002. The Grantee handles Ghana's airspace, including over-ocean areas, and also controls the upper airspace over Benin and Togo from cramped facilities in the tower building at ACC. There are currently only three ATC stations, with no training, supervisory, or backup positions. In addition, emergency rescue is currently headquartered in the airport tower in cramped space with limited communications and tracking equipment.

The Grantee has determined that the ATCC and emergency services should be relocated out of the tower into a new facility. The Grantee's plans call for a facility with six ATC positions, allowing for both supervisory and training stations, as well as facilities for an aeronautical rescue co-ordination center. This Study will evaluate the Grantee's assumption and plans and propose specifications and location for the new facility as well as related equipment requirements.

Task 1 – Conduct a Kick off Meeting and Review Reports and Data

1.1 Prior to travel, the Contractor shall use information obtained from the Grantee, the U.S. Federal Aviation Administration ("FAA"), Agence pour la Sécurité de la Navigation Aérienne ("ASECNA"), and the International Civil Aviation Organization ("ICAO"), to review and research data concerning Ghanaian air space, including plans developed by the Grantee. Prior to the site visit the Contractor shall have a clear understanding of all

prior reports relating to the air traffic control function in Ghana, including local traffic and over flights.

1.2 The Grantee shall provide its existing preliminary schematic plan for a new ATCC to the Contractor for review. The Contractor shall review the Grantee's plans relating to the proposed sites for the new ATCC, including the timetable and costs, the equipment requirements for communication, radar, and simulators, the transition planning, the personnel training, and the timing of the Project. The Contractor shall visit the proposed sites of the new ATCC to develop an understanding of the local issues related to the Project. In addition, the Grantee shall provide a complete copy of the Master Plan for Kotoka International Airport ("Master Plan") completed in August 2008 by the LPA Group to the Contractor. The Contractor shall review the Master Plan's traffic data forecasts.

The Contractor shall meet with the Grantee in Accra to review all aspects of the existing control center located in the tower at ACC. During the visit the Contractor shall perform an inventory of details of existing operational procedures and policies, personnel information concerning training and responsibilities, conduct an inventory of equipment, and gather other relevant information concerning ATC operations. The Contractor shall gain an understanding of the legal issues relevant to the operation of the air traffic control system in Ghana and, since Ghana is responsible for the upper air space of Benin and Togo, the legal issues pertinent to this operation.

At the conclusion of the initial meetings with the Grantee the Contractor shall present a work plan for the completion of the Study and review the plan with the Grantee to reach consensus on the methodology for performing the Terms of Reference and confirm that the timing of the deliverables is clearly understood by all concerned.

Deliverable: The Deliverable for Task 1 shall be a report containing all information gathered during the course of Task 1, including a work plan and timetable for the Study.

Task 2 – Conduct an Inventory of Current ATC Systems and Facilities

2.1 The Contractor shall develop an inventory of existing ATC facilities including all necessary information to determine the capabilities of the existing systems and to evaluate the transferability of any equipment to a new facility. The inventory shall include at a minimum current system configuration, operations, equipment, facilities, personnel, and training. The Contractor shall identify the inadequacies and shortcomings in the existing systems as well as address the physical vulnerabilities of the facilities.

2.2 The Contractor shall identify areas that need to be enhanced or changed if the ATCC is to be located at a site located off the airfield or removed from the present tower location.

Deliverable: The deliverable for Task 2 shall be a report including all information gathered during the course of Task 2.

Task 3 – Prepare a Forecast of Aircraft Movements

3.1 In order to develop an informed judgment about future demand on the ATC system and to determine equipment and personnel requirements, the Contractor shall conduct an extensive review of the historical statistics and flight patterns provided and accumulated in Tasks 1 and 2, including flights in the airspace over Benin and Togo. This review shall include normal and peak operations by month, day and hour. In addition, the Contractor shall analyze the Ghana Airports Company Limited ("GACL")'s plans for the development of its other existing airports, particularly at Kumasi, Sunyani, and Tamale to gain understanding of future growth and changing flight patterns of Ghana's aviation sector over the next 15 years.

3.2 Based on the review conducted in Task 3.1, the Contractor shall prepare a 15-year demand forecast for the ATC system in careful coordination with the GACL and the Grantee. The forecast shall reflect peak requirements.

Deliverable: The deliverable for Task 3 shall be a report including all information gathered during the course of Task 3, including the 15-year forecast of air traffic demand reflecting peak requirements.

Task 4 – Specify the Equipment and Facility Requirements for Modernization of the ATC System and the New ATCC.

4.1 Based on the findings in Tasks 1-3, the Contractor shall provide evidence to validate the Grantee's plan or define its own estimates for:

- ATC equipment required for the new ATCC;
- Communications equipment to be used also by the aeronautical rescue co-ordination center; and

- Additional equipment required for the ATC system in Ghana to accommodate growth over the next 15 years and to incorporate the latest technologies, such as automatic dependent surveillance-broadcast ("ADS-B") and automatic dependent surveillance – contract ("ADS-C").

4.2 The Contractor shall detail the technical specifications, quantities, and requirements for all of the equipment recommended to create the new ATCC and to upgrade the existing ATC system.

4.3 Based on the forecast of activity and the equipment requirements for the next 15 years, the Contractor shall evaluate the Grantee's plan for the building to be constructed to house the new ATCC, taking into account the equipment as well as the physical needs, such as training facilities and the aeronautical rescue co-ordination center. The Contractor shall address all the issues related to the building including, but not limited to:

- Design in conformity with international standards for similar facilities;
- Special air conditioning and soundproofing required; and
- Confirmation that the design has been specified in sufficient detail to allow the Grantee to begin the equipment tender process, including phasing of the Project's implementation.

4.4 Based on the forecast of traffic by sector and on operational needs the Contractor shall either validate the Grantee's choice of location for the ATCC center or recommend changes to that location.

4.5 The Contractor shall develop an implementation timetable that is consistent with the planned equipment deliveries, construction, the likely financing and its approval process as required by the Grantee, and the anticipated timing of the redevelopment of the tower.

Deliverable: The deliverable for Task 4 shall be a report including all information gathered during the course of Task 4, including the location of the new ATCC; specification of the building configuration of the new ATCC; and detailed air traffic control and communications equipment specifications and quantities as well as a timetable for the Project and the key benchmarks to measure progress as the Project proceeds.

Task 5 – Estimate Development Costs for the New ATCC

The Contractor shall prepare a Capital Investment Plan ("CIP") for the ATCC Project that shall include, at a minimum, costs of the new ATCC, costs involved with transferring operations from the existing ATCC, and for all new equipment and civil works related to the Project. The CIP shall include additions, changes, and upgrades of existing radar and monitoring equipment needed by the Grantee to maintain its airspace over the next 15 years. The CIP shall include at a minimum:

- ATC equipment;
- Communications equipment;
- Civil engineering construction costs to include access roads;
- Fees and expenses; and
- Transition cost and timing.

Deliverable: The deliverable for Task 5 shall be a report including all information gathered during the course of Task 5, including the detailed CIP for the ATCC Project.

Task 6 – Conduct a Preliminary Environmental Impact Assessment

The Contractor shall prepare a preliminary environmental impact assessment that identifies any negative (or positive) impacts resulting from the new ATCC. This review shall include reference to local requirements and to the requirements of multi-lateral lending agencies, such as the World Bank and the African Development Bank. Any negative environmental impacts need to be reported and mitigation considered in the timetable and CIP in consultation with the Grantee.

Deliverable: The deliverable for Task 6 shall be a report including all information gathered during the course of Task 6, including the preliminary environmental impact assessment.

Task 7 – Conduct a Financial Feasibility Assessment

7.1 The Contractor shall prepare a financial analysis of the Project, including all additional costs and savings on the existing air traffic control system for Ghana. The objective of the analysis is to present a clear picture of the capital required, the cost of

this capital, the cost of operations, and the increase in revenues (from additional traffic and/or from an increase in fees) required to finance the Project.

7.2 The Contractor shall prepare a 15-year financial forecast model, based on the air traffic demand forecast prepared in Task 3, including balance sheet, income statement, and cash flow statement(s). The Contractor shall clearly show the annual revenue required covering the capital cost and operating cost of the entire Ghanaian ATC system. The Contractor shall explain in detail all assumptions made in the forecast. The analysis shall be in constant U.S. dollars.

7.3 The Contractor shall test the sensitivity of the projected cash flows to varying revenues and costs and to delays in implementation over the forecast period.

7.4 The Contractor shall include a database of U.S. companies that could be exporters of goods and services for the implementation of the Project. The database shall include U.S. company name, address, personnel contact names with phone numbers and email addresses, and the goods or services that could be exported in connection with the Project. The database shall be in a searchable format.

Deliverable: The deliverable for Task 7 shall be a report including all information gathered during the course of Task 7, including the financial feasibility assessment with an estimate of the revenue increase required to recover the cost of the Project as well as a searchable database of U.S. companies that could supply goods and services to the Project.

Task 8 – Assess Potential Financing Options

8.1 Having established the CIP and funding requirements of the Project, the Contractor shall clearly state the funding required from outside sources.

8.2 The Contractor shall survey potential outside funding sources. At a minimum, the Contractor shall consult private sources of financing as well as multilateral development banks such as the World Bank, the African Development Bank, and U.S. government institutions such as Ex-Im Bank and the Overseas Private Investment Corporation.

Deliverable: The deliverable for Task 8 shall be a report including all information gathered during the course of Task 8, including a full assessment of the potential financing options for the Project.

Task 9 – Advise Grantee on the Development of a Procurement Plan and the Preparation of a Bid Packages

The Contractor shall review the requirements of the Public Procurement act of the Republic of Ghana. Taking these requirements into account, the Contractor shall assist the Grantee in preparing a bid package or bid packages as appropriate for the equipment required for the Project by advising the Grantee on typical terms and conditions used in similar international projects, including installation, services, warranties, and training. The Contractor shall review and make recommendations for the technical specifications (developed in Task 4) and the quantities and requirements for all the equipment recommended. Preparation of the tender documents and the commercial parameters of the tender shall be the responsibility of the Grantee. This task does not include bid package preparation for civil engineering or construction work.

The Contractor shall advise the Grantee on the method of evaluation of the technical proposal.

Deliverable: The deliverable for Task 9 shall be a report including all information gathered during the course of Task 9, including typical terms and conditions for procuring equipment for the Project.

Task 10 – Prepare a Developmental Impact Assessment

The Contractor shall assess the development benefits associated with the Project and the methodology for measuring those benefits. The assessment shall include examples of the development benefits that would be expected in Ghana if the Project is implemented as outlined in the Final Report. Specific attention shall be given to:

- Infrastructure: a brief synopsis of the infrastructure impact of the Project ;
- Technology Transfer and Productivity Improvements: a description of advanced technologies and improvement of processes that stimulate greater economic productivity associated with the Project;
- Human Capacity Building: a description of new job opportunities, sustained employment, or advanced training to upgrade the capability of the workforce resulting from the Project;
- Market-Oriented Reforms: transparency and private sector participation; and

- **Other/Spin-Off Effects:** any other developmental benefits derived from the Project including, for example, reduction in aircraft fuel requirements due to better air space control.

Deliverable: The deliverable for Task 10 shall be a report including all information gathered during the course of Task 10, including the detailed assessment of the developmental impact of the Project.

Task 11 – Prepare the 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 H of Annex II of the Grant Agreement.

Notes:

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

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 Ghana, acting through the Ghana Civil Aviation Authority ("Client"), dated _____ ("Grant Agreement"). The Client has selected _____ ("Contractor") to perform the feasibility study ("Study") for the Kotoka International Airport Air Traffic Control Center Project ("Project") in Ghana ("Host Country"). Notwithstanding any other provisions of this contract, the following USTDA mandatory contract clauses shall govern. All subcontracts entered into by Contractor funded or partially funded with USTDA Grant funds shall include these USTDA mandatory contract clauses, except for clauses B(1), G, H, I, and J. In addition, in the event of any inconsistency between the Grant Agreement and any contract or subcontract thereunder, the Grant Agreement shall be controlling.

B. USTDA as Financier

(1) USTDA Approval of Contract

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

(2) USTDA Not a Party to the Contract

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

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

C. Nationality, Source and Origin

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

D. Recordkeeping and Audit

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

E. U.S. Carriers

(1) Air

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

(2) Marine

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

F. Workman's Compensation Insurance

The Contractor shall provide adequate Workman's Compensation Insurance coverage for work performed under this Contract.

G. Reporting Requirements

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

H. Disbursement Procedures

(1) USTDA Approval of Contract

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

(2) Payment Schedule Requirements

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

(3) Contractor Invoice Requirements

USTDA will make all disbursements of USTDA Grant funds directly to the Contractor. The Contractor must provide USTDA with an ACH Vendor Enrollment Form (available from USTDA) with the first invoice. The Client shall request disbursement of funds by

USTDA to the Contractor for performance of the contract by submitting the following to USTDA:

(a) Contractor's Invoice

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

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

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

(ii) For contract performance milestone payments:

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

(iii) For final payment:

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

(b) Client's Approval of the Contractor's Invoice

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

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

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

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

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

(c) USTDA Address for Disbursement Requests

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

(4) Termination

In the event that the Contract is terminated prior to completion, the Contractor will be eligible, subject to USTDA approval, for reasonable and documented costs which have been incurred in performing the Terms of Reference prior to termination, as well as reasonable wind down expenses. Reimbursement for such costs shall not exceed the total amount of undisbursed Grant funds. Likewise, in the event of such termination, USTDA is entitled to receive from the Contractor all USTDA Grant funds previously disbursed to the Contractor (including but not limited to mobilization payments) which exceed the reasonable and documented costs incurred in performing the Terms of Reference prior to termination.

I. USTDA Final Report

(1) Definition

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

(2) Final Report Submission Requirements

The Contractor shall provide the following to USTDA:

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

and

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

and

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

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

(3) Final Report Presentation

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

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

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

(b) The inside front cover of every Final Report shall contain USTDA's logo, USTDA's mailing and delivery addresses, and USTDA's mission statement.

Camera-ready copy of USTDA Final Report specifications will be available from USTDA upon request.

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

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

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

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

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

J. Modifications

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

K. Study Schedule

(1) Study Completion Date

The completion date for the Study, which is December 30, 2009, is the date by which the parties estimate that the Study will have been completed.

(2) Time Limitation on Disbursement of USTDA Grant Funds

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

L. Business Practices

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

M. USTDA Address and Fiscal Data

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

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

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

Fiscal Data:

Appropriation No.:	11 9/10 1001
Activity No.:	2009-11015A
Reservation No.:	2009110017
Grant No.:	GH2009110004

N. Definitions

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

O. Taxes

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

ANNEX 5

TERMS OF REFERENCE

Background:

The Ghana Civil Aviation Authority ("Grantee") has determined that it needs a new air traffic control center ("ATCC") in Accra, permitting it to move from its limited facilities in the control tower at Kotoka International Airport ("ACC", the International Air Travel Association code for the airport) to a new location on or near the airport. USTDA has approved funding for a feasibility study ("Study") for the construction and equipping of a new ATCC in Accra, to include facilities and equipment for an emergency rescue services control center. The Study will establish the specifications and location for the new facility and specify the equipment required in the near term and over the next 15 years to accommodate expected growth in air traffic and to incorporate the latest air traffic control ("ATC") and communications technologies.

Ghana has experienced strong growth in air traffic over the past 5 years, with annual aircraft movements almost doubling since 2002. The Grantee handles Ghana's airspace, including over-ocean areas, and also controls the upper airspace over Benin and Togo from cramped facilities in the tower building at ACC. There are currently only three ATC stations, with no training, supervisory, or backup positions. In addition, emergency rescue is currently headquartered in the airport tower in cramped space with limited communications and tracking equipment.

The Grantee has determined that the ATCC and emergency services should be relocated out of the tower into a new facility. The Grantee's plans call for a facility with six ATC positions, allowing for both supervisory and training stations, as well as facilities for an aeronautical rescue co-ordination center. This Study will evaluate the Grantee's assumption and plans and propose specifications and location for the new facility as well as related equipment requirements.

Task 1 – Conduct a Kick off Meeting and Review Reports and Data

1.1 Prior to travel, the Contractor shall use information obtained from the Grantee, the U.S. Federal Aviation Administration ("FAA"), Agence pour la Sécurité de la Navigation Aérienne ("ASECNA"), and the International Civil Aviation Organization ("ICAO"), to review and research data concerning Ghanaian air space, including plans developed by the Grantee. Prior to the site visit the Contractor shall have a clear understanding of all prior reports relating to the air traffic control function in Ghana, including local traffic and over flights.

1.2 The Grantee shall provide its existing preliminary schematic plan for a new ATCC to the Contractor for review. The Contractor shall review the Grantee's plans relating to the proposed sites for the new ATCC, including the timetable and costs, the equipment requirements for communication, radar, and simulators, the transition planning, the personnel training, and the timing of the Project. The Contractor shall visit the proposed sites of the new ATCC to develop an understanding of the local issues related to the Project. In addition, the Grantee shall provide a complete copy of the Master Plan for Kotoka International Airport ("Master Plan") completed in August 2008 by the LPA Group to the Contractor. The Contractor shall review the Master Plan's traffic data forecasts.

The Contractor shall meet with the Grantee in Accra to review all aspects of the existing control center located in the tower at ACC. During the visit the Contractor shall perform an inventory of details of existing operational procedures and policies, personnel information concerning training and responsibilities, conduct an inventory of equipment, and gather other relevant information concerning ATC operations. The Contractor shall gain an understanding of the legal issues relevant to the operation of the air traffic control system in Ghana and, since Ghana is responsible for the upper air space of Benin and Togo, the legal issues pertinent to this operation.

At the conclusion of the initial meetings with the Grantee the Contractor shall present a work plan for the completion of the Study and review the plan with the Grantee to reach consensus on the methodology for performing the Terms of Reference and confirm that the timing of the deliverables is clearly understood by all concerned.

Deliverable: The Deliverable for Task 1 shall be a report containing all information gathered during the course of Task 1, including a work plan and timetable for the Study.

Task 2 – Conduct an Inventory of Current ATC Systems and Facilities

2.1 The Contractor shall develop an inventory of existing ATC facilities including all necessary information to determine the capabilities of the existing systems and to evaluate the transferability of any equipment to a new facility. The inventory shall include at a minimum current system configuration, operations, equipment, facilities, personnel, and training. The Contractor shall identify the inadequacies and shortcomings in the existing systems as well as address the physical vulnerabilities of the facilities.

2.2 The Contractor shall identify areas that need to be enhanced or changed if the ATCC is to be located at a site located off the airfield or removed from the present tower location.

Deliverable: The deliverable for Task 2 shall be a report including all information gathered during the course of Task 2.

Task 3 – Prepare a Forecast of Aircraft Movements

3.1 In order to develop an informed judgment about future demand on the ATC system and to determine equipment and personnel requirements, the Contractor shall conduct an extensive review of the historical statistics and flight patterns provided and accumulated in Tasks 1 and 2, including flights in the airspace over Benin and Togo. This review shall include normal and peak operations by month, day and hour. In addition, the Contractor shall analyze the Ghana Airports Company Limited ("GACL")'s plans for the development of its other existing airports, particularly at Kumasi, Sunyani, and Tamale to gain understanding of future growth and changing flight patterns of Ghana's aviation sector over the next 15 years.

3.2 Based on the review conducted in Task 3.1, the Contractor shall prepare a 15-year demand forecast for the ATC system in careful coordination with the GACL and the Grantee. The forecast shall reflect peak requirements.

Deliverable: The deliverable for Task 3 shall be a report including all information gathered during the course of Task 3, including the 15-year forecast of air traffic demand reflecting peak requirements.

Task 4 – Specify the Equipment and Facility Requirements for Modernization of the ATC System and the New ATCC.

4.1 Based on the findings in Tasks 1-3, the Contractor shall provide evidence to validate the Grantee's plan or define its own estimates for:

- ATC equipment required for the new ATCC;
- Communications equipment to be used also by the aeronautical rescue co-ordination center; and
- Additional equipment required for the ATC system in Ghana to accommodate growth over the next 15 years and to incorporate the latest technologies, such as automatic dependent surveillance-broadcast ("ADS-B") and automatic dependent surveillance – contract ("ADS-C").

4.2 The Contractor shall detail the technical specifications, quantities, and requirements for all of the equipment recommended to create the new ATCC and to upgrade the existing ATC system.

4.3 Based on the forecast of activity and the equipment requirements for the next 15 years, the Contractor shall evaluate the Grantee's plan for the building to be constructed to house the new ATCC, taking into account the equipment as well as the physical needs, such as training facilities and the aeronautical rescue co-ordination center. The Contractor shall address all the issues related to the building including, but not limited to:

- Design in conformity with international standards for similar facilities;
- Special air conditioning and soundproofing required; and
- Confirmation that the design has been specified in sufficient detail to allow the Grantee to begin the equipment tender process, including phasing of the Project's implementation.

4.4 Based on the forecast of traffic by sector and on operational needs the Contractor shall either validate the Grantee's choice of location for the ATCC center or recommend changes to that location.

4.5 The Contractor shall develop an implementation timetable that is consistent with the planned equipment deliveries, construction, the likely financing and its approval process as required by the Grantee, and the anticipated timing of the redevelopment of the tower.

Deliverable: The deliverable for Task 4 shall be a report including all information gathered during the course of Task 4, including the location of the new ATCC; specification of the building configuration of the new ATCC; and detailed air traffic control and communications equipment specifications and quantities as well as a timetable for the Project and the key benchmarks to measure progress as the Project proceeds.

Task 5 – Estimate Development Costs for the New ATCC

The Contractor shall prepare a Capital Investment Plan ("CIP") for the ATCC Project that shall include, at a minimum, costs of the new ATCC, costs involved with transferring operations from the existing ATCC, and for all new equipment and civil works related to the Project. The CIP shall include additions, changes, and upgrades of existing radar and monitoring equipment needed by the Grantee to maintain its airspace over the next 15 years. The CIP shall include at a minimum:

- ATC equipment;
- Communications equipment;

- Civil engineering construction costs to include access roads;
- Fees and expenses; and
- Transition cost and timing.

Deliverable: The deliverable for Task 5 shall be a report including all information gathered during the course of Task 5, including the detailed CIP for the ATCC Project.

Task 6 – Conduct a Preliminary Environmental Impact Assessment

The Contractor shall prepare a preliminary environmental impact assessment that identifies any negative (or positive) impacts resulting from the new ATCC. This review shall include reference to local requirements and to the requirements of multi-lateral lending agencies, such as the World Bank and the African Development Bank. Any negative environmental impacts need to be reported and mitigation considered in the timetable and CIP in consultation with the Grantee.

Deliverable: The deliverable for Task 6 shall be a report including all information gathered during the course of Task 6, including the preliminary environmental impact assessment.

Task 7 – Conduct a Financial Feasibility Assessment

7.1 The Contractor shall prepare a financial analysis of the Project, including all additional costs and savings on the existing air traffic control system for Ghana. The objective of the analysis is to present a clear picture of the capital required, the cost of this capital, the cost of operations, and the increase in revenues (from additional traffic and/or from an increase in fees) required to finance the Project.

7.2 The Contractor shall prepare a 15-year financial forecast model, based on the air traffic demand forecast prepared in Task 3, including balance sheet, income statement, and cash flow statement(s). The Contractor shall clearly show the annual revenue required covering the capital cost and operating cost of the entire Ghanaian ATC system. The Contractor shall explain in detail all assumptions made in the forecast. The analysis shall be in constant U.S. dollars.

7.3 The Contractor shall test the sensitivity of the projected cash flows to varying revenues and costs and to delays in implementation over the forecast period.

7.4 The Contractor shall include a database of U.S. companies that could be exporters of goods and services for the implementation of the Project. The database shall include U.S.

company name, address, personnel contact names with phone numbers and email addresses, and the goods or services that could be exported in connection with the Project. The database shall be in a searchable format.

Deliverable: The deliverable for Task 7 shall be a report including all information gathered during the course of Task 7, including the financial feasibility assessment with an estimate of the revenue increase required to recover the cost of the Project as well as a searchable database of U.S. companies that could supply goods and services to the Project.

Task 8 – Assess Potential Financing Options

8.1 Having established the CIP and funding requirements of the Project, the Contractor shall clearly state the funding required from outside sources.

8.2 The Contractor shall survey potential outside funding sources. At a minimum, the Contractor shall consult private sources of financing as well as multilateral development banks such as the World Bank, the African Development Bank, and U.S. government institutions such as Ex-Im Bank and the Overseas Private Investment Corporation.

Deliverable: The deliverable for Task 8 shall be a report including all information gathered during the course of Task 8, including a full assessment of the potential financing options for the Project.

Task 9 – Advise Grantee on the Development of a Procurement Plan and the Preparation of a Bid Packages

The Contractor shall review the requirements of the Public Procurement act of the Republic of Ghana. Taking these requirements into account, the Contractor shall assist the Grantee in preparing a bid package or bid packages as appropriate for the equipment required for the Project by advising the Grantee on typical terms and conditions used in similar international projects, including installation, services, warranties, and training. The Contractor shall review and make recommendations for the technical specifications (developed in Task 4) and the quantities and requirements for all the equipment recommended. Preparation of the tender documents and the commercial parameters of the tender shall be the responsibility of the Grantee. This task does not include bid package preparation for civil engineering or construction work.

The Contractor shall advise the Grantee on the method of evaluation of the technical proposal.

Deliverable: The deliverable for Task 9 shall be a report including all information gathered during the course of Task 9, including typical terms and conditions for procuring equipment for the Project.

Task 10 – Prepare a Developmental Impact Assessment

The Contractor shall assess the development benefits associated with the Project and the methodology for measuring those benefits. The assessment shall include examples of the development benefits that would be expected in Ghana if the Project is implemented as outlined in the Final Report. Specific attention shall be given to:

- Infrastructure: a brief synopsis of the infrastructure impact of the Project ;
- Technology Transfer and Productivity Improvements: a description of advanced technologies and improvement of processes that stimulate greater economic productivity associated with the Project;
- Human Capacity Building: a description of new job opportunities, sustained employment, or advanced training to upgrade the capability of the workforce resulting from the Project;
- Market-Oriented Reforms: transparency and private sector participation; and
- Other/Spin-Off Effects: any other developmental benefits derived from the Project including, for example, reduction in aircraft fuel requirements due to better air space control.

Deliverable: The deliverable for Task 10 shall be a report including all information gathered during the course of Task 10, including the detailed assessment of the developmental impact of the Project.

Task 11 – Prepare the 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 H of Annex II of the Grant Agreement.

Notes:

- (1) The Contractor is responsible for compliance with U.S. export licensing requirements, if applicable, in the performance of the Terms of Reference.

- (2) The Contractor and the Grantee shall be careful to ensure that the public version of the Final Report contains no security or confidential information.
- (3) The Grantee and USTDA shall have an irrevocable, worldwide, royalty-free, non-exclusive right to use and distribute the Final Report and all work product that is developed under these Terms of Reference.

ANNEX 6

Study Budget

TASK DESCRIPTIONS		LABOR IN PERSON DAYS							LABOR RECAP BY TASK			TRIP RECAP BY TASK		
TASK	DISCIPLINE TASK NAME	ATC Specialist & PM	Planner/ Architect/ Design	Finance	Environm ent	Security/ ARFF	Communi cations	Analyst	Admin	TOTAL DAYS	LABOR COST	TRIPS	TRIP DAYS	TRIP COST
1	Kick off meeting/ review relevant reports and data	15.0	15.0						1.0	31.0	\$45,640	2	20	
2	Inventory current ATC	10.0	10.0						1.0	21.0	\$30,640			
3	Demand forecast	4.0					5.0			9.0	\$10,400			
4	Specify equipment and facility	5.0	5.0		3.0	3.0	5.0			18.0	\$26,200			
5	Estimate development costs	10.0	10.0	3.0	3.0	3.0	3.0			29.0	\$42,000	2	10	
6	Prelim environmental impact assessment	1.0			3.0				1.0	5.0	\$5,840			
7	Financial feasibility assessment	4.0		10.0					1.0	15.0	\$19,040			
8	Financing options	3.0		3.0						6.0	\$8,400			
9	Procurement plan and bid package preparation	7.0	3.0				2.0			12.0	\$18,200			
10	Developmental impact assessment	3.0	3.0						1.0	7.0	\$9,640			
11	Draft/Final Report	10.0	10.0	1.0		1.0	1.0		3.0	26.0	\$36,920	2	10	
LABOR IN PERSON DAYS		72.0	56.0	17.0	3.0	7.0	11.0	5.0	8.0	179.0	\$251,920	6	40	\$42,000
LABOR INCLUDING OVERHEAD & GENERAL ADMINISTRATIVE														
Daily Rate		\$1,600	\$1,400	\$1,200	\$1,200	\$1,400	\$1,400	\$800	\$640					
TOTAL LABOR		\$115,200	\$78,400	\$20,400	\$3,600	\$9,800	\$15,400	\$4,000	\$5,120					\$251,920
TOTAL ODC's														\$42,000

	Number	Unit	Cost/Unit	Totals
Total Outside Consultants				
Air Fare	6	RT	\$3,000	\$18,000
Per Diem Transit	40	Per-Days	\$230	\$9,200
Local Travel & Intermeter	40	Per-Days	\$230	\$9,200
Taxi To & From Airport	6	RT	\$100	\$600
Misc. Inc. Tel & Fax				\$5,000
TOTAL ODC's				\$42,000