

REQUEST FOR PROPOSALS

FEASIBILITY STUDY FOR THE

ZAMBIA AIRPORTS MASTER PLAN

Submission Deadline: **4:00 p.m.**

LOCAL TIME

August 15, 2008

Submission Place: Mukuka L. N. Zimba
Permanent Secretary
Ministry of Communications and Transport
P. O. Box 50065
Lusaka, Zambia

Phone: 260 21 1254158

Fax: 260 21 1251795

SEALED PROPOSALS SHALL BE CLEARLY MARKED AND RECEIVED PRIOR TO THE TIME AND DATE SPECIFIED ABOVE. PROPOSALS RECEIVED AFTER SAID TIME AND DATE WILL NOT BE ACCEPTED OR CONSIDERED.

REQUEST FOR PROPOSALS

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Section 1: INTRODUCTION

The U.S. Trade and Development Agency (USTDA) has provided a grant to the Grantee, the Zambian Ministry of Communications and Transport (MCT) to fund a feasibility study for the Zambia Airports Master Plan. The grant agreement is attached in 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

Zambia's civil aviation sector has experienced explosive growth during recent years, with passenger traffic volumes growing between five and six percent at major international airports. This growth is projected to continue. The aviation infrastructure is vital for the country's economy as it facilitates increasing tourism to the Victoria Falls region and supports the mining industry in the copperbelt region. However, the existing infrastructure of the airports is not sufficient to handle the projected increase in demand.

Zambia has three major international airports: Lusaka, Ndola, and Livingstone. Lusaka was established as a commercial airport while Ndola and Livingstone were originally established for government use and later transformed into civil and commercial use facilities to support trade and mining activities in the copperbelt region and tourism traffic to Victoria Falls respectively. There is a fourth smaller international airport that is growing in importance which is the Mfuwe airport that services the Luangwa Valley.

Lusaka:

Lusaka International Airport is the hub for passenger, aircraft and cargo operations in Zambia. It is situated approximately 27 kilometers east of the central business district of the city of Lusaka. The airport, which was established in 1967, has seen significant increases in air traffic in recent years and it is estimated that passenger traffic will continue to grow at a rate of four to five percent per year during the next five years. Passenger traffic at Lusaka is composed mostly of international passengers (85% in year 2005). Aircraft movements and cargo traffic have also increased steadily at Lusaka International Airport.

Ndola:

The modernization of the Ndola International Airport is needed not only due to the increase in traffic resulting from tourism, but also due to the large investments in copper mining in the region. Ndola International Airport was built during World War II to serve as a military post and was later converted into a commercial facility to facilitate trade in the copperbelt region. The airport is located in the city of the same name, the second largest in Zambia, and the main hub for mining activity in the country. Mining investments in the area in the next five years should exceed three billion dollars. This level of business will demand the expansion and modernization of the Ndola Airport to allow the operation of larger aircraft.

As in the case of Lusaka, air traffic at Ndola International Airport has increased in the range of five to six percent per year during the last five years and is composed of two thirds international passengers and one third domestic passengers. The National Airports Corporation Limited

(NACL) has estimated that passenger traffic in the next five years will grow at a rate of four to five percent per year and will exceed 100,000 passengers per year in 2009.

Livingstone:

Traffic at the Livingstone Airport is projected to increase at approximately 10% per year for the next five years. The airport is located in an area of tourism development servicing tourists visiting Victoria Falls. New hotels, resorts, restaurants and other related facilities have been established in the area during recent years.

Mfuwe:

Mfuwe airport recently achieved international status and plans are afoot for international airlines to fly directly to Luangwa Valley. South Luangwa is one of the most impressive wildlife sanctuaries in the world due to the concentration of game around the Luangwa River.

NACL:

In 2000, NACL created an Airports Development Plan for the years 2000-2005. As of 2006, NACL had completed several improvements at the three major airports, estimated at \$70 million, as a part of the company's Development Plan. These investments corresponded to about 100% of the planned improvements for Livingstone, approximately 75% of the planned improvements for Lusaka and approximately 25% of the planned improvements for Ndola. The modernization and improvement projects had included mainly upgrades in the physical security of the aerodromes, modernization of the check-in areas and electronic ticketing capability, compliance with the International Civil Aviation Organization (ICAO) and the International Air Transport Association (IATA) regulations and recommendations to assure airport certification from these international organizations.

This track record demonstrates that NACL is capable of defining reasonable development plans and implementing them. This is the major reason USTDA is confident that the new USTDA-funded planning effort will be put to good use in Zambia. Despite the mentioned progress, many other improvements are necessary to cope with the increasing demand. NACL and airport authorities have been working in an efficient manner towards this goal and have identified priority developments for the airport for the period of 2006-2010. Some of the identified priorities include:

- Upgrade of security systems;
- Rehabilitation of fire stations;
- Replacement of standby generators;
- Rehabilitation of international departure area;
- Extension of taxiways; and
- Purchase of new automated vehicle parking system.

The objective of the master plan study is to develop a technical and financial roadmap for development of four airports in Zambia (Lusaka, Ndola, Mfuwe and Livingstone). The project should not only provide recommendations for improvements and expansions needed, but also detail a phased program that is financially viable. Alternatives should be assessed and recommended to promote private sector participation. The master plan would be composed of the

following elements (please note that the full Terms of Reference (TOR) and requirements for this study are located in Annex 4):

- A demand-capacity analysis to assess development requirements based on projected air traffic demand;
- A development plan that identifies and prioritizes investments for the short, medium and long terms;
- A financial plan to finance the proposed improvements and recommend concession strategies, if appropriate; and
- An evaluation of environmental and developmental impacts associated with recommended projects.

The project is a priority of the Government of Zambia (GOZ) for several reasons. First, the economy is growing rapidly, particularly due to increased mining activity in the copperbelt region. As such, increased investment in the country's air transport infrastructure is critical to accommodate the current growth. Second, the GOZ sees tourism as a major driver for economic growth and realizes that a modern and efficient air transport infrastructure is essential to maintain and grow this industry.

A French consulting firm, Hydratec, performed a similar feasibility study in 2007 which did not meet the goals and objectives specified by MCT, the Department of Civil Aviation, and the NACL. A background Desk Study, which reviews the work of Hydratec, is provided for reference in Annex 2.

1.2 OBJECTIVE

The objective of the study is to develop a technical and financial roadmap for the development of four airports in Zambia (Lusaka, Ndola, Mfuwe and Livingstone). The project should not only provide recommendations for improvements and expansions needed, but also detail a phased implementation program that is financially viable. Alternatives should be assessed and recommended to promote private participation.

The 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. \$725,050.

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 "Zambia Airports Master Plan Feasibility Study."

2.2 DEFINITIONS

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

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

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

2.3 DESK STUDY REPORT

USTDA sponsored a Desk Study 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. \$725,050.

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:

Mukuka L. N. Zimba
Permanent Secretary
Ministry of Communications and Transport
P. O. Box 50065
Lusaka, Zambia

Phone: 260 21 1254158
Fax: 260 21 1251795

An Original and eight (8) copies of your proposal must be received at the above address no later than 4:00 P.M. LOCAL TIME on AUGUST 15, 2008.

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

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

2.14 PACKAGING

Each proposal must be sealed to ensure confidentiality of the information. The proposals should be individually wrapped and sealed, and labeled for content including "original" or "copy number x"; the original and eight (8) copies should be collectively wrapped and sealed, and clearly marked for content.

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

2.15 AUTHORIZED SIGNATURE

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

2.16 EFFECTIVE PERIOD OF PROPOSAL

The proposal shall be binding upon the Offeror for sixty (60) days after the proposal due date, and Offeror may withdraw or modify this proposal at any time prior to the due date upon written request, signed in the same manner and by the same person who signed the original proposal.

2.17 EXCEPTIONS

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

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

2.18 OFFEROR QUALIFICATIONS

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

2.19 RIGHT TO REJECT PROPOSALS

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

2.20 PRIME CONTRACTOR RESPONSIBILITY

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

2.21 AWARD

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

2.22 COMPLETE SERVICES

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

2.23 INVOICING AND PAYMENT

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

Section 3: PROPOSAL FORMAT AND CONTENT

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

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

The proposal shall consist of a technical proposal only. No cost proposal is required as the value of the USTDA grant is established at U.S. \$725,050.

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:

1) Technical Experience (40 points): Firm and team's experience (including detailed resumes) in producing airport master plans, including experience in the following areas:

- Air traffic forecasting;
- Demand-capacity analysis;
- Environmental impact assessments;
- Airside/landside facility requirements;
- Conceptual and final airport design; and
- Demonstrated understanding of FAA (Federal Aviation Administration), IATA and ICAO regulations.

2) 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 sections of the proposal, and overall quality of proposal presentation will be evaluated. The proposal should also provide an organization chart of key personnel with their qualifications, and a staffing schedule for each key activity.

3) Financial Experience (25 points): Firm and team's experience in airport financing, cost estimating, and development of capital investment programs for airport and infrastructure projects. Specific experience with the identification of financing mechanisms, concession/privatization schemes, airport project financing and experience structuring finance for projects in Zambia and other sub-Saharan Africa markets.

4) Regional Experience (10 points): Firm and team's familiarity with the aviation sector in Zambia and sub-Saharan Africa and experience working with local authorities, as well as familiarity with local regulations.

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

Price will not be a factor in contractor selection.

ANNEX 1

Mukuka L. N. Zimba; Permanent Secretary; Ministry of Communications and Transport; P.O. Box 50065; Lusaka, Zambia; Phone: 260 21 1254158; Fax: 260 21 1251795

B- Zambia: Airports Master Plan Feasibility Study

POC Evangela Kunene, USTDA, 1000 Wilson Boulevard, Suite 1600, Arlington, VA 22209-3901, Tel: (703) 875-4357, Fax: (703) 875-4009. The Grantee invites submission of qualifications and proposal data (collectively referred to as the "Proposal") from interested U.S. firms which are qualified on the basis of experience and capability to develop a feasibility study for the Zambia Airports Master Plan.

Zambia's civil aviation sector has experienced explosive growth during recent years, with passenger traffic volumes growing between five and six percent at major international airports. This growth is projected to continue. The aviation infrastructure is vital for the country's economy as it facilitates increasing tourism to the Victoria Falls region and supports the mining industry in the copperbelt region. However, the existing infrastructure of the airports is not sufficient to handle the projected increase in demand.

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As in the case of Lusaka, air traffic at Ndola International Airport has increased in the range of five to six percent per year during the last five years and is composed of two thirds international passengers and one third domestic passengers. The National Airports Corporation Limited (NACL) has estimated that passenger traffic in the next five years will grow at a rate of four to five percent per year and will exceed 100,000 passengers per year in 2009.

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This track record demonstrates that NACL is capable of defining reasonable development plans and implementing them. This is the major reason United States Trade and Development Agency (USTDA) is confident that the new USTDA-funded planning effort will be put to good use in Zambia. Despite the mentioned progress, many other improvements are necessary to cope with the increasing demand. NACL and airport authorities have been working in an efficient manner towards this goal and have identified priority developments for the airport for the period of 2006-2010. Some of the identified priorities include:

- Upgrade of security systems;
- Rehabilitation of fire stations;
- Replacement of standby generators;
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- A demand-capacity analysis to assess development requirements based on projected air traffic demand;
- A development plan that identifies and prioritizes investments for the short, medium and long terms;
- A financial plan to finance the proposed improvements and recommend concession strategies, if appropriate; and
- An evaluation of environmental and developmental impacts associated with recommended projects.

The project is a priority of the Government of Zambia (GOZ) for several reasons. First, the economy is growing rapidly, particularly due to increased mining activity in the copperbelt region. As such, increased investment in the country's air transport infrastructure is critical to accommodate the current growth. Second, the GOZ sees tourism as a major driver for economic growth and realizes that a modern and efficient air transport infrastructure is essential to maintain and grow this industry.

The U.S. firm selected will be paid in U.S. dollars from a \$725,050 grant to the Ministry of Communications and Transport (Grantee) from USTDA.

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

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

Interested U.S. firms should submit their Proposal in English directly to the Grantee by 4:00 p.m. local time on August 15, 2008 at the above address. Evaluation criteria for the Proposal are included in the RFP. Price will not be a factor in contractor selection, and therefore, cost proposals should NOT be submitted. The Grantee reserves the right to reject any and/or all Proposals. The Grantee also reserves the right to contract with the selected firm for subsequent work related to the project. The Grantee is not bound to pay for any costs associated with the preparation and submission of Proposals.

ANNEX 2



EXECUTIVE SUMMARY

In mid 2006, Travis Design Associates (TDA) was engaged by the U.S. Trade and Development Agency (USTDA) to conduct an aviation definitional mission to several countries in Southern Africa, including Zambia. Based on our recommendations and conclusions, USTDA approved funding in March 2007 in the amount of \$706,365 for a Feasibility Study (FS) to assist Zambian National Airports Corporation Ltd. (NACL) in developing a master plan for the airports of Lusaka, Livingstone, and Ndola.

In July 2007, USTDA de-reserved the funds for this grant, since NACL had received a concurrent offer from the European Union (EU) to fund a study of the same three airports plus the airport of Mfuwe. The study was later developed by Hydratec, a contractor from France. Subsequent to the completion of the study, USTDA received a request for funding from the Ministry of Communications and Transport in Zambia for a feasibility study to be conducted by a US firm on the same airports master plan project.

In February 2008, USTDA engaged Travis Design Associates to evaluate the report prepared by Hydratec and provide recommendations as to the technical and economic validity of the Hydratec report and whether additional work was needed for funding of the feasibility study. As part of this project, Pablo Riofrio and Grace Kalil from Travis Design Associates reviewed the five-volume master plan for the Lusaka, Livingstone, Ndola and Mfuwe Airports prepared by Hydratec. This report contains the findings and recommendation of the team.

Based on the scope of work provided for this assignment, as well as TDA's understanding from conversations with COTR, Andrea Lupo, the team's evaluation effort focused on the following issues:

- ▶ Is the master plan developed by Hydratec consistent with the objectives presented by Zambian aviation authorities to Travis Design Associates during TDA's mission to Zambia?
- ▶ Is the master plan developed by Hydratec consistent with the recommendations and terms of reference provided by Travis Design Associates?
- ▶ Does the master plan comply with international standards and practices?
- ▶ Does the master plan provide recommendations that are technically viable?
- ▶ Are the recommendations provided by the master plan adequate in accordance to the anticipated growth at the airports?
- ▶ Are the recommendations provided by the master plan financially feasible?

TDA's review of the master plan indicates that the master plan prepared by Hydratec is extremely general and lacks the level of detail needed for adequate future development of the facilities. The master plan also lacks a sound investment and financial plan that would allow the NACL to implement and *fund* any technical recommendations in the near



future. It is TDA's opinion that the master plan does not comply with minimum requirements of international lending institutions nor with anticipated requirements of private sector investors/financiers.

Furthermore, the plan provided by Hydratec lacked a conceptual design, including schematic drawings that will guide the phased development of the airports. This is a major setback for project implementation as it is very difficult to visualize the extent and scope of the proposed improvements at each facility. The Master Plan requires conceptual drawings (as a minimum at the block diagram level) to establish adequate soil use and the future development of each airport.

In general, the master plan prepared by Hydratec provides a good assessment of existing conditions which will correspond to Task 1 of the proposed terms of reference. However, the remaining tasks are either incomplete, general or not included in the reports and therefore of little or no benefit for a new Contractor.

A final finding of this desk study is that the reports presented by Hydratec indicate that this contractor did not complete all the tasks provided in the terms of reference for the project. TDA believes that only 30 to 35 percent of the total project was completed.

PROJECT DESCRIPTION

MASTER PLAN EVALUATION

The objectives of the original master plan recommended by Travis Design Associates responded to the needs and request of the Zambian aviation authorities with whom TDA met at the time of the mission. These objectives can be summarized as follows:

- ▶ Develop a plan that will guide the improvement and rehabilitation of several airports at the country based on the anticipated growth and particular requirements of each facility.
- ▶ Establish a financial strategy for improvement and rehabilitation of the airports considering potential sources of funding.
- ▶ Entice private sector participation through PPPs, concessions or other mechanisms.

Considering these objectives, TDA's assessment indicates that the master plan developed by Hydratec is incomplete and does not satisfy the objectives and goals presented by Zambian authorities to TDA during TDA's mission in June 2006. For instance, the plan does not establish or recommend private sector participation, does not contain adequate forecasts to identify needed improvements or a capital improvement cost estimate that will assist in project financing.

Based solely on the information provided by Hydratec as part of the master plan, neither the Directorate of Civil Aviation (DCA) nor the NACL would be able to implement the recommendations provided by Hydratec without conducting additional studies and designs. Further, based on TDA's experience in airport project financing, the master plan prepared by Hydratec will not meet the criteria required by either multilateral institutions or the private sector for funding analysis, since it lacks a financial assessment of each airport. The following are the major shortcomings of Hydratec's master plan and which will be faced during project implementation:

Project Financing: Hydratec's master plan does not consider potential sources of financing, nor does it validate technical recommendations versus financial viability. Even if the recommendations are technically feasible, the master plan does not account for a sound phased development of the airports according to either revenue or traffic levels, nor does it identify the need for additional funding, if any. The following are some of the considerations that should be given within the master plan to ensure an adequate financing of the proposed improvements:

- ▶ Estimate potential revenues based on passenger and cargo forecasts.
- ▶ Determine the adequate aeronautical fees, considering, among others, aircraft movement forecasts, levels of service and regional trends.
- ▶ Identify operating expenditures and costs of recommended improvements.
- ▶ Establish & evaluate potential sources of financing and financing terms.

None of the activities above have been completed in Hydratec's plan, although several of them were required as part of the terms of reference. For instance, the original TOR clearly required the preparation of a five-year financial budget considering the capital costs of improvements recommended by the master plan. This was not included in Hydratec's report. TDA considers that a minimum amount of financial analysis was conducted during Hydratec's study. Our experience in the aviation sector indicates that a sound financial plan is key for successful implementation of any improvement program and in particular when private participation is required or desired.

Environmental Issues: Hydratec's master plan presented a limited assessment of environmental concerns and issues. This analysis is in TDA's opinion broad and does not consider the impact of the recommended improvements within each airport. Further, the assessment does not comply with international lending institution standards. There is also a lack of mitigation mechanisms or a mitigation program. A more detailed assessment needs to be provided and mitigation strategies identified. As we anticipate this project to result in funding through either multilateral agencies such as the World Bank or the private sector, it is important that the assessment recommended by any future contractor provides an adequate basis for project funding and complies with widely accepted international standards. In general, the environmental assessment will depend on the scope and scale of the proposed recommendations. The environmental assessment shall

focus on (a) evaluating the projects' potential risks and impacts in its area of influence; (b) identifying environmentally sound alternatives for designing and implementing the project and; (c) identifying mitigation mechanisms and management strategies to minimize adverse environmental impacts throughout project implementation.

The environmental assessment shall identify mitigation tasks /activities to be carried out by NACL and airport authorities, including corresponding costs. Schedules for such activities shall also be developed and incorporated into the development program. The financial model shall demonstrate the effects of implementing early or delaying these types of projects, thus becoming a critical component for obtaining funding for these activities.

Hydratec's study has limited to assess national environmental regulations that pertain to the aviation sector. Although this analysis is needed, a clear, detailed of environmental issues at *each facility* needs to be completed. Hydratec's study failed at considering unique impacts for each facility or identifying a mitigation plan that would serve as a basis for a comprehensive environmental impact assessment (EIA).

Phased Development: Limited financial and technical resources required phased growth and development of airports. Facility improvement and expansion should be directly correlated with traffic growth and level of service requirements. In the case of Zambia, certain facilities (i.e. Lusaka) operate at levels of service rapidly approaching "D" and therefore, immediate rehabilitation and improvements are needed to provide adequate service levels; however, future expansions and improvements should be based on traffic growth and available resources. TDA's assessment of the master plan indicates that the contractor developed a phased development plan for short, medium and long-term horizons based on a demand-capacity analysis, but without considering the resources available for project implementation. The phased development program should consider at a minimum the financial and human resources for phased implementation. ***This fact makes the plan technically unfeasible at times, thus decreasing the likelihood of its implementation.***

Furthermore, a master plan should include drawings from a local survey of the existing facilities and provide the short, medium and long term investment programs for each airport. The lack of proper documentation shall be the first issue addressed by a future consultant to establish the marketability of these projects to multilaterals or private sector investors. No preliminary drawings were completed by Hydratec. This should have been a major component of the master planning effort.

Forecasting Methodology: The forecasts presented by Hydratec are once again limited and have been developed through a regression analysis only. Although this methodology is appropriate and widely accepted, little or no consideration was given to other factors such as operators and carriers that are either currently or plan to operate from the country,

even though it was explicitly required by Zambian authorities through Package #1 of the TOR. It is important to interview and discuss future plans with operators to later incorporate such plans into the forecasting process. Based on TDA's experience in forecasting, a market assessment is crucial to "adjust" results obtained through regression to ensure adequate consideration of future market-driven changes.

For Lusaka and Livingstone, the forecasting methods could be based on traditional unit versus time curves with predictions of an increase rate based on regional growth; however, for Ndola and Mfwe, the forecasting should be based on market studies of the growth generated in the aviation sector by the improvement of these aerodromes. The forecasting becomes more predictive in nature; therefore, a more detailed market analysis is required to support such predictions.

Hydratec's forecasting effort focused on aircraft movements; however, very limited or no consideration was given to cargo, either domestic or international, and passenger forecasts for some of the airports did not include or present peak hour traffic. The TOR for the study was specific in terms of certain activities that needed to be completed by the contractor. TDA believes that Hydratec partially completed only two of the five activities required. For instance, an actual market assessment is not provided, nor did Hydratec assess the market changes in recent years as required in the terms of reference.

Conceptual Design: In our experience, the master planning process includes a conceptual design for short, medium and long-term horizons. The conceptual design phase requires that the Contractor develops schematic plans for the passenger terminal, the aprons, and the air cargo terminal at the minimum. Based on TDA's review of the master plan, the Hydratec Report does not include a conceptual design, thus requiring NACL to complete this phase before moving into project implementation.

Private Participation: The master plan does identify the possibility of certain private participation through PPPs, but it does not provide a sound analysis a recommendation to identify, select or implement private sector participation. Once again the analysis provided is extremely general and does not provide a sound background or basis for PPP recommendation. Furthermore, the master plan does not recommend or even identify potential private sector investors. The project should require the Contractor to identify potential investors and preliminarily assess their level of interest in the project. This is a common practice in projects of this nature.

Furthermore, it is important to keep in mind that some of these airports might not be aware of the steps required to implement a private sector participation program, and therefore, it is important that the Contractor provides a roadmap for the recommended process by designing an effective implementation strategy for public private partnerships, including advice and guidelines on how to establish a project team, refine the scope of a project, select the preferred procurement process, establish a schedule for the delivery of



the service, design an appropriate communications strategy and obtain the necessary approvals. None of the tasks were completed by Hydratec.

Cargo development: TDA's analysis of the master plan prepared by Hydratec indicates that it lacks adequate cargo forecasts that would lead to a future development in this area. Cargo is important for all airports, but particularly for Ndola due to its location in the Copperbelt region. Most recently, the export of flowers and agricultural products from the Sub Saharan countries are taking a very important role in the economic development of the region. This type of perishable products uses air as the principal means of transportation. A cargo forecast is the basis for identifying facility improvements needed at each airport. However, this study shall be based not only in historic volumes of cargo for each airfield, but it should be complemented with a study of new markets that may impact the growth of cargo traffic. Once again, little was done for cargo forecasting although this is specifically required in the terms of reference under P 2.4.

Facility Maintenance: The Contractor has provided a detailed, adequate analysis of pavement rehabilitation needs. Pavement is a critical airside component and the Contractor made an excellent job pointing out the deficiencies of each runway system. However, it is our recommendation that NACL consider a coordinated rehabilitation and maintenance program for the pavement system for all airports. This could be accomplished by adopting a pavement management program that encompasses the four major airports. This practice should provide with efficiency and training for the NACL personnel responsible for the inspection of the airfields and/or quality assurance if a concessionaire performs the works. The cost of such program needs to be identified to establish the level of investment required from NACL before establishing any prioritization strategy.

CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis above, TDA believes that the request for funding a Feasibility Study presented by the Ministry of Communications and Transport of Zambia is well justified. TDA therefore recommends the funding of a new Feasibility Study for the four major airports in Zambia, taking advantage of the recent master plan developed by Hydratec, specifically as the basis for the facility inventory. The objective of the study will be to complement this master plan to develop a revised document that will not only serve as a roadmap for the development of each airport, but that will also establish the investment levels required to market the airports to the private sector, if this is of benefit for NACL. The supplemental study will consist of the following:

- Develop initial airport layout drawings in accordance to ICAO standards and create phasing drawings for the levels of investment required by each airport.
- Develop a Financial Model, clearly stating the investments required for each airport with a privatization scheme and additional revenue sources for each



airport. The financial model shall allow dynamic interaction of the parameters, thus providing a tool to assess the causes and benefits of timely investments.

- Provide a site-adapted Environmental Assessment of each airport in a manner that could be initially accepted by the multilateral organizations that considers investments in this sector.
- Provide privatization strategies, clearly identifying possible investors from the financial community.

IMPLEMENTATION FINANCING

Based on initial discussions with airport officials in 2007 and the review of the forecasts prepared by Hydratec, TDA believes that the NACL will be able to fund improvements through airport revenues. However, external sources of financing may be needed to support projects through either multilateral agencies such as the World Bank and the African Development Bank, national government funds or the private sector. *A key factor to consider in regards to implementation financing of these projects is the need to develop a plan that is financially feasible for NACL.* This is why it is so important that the master plan considers the financial impact of the recommended projects and presents a financial model that could later be used to measure financial performance versus traffic growth. Hydratec did not consider key financial issues nor did they prepare a financial plan. It is extremely important that a new contractor does more in terms of assisting NACL in determining future revenues, adjusting aeronautical rates and controlling expenditures.

Consideration also needs to be given to the private sector investors; Hydratec has presented a valuation method based on recent market acquisitions and estimated earnings. While this methodology is valid, it is extremely general and does not consider factors that affect the pricing of airports. TDA recommends that NACL develops a financial model that will present and allow private sector investors to establish future projects and evaluate the impact of certain variables such as passenger traffic, aeronautical fees or equipment costs versus earnings.

U.S. EXPORT POTENTIAL

Based on the review of the master plan prepared by Hydratec Consultants and TDA's site visit in 2006, TDA believes that the original US Export estimate presented as part of the 2006 Definitional Mission Report is adequate (see table 1). In general, TDA agrees with the needs assessment prepared by Hydratec for all airports, except Mfuwe, where TDA feels the estimate is too optimistic. Specifically, TDA believes that the fire-crash-rescue (FCR) station proposed for wide-body aircraft is not needed; instead, TDA anticipates that the large majority of the fleet at Mfuwe will be C-type aircraft and therefore, a FCR type 7 will be needed.

Table 1
Potential US Exports – Lusaka, Livingstone and Ndola Airports

Zambia Airports Potential U.S. Exports				
Description	Unit	Quantity	Unit Cost	Total Cost
PASSENGER TERMINAL				
Flight Information Display Systems	LS	3	\$500,000.00	\$1,500,000.00
Passenger Boarding Bridges	Each	9	\$400,000.00	\$3,600,000.00
Passenger Loading Escalators and Trucks	LS	1	\$200,000.00	\$200,000.00
Baggage Handling Systems	Each	4	\$800,000.00	\$3,200,000.00
Passenger Security Screening Devices (Includes EDS)	LS	4	\$1,000,000.00	\$4,000,000.00
IT and Communication Equipment in the Terminal	LS	4	\$500,000.00	\$2,000,000.00
Escalators and Elevators	LS	3	\$800,000.00	\$2,400,000.00
Aircraft Tugs and Pushback Equipment	LS	7	\$250,000.00	\$1,750,000.00
Subtotal				\$18,650,000.00
CARGO TERMINAL				
Refrigeration Equipment	LS	5	\$200,000.00	\$1,000,000.00
Cargo Movement Equipment	LS	4	\$250,000.00	\$1,000,000.00
Cargo Security Screening Equipment	LS	2	\$250,000.00	\$500,000.00
IT System for Cargo Control	LS	2	\$100,000.00	\$200,000.00
Subtotal				\$2,700,000.00
CRASH FIRE RESCUE EQUIPMENT				
Large Trucks	Each	5	\$450,000.00	\$2,250,000.00
Medium Sized Trucks	Each	6	\$360,000.00	\$2,160,000.00
Rapid Intervention Vehicle	Each	3	\$240,000.00	\$720,000.00
Water Tender	Each	2	\$180,000.00	\$360,000.00
Support Vehicles	Each	5	\$50,000.00	\$250,000.00
Subtotal				\$5,740,000.00
FUEL DISTRIBUTION EQUIPMENT				
Aircraft Fueling Trucks	Each	5	\$230,000.00	\$1,150,000.00
Control Equipment	LS	3	\$150,000.00	\$450,000.00
Fire Suppression Equipment	LS	3	\$700,000.00	\$2,100,000.00
Miscellaneous Equipment	LS	6	\$50,000.00	\$300,000.00
Subtotal				\$4,000,000.00
NAVAIDS (Low Level Windshear Alert Equipment, ILS Cat II, VOR-DME, Weather)	LS	3	\$600,000.00	\$1,800,000.00
REPLACE EXISTING AIRPORT LIGHTS WITH LED LIGHTS	LS	1	\$1,500,000.00	\$1,500,000.00
TOTAL				\$34,390,000.00

Our original estimate did not consider exports at Mfuwe, as this airport was not included in the initial package. TDA has prepared an estimate based on the report provided by Hydratec and TDA's opinion in accordance with the findings of our mission:



Table 2
Potential US Exports – Mfuwe Airport

DESCRIPTION	UNIT	QTY	UNIT COST	TOTAL COST
PASSENGER TERMINAL				
Baggage handling systems	LS	1	\$800,000	\$800,000
Passenger security screening devices	LS	1	\$1,000,000	\$1,000,000
IT and communication equipment in the terminal	LS	1	\$550,000	\$550,000
Flight Information Display Systems	LS	1	\$500,000	\$500,000
Escalators and elevators	LS	1	\$800,000	\$800,000
Passenger loading escalators and trucks	LS	1	\$200,000	\$200,000
Aircraft tugs pushback equipment	LS	1	\$1,000,000	\$1,000,000
Subtotal				\$4,850,000
CARGO TERMINAL				
Refrigeration equipment	LS	1	\$200,000	\$200,000
Cargo movement equipment	LS	1	\$250,000	\$250,000
IT System for cargo control	LS	1	\$100,000	\$100,000
Cargo security screening equipment	LS	1	\$250,000	\$250,000
Subtotal				\$800,000
CRASH FIRE RESCUE EQUIPMENT (ICAO) CAT VI				
Large trucks	EACH	1	\$450,000	\$450,000
Medium size trucks	EACH	2	\$360,000	\$720,000
Rapid Intervention Vehicle	EACH	1	\$240,000	\$240,000
Water tender	EACH	1	\$180,000	\$180,000
Support vehicles	EACH	1	\$50,000	\$50,000
Subtotal				\$2,140,000
FUEL DISTRIBUTION EQUIPMENT				
Aircraft fueling trucks	EACH	2	\$230,000	\$460,000
Control equipment	LS	1	\$150,000	\$150,000
Fire suppression equipment	LS	1	\$700,000	\$700,000
Miscellaneous equipment	LS	1	\$50,000	\$50,000
Subtotal				\$1,360,000
NAVAIDS (ILS Cat II, VOR-DME, Weather)	LS	1	\$1,100,000	\$1,100,000
Airfield lighting	LS	1	\$1,500,000	\$1,500,000
TOTAL				\$11,250,000

FOREIGN COMPETITION & MARKET ENTRY ISSUES

Foreign competition from Europe is extremely strong. TDA's visit to the facilities at the airports indicated that a large portion of the existing equipment is European. TDA believes that this project will open new doors to US suppliers that are otherwise not represented in the region. Lack of representation or contact information for US manufacturers was mentioned to us as one of the obstacles to use US technology. If



funded, the Feasibility Study should provide contact information for U.S. manufacturers not only to promote U.S. products, but also to facilitate NACL's equipment procurement process.

IMPACT ON THE ENVIRONMENT

It is expected that the projects resulting from this study will have minimal environmental impacts. However, it is important that the master plan considers specific issues and risks associated with the recommended improvements in terms of natural environment (air, water and land), human health and safety and social aspects (i.e. settlements, cultural property).

While the analysis provided by Hydratec does consider the country's overall policy framework, TDA recommends that a more detailed analysis is conducted according to international standards such as those identified in World Bank's OP 4.01.

IMPACT ON U.S. LABOR

Projects proposed by this master plan will have no negative impacts in the U.S. labor market. The projects may open business opportunities in the region for U.S. engineering firms, manufacturers and equipment suppliers.

Examples of anticipated tasks available for U.S. firms include the design, engineering, manufacture and installation of airport equipment and training of the local operators in the use of such equipment.

DEVELOPMENTAL IMPACTS

In TDA's opinion, the development of the Zambian airports will contribute to the nation's development in several areas. First, Zambia is a landlocked country and therefore air transportation is vital for moving people and goods beyond the national borders. Furthermore, Zambia is a country full of great natural resources and protected areas, such as Victoria Falls, and has increasingly attracted new tourists to the region, mostly from Europe and the US. Air transportation becomes then a critical element for the success of the tourism industry, not only for passengers coming from Europe or the US, but also for transportation within a county with limited and mostly deficient surface transportation systems.

Zambia has also seen the rebirth of the copper industry, which has been relevant to the country's economy since the 1920s, but has been booming since 2004. Of particular relevance in this case is the modernization of Ndola airport, to serve as a hub for the copper mining industry. It is anticipated that a great demand may result from this



industry, which will justify the adequate development of both passenger and air cargo capacity at Ndola.

It is important to note that air transport sector development will ultimately facilitate trade, particularly of perishable goods. Zambia has one of the highest shipment costs in the world, even when compared to other African countries such as South Africa or Zimbabwe. Part of this high costs are due to extreme delays at customs and borders posts, for instance, a 36 hour post delay is common at the border post at Victoria Falls (between Zambia & Zimbabwe).

Specifically, this project will result in the following developmental impacts:

Infrastructure: Improvement and expansion of facilities at Lusaka, Livingstone, Ndola and Mfuwe airports. In the near term, TDA anticipates infrastructure development to focus on the improvement, rehabilitation and modernization of these facilities; however, in the medium and long-term, expansions to the existing facilities will be necessary.

Technology Transfer and Productivity Enhancements: The implementation of development projects at the airport would require or result in training programs for existing personnel, such as training in the use of security equipment, including navigational aids, IT equipment, cargo/baggage handling equipment and methods, etc. Technology transfer will be necessary to train and inform operators of new technologies. Furthermore, if the private sector participates in the project, technology transfer may be required from the proposed private partner/concessionaire to local airport staff.

Market Oriented Reforms: As facilities and levels of services improve, TDA anticipates carriers to expand services to the facilities, thus increasing market competition and new business opportunities for operators. TDA also anticipates the study to recommend open skies policies and that Zambia works in closer coordination with other countries in the region particularly South Africa.

JUSTIFICATION

Zambia's aviation sector has seen a sustained, healthy growth in recent years. Local conditions such as the development of the Copperbelt and tourism indicate that there is a good potential for continued growth and development. Existing facilities, on the other hand, are in great need for improvement and rehabilitation particularly to improve existing low levels of service.

TDA discussions with Zambian authorities during the definitional mission conducted in 2006 indicated that the Zambians are in need of a roadmap for development of the airports, which will focus on prioritizing improvement and rehabilitation projects that will allow them to compete with other countries in the region. Zambia has great potential

for tourism to Victoria Falls, but little can be realized if there is not supporting infrastructure.

TDA's assessment of the master plan prepared by Hydratec indicates that this plan does not comply with the minimum requirements needed to support *future* development of the airports; instead, it serves as a good guideline for *existing* conditions at the facilities only and therefore does not meet the objectives communicated to TDA by Zambian authorities during the 2006 visit. The scope of work of Hydratec's study is extremely limited when compared to that of the study recommended by TDA in 2006. It is also limited when compared to the terms of reference that were provided to Hydratec and that TDA received for review.

A major technical setback of Hydratec's plan is the lack of conceptual designs for the terminal, cargo and airside areas. As important, however, is the need for a sound financial development program which was not prepared by Hydratec. The financial development program is a key component of the master plan for two reasons: first, it will facilitate the progressive and adequate implementation of recommended projects should NACL decide to finance the airports' development through airport revenues or national/local funds; second, it will serve as a marketing tool to attract private sector investors and request funds from international organizations should the master plan demonstrate these are the most appropriate and feasible financing mechanisms.



TERMS OF REFERENCE

Objective: The objective of the study is to develop a technical and financial roadmap for development of four airports in Zambia (Lusaka, Ndola, Mfuwe and Livingstone). The project should not only provide recommendations for improvements and expansions needed, but also detail a phased program that is financially viable. Alternatives should be assessed and recommended to promote private participation.

The Contractor shall complete all tasks detailed below for each airport (Lusaka, Ndola, Mfuwe and Livingstone). The Contractor shall submit all reports into three volumes, one for each airport.

Task 1: Data Collection and Site Visit

As the starting point to the data collection effort, the Contractor shall review and evaluate the master plan developed by Hydratec Consultants in late 2007. This master plan contains a detailed airport inventory that should serve as the basis for the data collection effort. After this review, the Contractor shall determine any additional information needed and continue the data collection process through the appropriate channels. At a minimum, the following additional information will be required:

- Relevant national, tourism and industry development plans and growth projections;
- As-built plans to the extent available for all existing major airport facilities;
- Status of on-going and short-term airport development projects;
- Plans of the area surrounding the airports and environmental information concerning the airports;
- Schedule of airport rates and charges and financial statements and projections;
- Information related to ground traffic to and from the airports, aviation fuel consumption and number of employees at the airports by location;
- Organization, staffing and operations data;
- Existing arrangements for the provision of ground handling services, cargo handling and other operations and services; and
- Private investment strategies, including existing and potential public participation alternatives.

The Contractor shall conduct site visits of the airports and inspect the current condition and operability of all airport facilities for Lusaka, Ndola, Mfuwe and Livingstone. The Contractor shall meet with officials from the Civil Aviation Authority and with relevant staff from the National Airports Corporation Limited (NACL) to determine their current priorities and status of existing and proposed development programs. The Contractor shall conduct a kick-off meeting with the Grantee to review the project schedule, work methodology, approach and action plan.

Task 2: Forecast of Demand for Passengers and Cargo

The Contractor shall review existing forecasts and actual traffic statistics developed by Hydratec Consultants in the 2007 Airports Master Plan. In addition, the Contractor shall interview airlines operating at each airport to discuss their plans and prospects for future operations. The results of these meetings should be incorporated into the forecast prepared by Hydratec Consultants, making any adjustments necessary.



The Contractor shall revise the existing forecasts prepared by Hydratec Consultants, and prepare any additional forecasts needed, presenting at the minimum annual and peak hour passenger forecasts for international and domestic passengers broken into arriving, departing and in-transit passengers.

The Contractor shall also revise Hydratec Consultants' aircraft movement forecasts, providing scheduled, charter and non-scheduled movements and numbers of fixed based aircraft.

The Contractor shall develop air cargo forecasts (by export, import and transfer broken down into categories for planning purposes) and vehicular parking forecasts. At this time there are no available cargo forecasts for the airports.

The methodology used to review/develop all forecasts shall be *documented* in the Study Reports. It should be noted that the air traffic and related forecasts, such as fuel consumption and vehicular parking, shall serve as one of the primary bases for the development of a financial model of the airport.

DELIVERABLE #1: INCEPTION REPORT

The Contractor shall prepare an Inception Report containing the findings from Tasks 1 and 2. Four copies of the report shall be provided to the NACL and one copy of the report to each airport in English. This report shall consist of, but not be limited to, a list of information/documents collected, a revised airport facility inventory, and revised forecasts.

Task 3: Demand/ Capacity Analysis and Development of Facility Requirements

The Contractor shall conduct a demand/capacity analysis aimed at comparing the existing capacity of key airport facilities versus forecasted demand for each of the four airports. This analysis should include, but not be limited to, the following:

1. Runway and taxiway systems
2. Aircraft parking apron
3. Passenger and cargo terminals

As a result of this analysis, the Contractor shall estimate airport development requirements in five-year planning stages for 2012 and 2017 and for the long-term development stage of 2027 for key airport facilities. The development of airport requirements shall cover the following:

Airside Facility Requirements

- Airfield pavement requirements, including any requirements for apron reconstruction and/or expansion due to the likely introduction of loading bridges as well as any need for airfield pavement overlays during the twenty year forecast period;
- Airfield lighting; and
- Aircraft refueling.

Landside Facility Requirements

- Passenger terminal space requirements (international and domestic where applicable):
 - Passenger check-in area, ticketing counter positions
 - Outbound immigration



- Security screening
- Passenger hold rooms
- Inbound immigration
- Baggage claim
- Customs inspection
- Meeter/greeter areas
- Restrooms
- Passenger circulation (gross space)
- Concessions and amenities
- Airline offices
- Terminal administrative and maintenance space
- Terminal curb frontage and lanes
- Vehicle parking
- Specialized terminal equipment to include loading bridges, elevators/escalators, FIDS/BIDS, baggage and security screening, IT systems, master clock, etc.
- Cargo Terminal
 - Storage including cold storage and processing space
 - Office space
 - Cargo handling equipment
 - Vehicle circulation and parking
- Other support facilities
 - Crash, fire and rescue equipment (CFR) requirements
 - Catering/Flight services
 - Fuel storage
 - General and executive aviation and military
 - Airport utilities including sewage treatment, water and power

Task 4: Conceptual Plans and Development Program

The Contractor shall prepare a *development program* for all airport facilities, but focusing on areas largely impacted by air traffic growth such as the terminal area, the aircraft parking aprons, international and domestic passenger terminal, and the air cargo terminal. This analysis shall be based on the space and facility requirements developed under Task 3.

The Contractor shall develop *schematic plans* for the passenger terminal, the aprons, and the air cargo terminal at the minimum. Conceptual plans shall be presented in phases to meet the forecast requirements for 5, 10 and 20-year periods. All plans shall be developed in very close coordination and consultation with the NACL and each airports' management staff. The schematic plans shall be presented for at the minimum the terminal area, cargo area and runway/taxiways. Plans should be provided for each phase of development in Autocad format and included in each report.

The results on the conceptual planning phase are the basis for developing capital cost estimates and an investment program which shall become an important input to the financial models and financial plans. The Contractor shall use the conceptual plans to identify, prioritize, and establish a schedule for priority development projects.

Task 5: Environmental Impact Analysis

The Contractor shall assess and validate the environmental analysis presented by Hydratec to ensure that the regulations and policies presented in the report are adequate.

In addition, the Contractor shall perform a preliminary review of the Projects' environmental impacts consistent with local requirements and those of the World Bank. This review shall identify potential negative impacts and environmental risks, discuss the extent to which they can be mitigated, identify strategies for managing adverse environmental impacts and develop plans for full environmental impact assessment if and when the Projects move forward to implementation stage. *The environmental analysis shall consider the particular environmental risks associated with the recommended improvements at each airport, taking into account the existing environmental conditions of each particular facility.*

As part of this task, the Contractor shall develop noise contours based on U.S. Federal Aviation Administration (FAA) Integrated Noise Model (INM) for a 10 and 20 year horizons of the Lusaka, Ndola, Mfuwe and Livingstone Airports.

The Contractor shall specifically review the environmental regulations affecting the development of the airport. An outline of short and long term environmental concerns or impacts of construction and operations on the air, noise, social, and water quality shall be developed. Measures for environmental control and mitigation shall be proposed. The Contractor shall propose a preliminary mitigation plan, including costs for each recommended activity. The mitigation plan shall include abatement strategies for asbestos containing materials found at Lusaka Airport.

Task 6: Capital Costs and Investment Requirements

The Contractor shall prepare detailed cost estimates, including engineering costs and capital construction costs for each item of development or improvement at the airports and for each phase of development. The cost estimates shall be based on the results from Tasks 3 and 4 of the master plan. Based on these cost estimates, the Contractor shall propose a twenty-year capital investment program for the short (5-year), medium (10-year) and long (20-year) horizons.

DELIVERABLE #2: INTERIM REPORT

The Interim Report shall incorporate comments received from NACL and each airport on the Inception Report and shall include findings from Tasks 1 through 6. Four copies of the report shall be provided to NACL and one copy of the report to each airport in English. This report should consist of the development program as detailed in the Terms of Reference, the results of the environmental impact analysis and the investment requirements.

Task 7: Financial Analysis and Plan

The Contractor shall develop a financial model aimed at assisting in the analysis of the financial feasibility of the proposed airport development and investment programs. This financial model shall show cash flows over the twenty year period and shall be constructed in a manner so as to permit the evaluation of possible modifications in air traffic forecast assumptions, aeronautical rates and charges, revenues, investment costs, airport operating and maintenance costs, the investment program or in the estimated costs of financing. The model shall be constructed in such a way that each airport can be disaggregated as a separate project to be examined as a possible



candidate for some form of private sector participation, including, but not limited to, concessioning or privatization. The financial model shall include:

- A projection of airport revenues based on the air traffic forecasts and on existing rates and charges as well as estimates of other income.
- A comparison of the airports' schedule of fees and charges with those for similar airports in the region and if needed, recommendations for rate adjustments.
- An analysis of airport operating and maintenance costs, including a twenty-year cost projection.
- A schedule of current investment repayment obligations.
- An analysis of the future self-financing capabilities of each airport.

In the financial analysis, the ability to generate future revenues sufficient to cover all future expenses of maintenance, operation, administration and debt service shall be assessed. The financial analysis shall address historic revenues and expenses to determine the ability to support the required funding for the proposed airport improvements. Projected operating revenues and expenses shall be developed according to projected growth and the potential of additional revenues and expenses as facilities come on-line. Potential alternatives for enhancing the revenue stream such as modifications in existing rates and charges or in existing concession and airport operational practices shall be explored and recommendations made.

Potential sources of outside financing (including possible financing terms) shall be explored from such entities as:

- International funding agencies, including multilateral institutions
- Commercial capital markets
- Private sector investment
- U.S. bilateral credit or development funds
- Other sources

The financial plan shall summarize the financial analysis and recommend a plan for financing the required development. The financial model shall be provided to each airport and to the NACL for its continued use in evaluating the impact of changes in the actual growth of air traffic and other input variables in the years ahead.

Task 8: Public Private Partnership Strategy

The Contractor shall analyze the viability of implementing public private partnership strategies such as turnkey operation, build-transfer-operate, build-own-operate-transfer and concession or privatization strategies. The Contractor shall include in the analysis the potential participation of private sector partners such as mining companies working in the Copperbelt. If adequate, recommendations shall be made in regard to the public private partnership strategy to be followed, including a proposed schedule and outline of the process, as well as a proposed scope of services for technical assistance during concession implementation.

As part of this task, the Contractor shall provide a roadmap for the recommended process by designing an effective implementation strategy for public private partnerships, including advice and guidelines on how to establish a project team, refine the scope of a project, select the preferred procurement process, establish a schedule for the delivery of the service, design an appropriate communications strategy and obtain the necessary approvals.



Task 9: Developmental Impact Considerations

The Contractor shall report on the potential development impacts for the three projects in the Host Country, Zambia. While specific focus should be paid to the immediate impact(s) of the Projects, the Contractor will include, where appropriate, any additional developmental benefits of the projects, including spin-off and demonstration effects. The Contractor's analysis of potential benefits shall be as concrete and detailed as possible. The development impact factors are intended to provide the Projects' decision-makers and other interested parties with a broader view of the Projects' potential effects on the Host Country. The Contractor shall provide estimates of the Projects' potential benefits in the following areas:

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

DELIVERABLE #3: DRAFT FINAL REPORT AND DRAFT EXECUTIVE SUMMARY

The Draft Final Report and Executive Summary shall incorporate comments from the NACL and each airport on the Interim Report and shall include findings from Tasks 1 through 9. Four copies of this report and the executive summary shall be provided to the NACL and to each airport in English. All plans shall be provided in AutoCAD format.

Task 10: Executive Presentation and Discussion Forum

When the final report is complete, the Contractor shall provide a final oral presentation of the Final Executive Summary and the Final Report to the Grantee and other stakeholders.

Task 11: Identification of U.S. Suppliers

The Contractor shall identify the potential value of U.S. exports of equipment and services and opportunities for the participation of U.S. companies in airport development, and shall provide a complete list of potential U.S. suppliers of equipment and services to the Grantee. The Contractor shall identify and contact U.S. suppliers and investors to assess their level of interest in the project.

The Contractor shall organize a briefing in the U.S. to inform interested parties of the project, the scope of work, and available opportunities. The Contractor shall develop a targeted list of at the

Final Report

minimum 100 U.S. airport and aviation services companies, current U.S. investors and potential investors in airports in the region to whom the briefing will be marketed. The list shall be reviewed and approved by the Grantee. The Contractor shall mail invitations to the companies identified and prepare a handout that will be distributed at the briefing.

During the briefing, the Contractor shall present, at the minimum, the following information:

- ▶ Project scope
- ▶ Implementation Schedule/Timeline
- ▶ List of potential opportunities (equipment, services, investments)
- ▶ Executing agency contact information

DELIVERABLE #4: EXECUTIVE SUMMARY AND FINAL REPORT

The Contractor shall prepare and provide a comprehensive Final Report for submission to the Grantee and to USTDA, which shall contain the key findings, recommendations, and conclusions of the Master Plan, and shall incorporate all other documents and/or reports provided pursuant to Tasks 1 through 11 above. The Contractor shall ensure that the Final Report is submitted in accordance with Clause I of Annex II of the Grant Agreement. The Final Report shall be a substantive and comprehensive report of work performed to carry out all of the tasks set forth in the Terms of Reference and shall include, among other things, an Executive Summary and all deliverables. Each task of the Terms of Reference shall form a separate chapter of the Final Report.

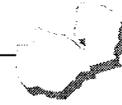
The Final Report shall also include a comprehensive list of suppliers, including potential sources of U.S. equipment and services, relevant to the implementation of each component of the Projects as outlined in the Study.

The Contractor shall make an oral presentation of an executive summary of the report's findings and conclusions to the Grantee's steering committee.

The Contractor shall submit the Final Report in English. The Contractor shall provide five (5) hard copies and one (1) electronic version of both the confidential and public versions of the Final Report to the Grantee and shall provide copies to USTDA in accordance with Clause I of Annex II of the Grant Agreement. One copy in English shall be provided to the U.S. Embassy.

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.



QUALIFICATIONS

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

Technical Experience (40 points): Firm and team's experience (including detailed resumes) in airport master plans, including experience in the following areas:

- Air traffic forecasting
- Demand-capacity analysis
- Environmental impact assessments
- Airside/landside facility requirements
- Conceptual and final airport design
- Demonstrated understanding of FAA, IATA and ICAO regulations

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 sections of the proposal, and overall quality of proposal presentation will be evaluated. The proposal should also provide an organization chart of key personnel with their qualifications, and a staffing schedule for each key activity.

Financial Experience (25 points): Firm and team's experience in airport financing, cost estimating, and development of capital investment programs for airport and infrastructure projects. Specific experience with the identification of financing mechanisms, concession/privatization schemes, airport project financing and experience structuring finance for projects in Zambia and other Sub Saharan Africa markets.

Regional Experience (10 points): Firm and team's familiarity with the aviation sector in Zambia and Sub Saharan Africa and experience working with local authorities, as well as familiarity with local regulations.

Task	FEASIBILITY STUDY BUDGET											Total
	Project Manager	Aviation Demand Forecaster	Airport Planner	Airport Engineer/Architect	Environmental Specialist	Construction Cost Estimator	Financial Specialist	AutoCAD Technician	Report Preparer	Person Days		
Task 1 Data Collection and Site Visit	5	3	5	3	3	5	0	0	3	5	3	32
Task 2 Forecast of Demand for Passengers and Cargo	5	20	3	1	0	0	0	0	3	0	3	35
Task 3 Demand/Capacity Analysis and Development of Facility Requirements	12	5	30	38	5	2	27.5	27.5	4	2	4	125.5
Task 4 Conceptual Plans and Development Program	10	4	32.5	40	7	2	3.5	3.5	5	2	5	137.5
Task 5 Environmental Impact Analysis	10	0	5	2	40	3	5	5	5	0	5	70
Task 6 Capital Costs and Investment Requirements	5	0	15	10	5	45	5	5	5	5	5	93
Task 7 Financial Analysis and Plan	12.5	4.5	5	2	3	2	5	5	4	40	4	78
Task 8 Public Private Partnership Strategy	9	2.5	4	0	1	3	0	0	2	10	2	31.5
Task 9 Development Impact Considerations	2	2	5	5	5	3	0	0	3	5	3	30
Task 10 Preparation and Submission of Reports	10	2	2	2	1	1	2	2	47.5	3	47.5	70.5
Task 11 US Supplier Briefing	3.5	1	1	1	1	2	0	0	7	4	7	20.5
Total	84	44	107.5	104	71	68	79.5	79.5	86.5	79	86.5	723.5
Daily Rate (\$/day)	\$1,250	\$1,160	\$880	\$1,080	\$1,160	\$680	\$1,200	\$640	\$480	\$1,200	\$480	
Value (US\$)	\$100,800	\$51,040	\$94,600	\$112,320	\$82,360	\$46,240	\$94,800	\$47,700	\$41,520	\$94,800	\$41,520	\$671,380
Expenses												
Air Travel			7	\$4,000								\$28,000
Ground Trans.			49	\$100								\$4,900
Lodging & Per Diem			49	\$130								\$6,370
Briefing Travel Expenses												\$3,500
Reproduction/Binding												\$2,700
Telephone/Facsimile												\$3,200
Postage & Delivery												\$5,000
Total Expenses												\$53,670
Total Budget												\$725,050



BUDGET NARRATIVE

Project Manager: This individual will provide the necessary guidance and support for the successful completion of the project. The Project Manager should have at least 15 years of experience managing aviation or other transportation projects, including experience related to master plans and feasibility studies. The Project Manager should have at least 5 years experience working internationally, preferably in Africa. It is expected that 672 hours will be required at a daily rate of \$1,200.

Aviation Demand Forecaster: This individual will work under the supervision of the Project Manager. He/she should have at least 10 years of experience as an aviation demand forecaster. Experience working in international projects is highly advisable. It is expected that 352 hours will be required at a daily rate of \$1,160.

Airport Planner and Airport Architect/Engineer: These individuals should have at least 10 years of experience in the planning and design of aviation projects. They will be responsible for conducting an evaluation of facility requirements and preparing conceptual plans. The Airport Planner will assist other team members in the preparation of capital costs and in the development of a concession strategy. It is expected that 860 hours will be required at a daily rate of \$880 for the Airport Planner and 832 hours will be required at a daily rate of \$1,080 for the Airport Architect/Engineer.

Environmental Specialist: This individual should have experience in the preparation of environmental impact analysis for transportation projects, preferably airport-related projects. He/she will be responsible for conducting an environmental impact assessment for the project. Knowledge of local conditions and regulations is important. It is expected that this task will require 568 hours at a daily rate of \$1,160.

Construction Cost Estimator: This individual should have at least 8 years of experience working as construction estimator for aviation projects. Experience in Africa, specifically in Zambia, is highly advisable. It is expected that 544 hours will be required at a daily rate of \$680.

Financial Specialist: This individual should have at least 10 years of experience working as financial analyst or economist for aviation projects. He/she will be responsible for developing a financial analysis of the proposed project and recommending a concession strategy. Experience working in international projects is highly advisable. It is expected that 632 hours will be required at a daily rate of \$1,200.

AutoCAD Technician: This individual will support tasks conducted by the Project Manager, Airport Planner and Airport Engineer. He/she will work under the supervision of the Airport Engineer in the development of conceptual plans. It is expected that 636 hours will be required at a daily rate of \$600.

Report Preparer: The Report Preparer will provide administrative support for all other personnel. It is expected that 692 hours will be required at a daily rate of \$480.



TRAVEL SUMMARY

The Project Manager, Airport Planner and the Financial Specialist will be required to travel to the host country for Task 1.

Seven (7) days of travel time will be required for each individual.

Roundtrip Airfare: \$4,000 X 3 people = \$12,000

Lodging and Per Diem: \$130 X 7 days = \$910 X 3 people = \$2,730

Ground Transportation: \$100 X 7 days = \$700 X 3 people = \$2,100

The Financial Specialist will be required to travel to the host country for Task 7 and 8.

Seven (7) days of travel time will be required for each individual.

Roundtrip Airfare: \$4,000

Lodging and Per Diem: \$130 X 7 days = \$910

Ground Transportation: \$100 X 7 days = \$700

The Project Manager, Airport Planner and Financial Specialist will be required to travel to the host country for Task 10.

Seven (7) days of travel time will be required for each individual.

Roundtrip Airfare: \$4,000 X 3 people = \$12,000

Lodging and Per Diem: \$130 X 7 days = \$910 X 3 people = \$2,730

Ground Transportation: \$100 X 7 days = \$700 X 3 people = \$2,100

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

Zambia
2008-11009A
Pri.

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 Zambian Ministry of Communications and Transport ("Grantee"). USTDA agrees to provide the Grantee under the terms of this Agreement US\$725,050 ("USTDA Grant") to fund the cost of goods and services required for a feasibility study ("Study") on the proposed Airports Master Plan Project ("Project") in Zambia ("Host Country").

APR 22 2008

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.

Dr. D. E. A. PM. Cam

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 March 31, 2010, is the date by which the parties estimate that the Study will have been completed.

(B) Time Limitation on Disbursement of USTDA Grant Funds

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

9. USTDA Mandatory Clauses

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

10. Use of U.S. Carriers

(A) Air

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

(B) Marine

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

11. Nationality, Source and Origin

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

12. Taxes

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

13. Cooperation Between Parties and Follow-Up

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

14. Implementation Letters

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

15. Recordkeeping and Audit

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

16. Representation of Parties

For all purposes relevant to the Grant Agreement, the Government of the United States of America will be represented by the U. S. Ambassador to Host Country or USTDA and Grantee will be represented by the Minister of Communications and Transport. 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: Mrs. Mukuka L. N. Zimba
Permanent Secretary
Ministry of Communications and Transport
P. O. Box 50065
Lusaka, Zambia

Phone: + 260-21-1254158
Fax: + 260-21-125 1795

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

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

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

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

Appropriation No.: 118/91001
Activity No.: 2008-11009A
Reservation No.: 2008110020
Grant No.: GH2008110003

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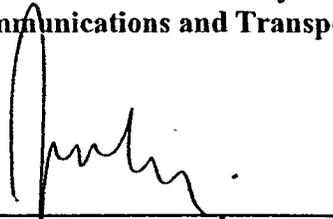
IN WITNESS WHEREOF, the Government of the United States of America and the **Zambian Ministry of Communications and Transport**, each acting through its duly authorized representative, have caused this Agreement to be signed in the English language in their names and delivered as of the day and year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

For the Government of the United States of America

For the Zambian Ministry of Communications and Transport



Larry W. Walther
Director
U.S. Trade and Development
Agency



Chitala Kabalika
Director General
Zambia Civil Aviation
Authority

4/14/08

Date

14/4/2008

Date

Witnessed:



Thomas Barrett
Deputy Secretary
U.S. Department of Transportation

Annex I -- Terms of Reference

Annex II -- USTDA Mandatory Clauses

Annex I

TERMS OF REFERENCE

The objective of this Study is to develop a technical and financial roadmap for the improvement and rehabilitation of four airports in Zambia. The four airports to be evaluated in this Study are Lusaka, Ndola, Mfuwe, and Livingstone. The Study should not only provide recommendations for improvements and expansions needed, but also detail a phased implementation program that is financially viable. Alternatives should be assessed and recommended to promote private sector participation.

The Contractor shall complete all tasks detailed below for each of the four airports of Lusaka, Ndola, Mfuwe and Livingstone ("Airports"). The Contractor shall submit a complete roadmap for each airport; thus, the Contractor is required to submit one master report consisting of four separate volumes.

Task 1: Data Collection and Site Visit

As the starting point for the data collection effort, the Contractor shall review and evaluate the master plan developed by Hydratec Consultants in late 2007. The Grantee shall provide the Contractor with a complete copy of the master plan developed by Hydratec Consultants ("Hydratec Report"). The Hydratec Report contains a detailed airport inventory that should serve as the basis for the Contractor's data collection effort. After review of the Hydratec Report, the Contractor shall determine any additional information needed and continue the data collection process. At a minimum, the following additional information will be required:

- Relevant national, tourism and industry development plans and growth projections;
- As-built plans to the extent available for all existing major airport facilities;
- Status of on-going and short-term airport development projects;
- Plans of the area surrounding the airports and environmental information concerning the airports;
- Schedule of airport rates and charges and financial statements and projections;
- Information related to ground traffic to and from the airports, aviation fuel consumption and number of employees at the airports by location;
- Organization, staffing and operations data;
- Existing arrangements for the provision of ground handling services, cargo handling and other operations and services; and
- Private investment strategies, including existing and potential public participation alternatives.

The Contractor shall conduct site visits of the Airports and inspect the current condition and operability of all Airports facilities. The Contractor shall meet with officials from the Department of Civil Aviation ("DCA") and with relevant staff from the National Airports

Corporation Limited ("NACL") to determine their current priorities and status of existing and proposed development programs. The Contractor shall conduct a kick-off meeting with the Grantee, DCA and NACL to review the Project schedule, work methodology, approach and action plan.

Task 2: Forecast of Demand for Passengers and Cargo

The Contractor shall review existing forecasts and actual traffic statistics developed in the Hydratec Report. In addition, the Contractor shall interview airlines operating at each of the Airports to discuss their plans and prospects for future operations. The results of these meetings should be incorporated into the forecast prepared in the Hydratec Report, making any adjustments necessary.

The Contractor shall revise the existing forecasts in the Hydratec Report, and prepare any additional forecasts needed, presenting at the minimum annual and peak hour passenger forecasts for international and domestic passengers broken into arriving, departing and in-transit passengers.

The Contractor shall also revise the Hydratec Report's aircraft movement forecasts, providing scheduled, charter and non-scheduled movements and numbers of fixed based aircraft.

The Contractor shall develop air cargo forecasts (by export, import and transfer broken down into categories for planning purposes) and vehicular parking forecasts. At this time there are no available cargo forecasts for the Airports.

The methodology used to review/develop all forecasts shall be thoroughly documented as part of the Study and included in all reports generated for the Airports. It should be noted that the air traffic and related forecasts, such as fuel consumption and vehicular parking, shall serve as one of the primary bases for the development of a financial model for each of the Airports.

DELIVERABLE #1: INCEPTION REPORT

The Contractor shall prepare an Inception Report detailing the findings from Tasks 1 and 2. Five (5) copies of the Inception Report shall be provided to the Grantee, and the Grantee shall provide one copy of the Inception Report to each of the Airports. The Inception Report shall be submitted in English. The Inception Report shall consist of, but not be limited to, a list of information/documents collected, a revised Airports facility inventory, and revised forecasts.

Task 3: Demand/ Capacity Analysis and Development of Facility Requirements

The Contractor shall conduct a demand/capacity analysis aimed at comparing the existing capacity of key Airports facilities versus forecasted demand for each of the Airports. This analysis should include, but not be limited to, the following:

1. Runway and taxiway systems;
2. Aircraft parking apron; and
3. Passenger and cargo terminals.

As a result of this analysis, the Contractor shall estimate airport development requirements in two five-year planning stages from 2008-2013 and 2014-2019, and for the long-term development stage from 2019 to 2029 (together “the twenty-year period”) for key Airports facilities. The development of Airports requirements shall cover the following:

Airside Facility Requirements

- Airfield pavement requirements, including any requirements for apron reconstruction and/or expansion due to the likely introduction of loading bridges as well as any need for airfield pavement overlays during the twenty year forecast period;
- Airfield lighting; and
- Aircraft refueling.

Landside Facility Requirements

- Passenger terminal space requirements (international and domestic where applicable) including, but not limited to:
 - Passenger check-in area, ticketing counter positions;
 - Outbound immigration;
 - Security screening;
 - Passenger hold rooms;
 - Inbound immigration;
 - Baggage claim;
 - Customs inspection;
 - Meeter/greeter areas;
 - Restrooms;
 - Passenger circulation (gross space);
 - Concessions and amenities;
 - Airline offices;
 - Terminal administrative and maintenance space;
 - Terminal curb frontage and lanes;
 - Vehicle parking; and

- Specialized terminal equipment to include loading bridges, elevators/escalators, FIDS/BIDS, baggage and security screening, IT systems, master clock, etc.
- Cargo Terminal including, but not limited to:
 - Storage including cold storage and processing space;
 - Office space;
 - Cargo handling equipment; and
 - Vehicle circulation and parking.
- Other support facilities, such as:
 - Crash, fire and rescue equipment (CFR) requirements;
 - Catering/Flight services;
 - Fuel storage;
 - General and executive aviation and military; and
 - Airport utilities including sewage treatment, water and power.

Task 4: Conceptual Plans and Development Program

The Contractor shall prepare a development program for all Airports facilities, and shall focus primarily on areas largely impacted by air traffic growth such as the terminal area, the aircraft parking aprons, international and domestic passenger terminal, and the air cargo terminal. This analysis shall be based on the space and facility requirements developed under Task 3.

The Contractor shall develop schematic plans for each of the Airports. Such plans shall include at minimum, but not be limited to, the passenger terminal, the aprons, runway/taxiways, and the air cargo terminal at each of the Airports. The Contractor shall present conceptual plans in phases that meet the forecast requirements for 5, 10 and 20-year periods. All plans shall be developed in very close coordination and consultation with the DCA and NACL and each Airports' management staff. Plans should be provided for each phase of development in AutoCAD format and included in each Airports Report.

The results on the conceptual planning phase will serve as the basis for developing capital cost estimates and an investment program, which shall become an important input to the financial models and financial plans for each of the Airports. The Contractor shall use the conceptual plans to identify, prioritize, and establish a schedule for priority development projects.

Task 5: Environmental Impact Analysis

The Contractor shall review, assess and validate the environmental analysis presented in the Hydratec Report. The Contractor shall pay particular attention to the regulators and policies presented in the report, and ensure that they are adequate.

In addition, the Contractor shall perform a preliminary review of the Project's environmental impacts consistent with local requirements and those of the World Bank. This review shall identify potential negative impacts and environmental risks, discuss the extent to which they can be mitigated, identify strategies for managing adverse environmental impacts and develop plans for full environmental impact assessment if and when the projects move forward to implementation stage. The environmental analysis shall consider the particular environmental risks associated with the recommended improvements at each of the Airports, taking into account the existing environmental conditions of each particular facility.

As part of this task, the Contractor shall develop noise contours based on U.S. Federal Aviation Administration (FAA) Integrated Noise Model (INM) for 10 and 20 year periods at the Airports.

The Contractor shall specifically review the environmental regulations affecting the development of the Airports. An outline of short and long term environmental concerns or impacts of construction and operations on the air, noise, social, and water quality shall be developed. The Contractor shall propose measures for environmental control and mitigation for each of the Airports. The Contractor shall also propose a preliminary mitigation plan, including costs for each recommended activity. The mitigation plan shall include abatement strategies for asbestos containing materials already found at Lusaka Airport.

Task 6: Capital Costs and Investment Requirements

The Contractor shall prepare detailed cost estimates, including engineering costs and capital construction costs for each item of development or improvement at the Airports and for each phase of development. The cost estimates shall be based on the results from Tasks 3 and 4 above. Based on these cost estimates, the Contractor shall propose a twenty-year capital investment program for the short (5-year), medium (10-year) and long (20-year) terms.

DELIVERABLE #2: INTERIM REPORT

The Interim Report shall incorporate comments received from the Grantee, DCA and NACL and each of the Airports on the Inception Report and shall include a report on the findings from Tasks 1 through 6. Five copies of the Interim Report shall be provided to Grantee in English, and the Grantee shall provide one copy of the Interim Report to each of the Airports. This Interim Report should consist of the development program as

detailed in Task 4 above, the results of the environmental impact analysis and the investment requirements.

Task 7: Financial Analysis and Plan

The Contractor shall develop a financial model that shall analyze the financial feasibility of the proposed Airports development and investment programs. This financial model shall show cash flows over the twenty-year period and shall be constructed in a manner so as to permit the evaluation of possible modifications in air traffic forecast assumptions, aeronautical rates and charges, revenues, investment costs, airport operating and maintenance costs, the investment program or in the estimated costs of financing. The model shall be constructed in such a way that each of the Airports can be disaggregated as a separate project to be examined as a possible candidate for some form of private sector participation, including, but not limited to, concessioning or privatization. The financial model shall include:

- A projection of Airports revenues based on the air traffic forecasts and on existing rates and charges as well as estimates of other income.
- A comparison of the Airports' schedule of fees and charges with those for similar airports in the region and if needed, recommendations for rate adjustments.
- An analysis of Airports operating and maintenance costs, including a twenty-year cost projection.
- A schedule of current investment repayment obligations.
- An analysis of the future self-financing capabilities of each of the Airports.

In the financial analysis, the Contractor shall assess the ability to generate future revenues sufficient to cover all future expenses of maintenance, operation, administration and debt service. The Contractor shall address historic revenues and expenses to determine the ability to support the required funding for the proposed Airports improvements. The Contractor shall develop projected operating revenues and expenses according to projected growth and the potential of additional revenues and expenses as facilities come on-line. The Contractor shall explore and recommend potential alternatives for enhancing the revenue stream such as modifications in existing rates and charges or in existing concessions and Airports operational practices.

The Contractor shall explore potential sources of outside financing (including possible financing terms) from such entities as:

- International funding agencies, including multi-lateral institutions;
- Commercial capital markets;
- Private sector investment;
- U.S. bilateral credit or development funds; and
- Other sources.

The financial plan shall comprehensively state the Contractor's financial analysis and recommend a plan for financing the required development. The Contractor shall provide

the financial model to each of the Airports and to the Grantee, DCA, and NACL for their continued use in evaluating the impact of changes in the actual growth of air traffic and other input variables in the years ahead.

Task 8: Public-Private Partnership Strategy

The Contractor shall analyze the viability of implementing public-private partnership strategies such as turnkey operation, build-transfer-operate, build-own-operate-transfer and concession or privatization strategies. The Contractor shall include in the analysis, the potential participation of private sector partners such as mining companies working in the Copperbelt region of Zambia. The Contractor shall make recommendations for the public-private partnership strategy to be followed, including a proposed schedule and outline of the process, as well as a proposed scope of services for technical assistance during concession implementation.

As part of this Task, the Contractor shall provide a roadmap for the recommended process by designing an effective implementation strategy for public-private partnerships, including guidelines on how to establish a project team, refine the scope of a project, select the preferred procurement process, establish a schedule for the delivery of the service, design an appropriate communications strategy and obtain the necessary approvals.

Task 9: Developmental Impact Considerations

The Contractor shall provide a substantive and detailed report on the potential development impacts for the four Airports projects in Zambia. While specific focus should be paid to the immediate impact(s) of the Project, the Contractor shall include, where appropriate, any additional developmental benefits of the Airports projects, including spin-off and demonstration effects. The Contractor's analysis of potential benefits shall be as concrete and detailed as possible. The development impact factors are intended to provide the Project's decision-makers and other interested parties with a broader view of the Project's potential effects on Zambia. The Contractor shall provide estimates of the Project's potential benefits in the following areas:

- (a) Infrastructure and Industry - The Contractor shall provide a statement on the infrastructure impact giving a thorough accounting of new infrastructure to be built upon implementation of the Airports projects.
- (b) Market-Oriented Reforms - The Contractor shall provide a description of any regulations, laws, or institutional changes that are recommended as a result of the Project and the effect they would have if implemented.
- (c) Human Capacity Building - The Contractor shall address the number and type of positions that would be needed to implement, manage, and operate the proposed projects

as well as the number of people who will receive training and a brief description of the training program.

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

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

DELIVERABLE #3: DRAFT FINAL REPORT AND DRAFT EXECUTIVE SUMMARY

The Draft Final Report and Executive Summary shall incorporate comments from the Grantee, DCA and NACL and each of the Airports on the Interim Report and shall include a report of the findings from Tasks 1 through 9. Five copies of the Draft Final Report and the Executive Summary shall be provided to the Grantee in English, and the Grantee shall provide each of the Airports a copy. All plans shall be provided in AutoCAD format.

Task 10: Executive Presentation and Discussion Forum

When the Draft Final Report has been reviewed and approved by the Grantee, the Contractor shall provide a final oral presentation of the Final Executive Summary and the Final Report to the Grantee and other stakeholders utilizing any visual aids as necessary for the presentation.

Task 11: Identification of U.S. Suppliers and Delivery of Final Report

The Contractor shall identify the potential value of U.S. exports of equipment and services and opportunities for the participation of U.S. companies in airport development, and shall provide a complete list of potential U.S. suppliers of equipment and services to the Grantee. The Contractor shall identify and contact U.S. suppliers and investors to assess their level of interest in the project.

The Contractor shall organize a briefing in the U.S. to inform interested parties of the Project, the scope of work, and available opportunities. The Contractor shall develop a targeted list of at the minimum 100 U.S. airport and aviation services companies, current U.S. investors and potential investors in airports in the region to whom the briefing will be marketed. The list shall be reviewed and approved by the Grantee. The Contractor shall mail invitations to the companies identified and prepare a handout that will be distributed at the briefing.

During the briefing, the Contractor shall present, at the minimum, the following information:

- Project scope and findings;
- Implementation Schedule/Timeline;
- List of potential opportunities (equipment, services, investments); and
- Executing agency contact information.

DELIVERABLE #4: EXECUTIVE SUMMARY AND FINAL REPORT

The Contractor shall prepare and provide a comprehensive Final Report for submission to the Grantee and to USTDA, which shall contain the key findings, recommendations, and conclusions of the Study, and shall incorporate all documents and/or reports provided pursuant to Tasks 1 through 11 above. The Contractor shall ensure that the Final Report is submitted in accordance with Clause I of Annex II of the Grant Agreement. The Final Report shall be a substantive and comprehensive report of work performed to carry out all of the Tasks set forth in the Terms of Reference and shall include, among other things, an Executive Summary and all deliverables. The Final Report shall be comprised of four volumes, with each volume containing a report on the findings for each Airport. Each Task of the Terms of Reference shall form a separate chapter in each volume of the Final Report.

The Final Report shall also include a comprehensive list of suppliers, including potential sources of U.S. equipment and services, relevant to the implementation of each component of the Airports projects as outlined in the Study.

The Contractor shall make an oral presentation of the Final Report's findings and conclusions to the Grantee's steering committee.

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 Zambian Ministry of Communications and Transport ("Client"), dated _____ ("Grant Agreement"). The Client has selected _____ ("Contractor") to perform the feasibility study ("Study") for the Airports Master Plan Project ("Project") in Zambia ("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 March 31, 2010, is the date by which the parties estimate that the Study will have been completed.

(2) Time Limitation on Disbursement of USTDA Grant Funds

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

L. Business Practices

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

M. USTDA Address and Fiscal Data

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

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

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

Fiscal Data:

Appropriation No.:	118/91001
Activity No.:	2008-11009A
Reservation No.:	2008110020
Grant No.:	GH2008110003

N. Definitions

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

O. Taxes

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

ANNEX 5

Annex I

TERMS OF REFERENCE

The objective of this Study is to develop a technical and financial roadmap for the improvement and rehabilitation of four airports in Zambia. The four airports to be evaluated in this Study are Lusaka, Ndola, Mfuwe, and Livingstone. The Study should not only provide recommendations for improvements and expansions needed, but also detail a phased implementation program that is financially viable. Alternatives should be assessed and recommended to promote private sector participation.

The Contractor shall complete all tasks detailed below for each of the four airports of Lusaka, Ndola, Mfuwe and Livingstone (“Airports”). The Contractor shall submit a complete roadmap for each airport; thus, the Contractor is required to submit one master report consisting of four separate volumes.

Task 1: Data Collection and Site Visit

As the starting point for the data collection effort, the Contractor shall review and evaluate the master plan developed by Hydratec Consultants in late 2007. The Grantee shall provide the Contractor with a complete copy of the master plan developed by Hydratec Consultants (“Hydratec Report”). The Hydratec Report contains a detailed airport inventory that should serve as the basis for the Contractor’s data collection effort. After review of the Hydratec Report, the Contractor shall determine any additional information needed and continue the data collection process. At a minimum, the following additional information will be required:

- Relevant national, tourism and industry development plans and growth projections;
- As-built plans to the extent available for all existing major airport facilities;
- Status of on-going and short-term airport development projects;
- Plans of the area surrounding the airports and environmental information concerning the airports;
- Schedule of airport rates and charges and financial statements and projections;
- Information related to ground traffic to and from the airports, aviation fuel consumption and number of employees at the airports by location;
- Organization, staffing and operations data;
- Existing arrangements for the provision of ground handling services, cargo handling and other operations and services; and
- Private investment strategies, including existing and potential public participation alternatives.

The Contractor shall conduct site visits of the Airports and inspect the current condition and operability of all Airports facilities. The Contractor shall meet with officials from the Department of Civil Aviation (“DCA”) and with relevant staff from the National Airports

Corporation Limited ("NACL") to determine their current priorities and status of existing and proposed development programs. The Contractor shall conduct a kick-off meeting with the Grantee, DCA and NACL to review the Project schedule, work methodology, approach and action plan.

Task 2: Forecast of Demand for Passengers and Cargo

The Contractor shall review existing forecasts and actual traffic statistics developed in the Hydratec Report. In addition, the Contractor shall interview airlines operating at each of the Airports to discuss their plans and prospects for future operations. The results of these meetings should be incorporated into the forecast prepared in the Hydratec Report, making any adjustments necessary.

The Contractor shall revise the existing forecasts in the Hydratec Report, and prepare any additional forecasts needed, presenting at the minimum annual and peak hour passenger forecasts for international and domestic passengers broken into arriving, departing and in-transit passengers.

The Contractor shall also revise the Hydratec Report's aircraft movement forecasts, providing scheduled, charter and non-scheduled movements and numbers of fixed based aircraft.

The Contractor shall develop air cargo forecasts (by export, import and transfer broken down into categories for planning purposes) and vehicular parking forecasts. At this time there are no available cargo forecasts for the Airports.

The methodology used to review/develop all forecasts shall be thoroughly documented as part of the Study and included in all reports generated for the Airports. It should be noted that the air traffic and related forecasts, such as fuel consumption and vehicular parking, shall serve as one of the primary bases for the development of a financial model for each of the Airports.

DELIVERABLE #1: INCEPTION REPORT

The Contractor shall prepare an Inception Report detailing the findings from Tasks 1 and 2. Five (5) copies of the Inception Report shall be provided to the Grantee, and the Grantee shall provide one copy of the Inception Report to each of the Airports. The Inception Report shall be submitted in English. The Inception Report shall consist of, but not be limited to, a list of information/documents collected, a revised Airports facility inventory, and revised forecasts.

Task 3: Demand/ Capacity Analysis and Development of Facility Requirements

The Contractor shall conduct a demand/capacity analysis aimed at comparing the existing capacity of key Airports facilities versus forecasted demand for each of the Airports. This analysis should include, but not be limited to, the following:

1. Runway and taxiway systems;
2. Aircraft parking apron; and
3. Passenger and cargo terminals.

As a result of this analysis, the Contractor shall estimate airport development requirements in two five-year planning stages from 2008-2013 and 2014-2019, and for the long-term development stage from 2019 to 2029 (together "the twenty-year period") for key Airports facilities. The development of Airports requirements shall cover the following:

Airside Facility Requirements

- Airfield pavement requirements, including any requirements for apron reconstruction and/or expansion due to the likely introduction of loading bridges as well as any need for airfield pavement overlays during the twenty year forecast period;
- Airfield lighting; and
- Aircraft refueling.

Landside Facility Requirements

- Passenger terminal space requirements (international and domestic where applicable) including, but not limited to:
 - Passenger check-in area, ticketing counter positions;
 - Outbound immigration;
 - Security screening;
 - Passenger hold rooms;
 - Inbound immigration;
 - Baggage claim;
 - Customs inspection;
 - Meeter/greeter areas;
 - Restrooms;
 - Passenger circulation (gross space);
 - Concessions and amenities;
 - Airline offices;
 - Terminal administrative and maintenance space;
 - Terminal curb frontage and lanes;
 - Vehicle parking; and

- Specialized terminal equipment to include loading bridges, elevators/escalators, FIDS/BIDS, baggage and security screening, IT systems, master clock, etc.
- Cargo Terminal including, but not limited to:
 - Storage including cold storage and processing space;
 - Office space;
 - Cargo handling equipment; and
 - Vehicle circulation and parking.
- Other support facilities, such as:
 - Crash, fire and rescue equipment (CFR) requirements;
 - Catering/Flight services;
 - Fuel storage;
 - General and executive aviation and military; and
 - Airport utilities including sewage treatment, water and power.

Task 4: Conceptual Plans and Development Program

The Contractor shall prepare a development program for all Airports facilities, and shall focus primarily on areas largely impacted by air traffic growth such as the terminal area, the aircraft parking aprons, international and domestic passenger terminal, and the air cargo terminal. This analysis shall be based on the space and facility requirements developed under Task 3.

The Contractor shall develop schematic plans for each of the Airports. Such plans shall include at minimum, but not be limited to, the passenger terminal, the aprons, runway/taxiways, and the air cargo terminal at each of the Airports. The Contractor shall present conceptual plans in phases that meet the forecast requirements for 5, 10 and 20-year periods. All plans shall be developed in very close coordination and consultation with the DCA and NACL and each Airports' management staff. Plans should be provided for each phase of development in AutoCAD format and included in each Airports Report.

The results on the conceptual planning phase will serve as the basis for developing capital cost estimates and an investment program, which shall become an important input to the financial models and financial plans for each of the Airports. The Contractor shall use the conceptual plans to identify, prioritize, and establish a schedule for priority development projects.

Task 5: Environmental Impact Analysis

The Contractor shall review, assess and validate the environmental analysis presented in the Hydratec Report. The Contractor shall pay particular attention to the regulators and policies presented in the report, and ensure that they are adequate.

In addition, the Contractor shall perform a preliminary review of the Project's environmental impacts consistent with local requirements and those of the World Bank. This review shall identify potential negative impacts and environmental risks, discuss the extent to which they can be mitigated, identify strategies for managing adverse environmental impacts and develop plans for full environmental impact assessment if and when the projects move forward to implementation stage. The environmental analysis shall consider the particular environmental risks associated with the recommended improvements at each of the Airports, taking into account the existing environmental conditions of each particular facility.

As part of this task, the Contractor shall develop noise contours based on U.S. Federal Aviation Administration (FAA) Integrated Noise Model (INM) for 10 and 20 year periods at the Airports.

The Contractor shall specifically review the environmental regulations affecting the development of the Airports. An outline of short and long term environmental concerns or impacts of construction and operations on the air, noise, social, and water quality shall be developed. The Contractor shall propose measures for environmental control and mitigation for each of the Airports. The Contractor shall also propose a preliminary mitigation plan, including costs for each recommended activity. The mitigation plan shall include abatement strategies for asbestos containing materials already found at Lusaka Airport.

Task 6: Capital Costs and Investment Requirements

The Contractor shall prepare detailed cost estimates, including engineering costs and capital construction costs for each item of development or improvement at the Airports and for each phase of development. The cost estimates shall be based on the results from Tasks 3 and 4 above. Based on these cost estimates, the Contractor shall propose a twenty-year capital investment program for the short (5-year), medium (10-year) and long (20-year) terms.

DELIVERABLE #2: INTERIM REPORT

The Interim Report shall incorporate comments received from the Grantee, DCA and NACL and each of the Airports on the Inception Report and shall include a report on the findings from Tasks 1 through 6. Five copies of the Interim Report shall be provided to Grantee in English, and the Grantee shall provide one copy of the Interim Report to each of the Airports. This Interim Report should consist of the development program as

detailed in Task 4 above, the results of the environmental impact analysis and the investment requirements.

Task 7: Financial Analysis and Plan

The Contractor shall develop a financial model that shall analyze the financial feasibility of the proposed Airports development and investment programs. This financial model shall show cash flows over the twenty-year period and shall be constructed in a manner so as to permit the evaluation of possible modifications in air traffic forecast assumptions, aeronautical rates and charges, revenues, investment costs, airport operating and maintenance costs, the investment program or in the estimated costs of financing. The model shall be constructed in such a way that each of the Airports can be disaggregated as a separate project to be examined as a possible candidate for some form of private sector participation, including, but not limited to, concessioning or privatization. The financial model shall include:

- A projection of Airports revenues based on the air traffic forecasts and on existing rates and charges as well as estimates of other income.
- A comparison of the Airports' schedule of fees and charges with those for similar airports in the region and if needed, recommendations for rate adjustments.
- An analysis of Airports operating and maintenance costs, including a twenty-year cost projection.
- A schedule of current investment repayment obligations.
- An analysis of the future self-financing capabilities of each of the Airports.

In the financial analysis, the Contractor shall assess the ability to generate future revenues sufficient to cover all future expenses of maintenance, operation, administration and debt service. The Contractor shall address historic revenues and expenses to determine the ability to support the required funding for the proposed Airports improvements. The Contractor shall develop projected operating revenues and expenses according to projected growth and the potential of additional revenues and expenses as facilities come on-line. The Contractor shall explore and recommend potential alternatives for enhancing the revenue stream such as modifications in existing rates and charges or in existing concessions and Airports operational practices.

The Contractor shall explore potential sources of outside financing (including possible financing terms) from such entities as:

- International funding agencies, including multi-lateral institutions;
- Commercial capital markets;
- Private sector investment;
- U.S. bilateral credit or development funds; and
- Other sources.

The financial plan shall comprehensively state the Contractor's financial analysis and recommend a plan for financing the required development. The Contractor shall provide

the financial model to each of the Airports and to the Grantee, DCA, and NACL for their continued use in evaluating the impact of changes in the actual growth of air traffic and other input variables in the years ahead.

Task 8: Public-Private Partnership Strategy

The Contractor shall analyze the viability of implementing public-private partnership strategies such as turnkey operation, build-transfer-operate, build-own-operate-transfer and concession or privatization strategies. The Contractor shall include in the analysis, the potential participation of private sector partners such as mining companies working in the Copperbelt region of Zambia. The Contractor shall make recommendations for the public-private partnership strategy to be followed, including a proposed schedule and outline of the process, as well as a proposed scope of services for technical assistance during concession implementation.

As part of this Task, the Contractor shall provide a roadmap for the recommended process by designing an effective implementation strategy for public-private partnerships, including guidelines on how to establish a project team, refine the scope of a project, select the preferred procurement process, establish a schedule for the delivery of the service, design an appropriate communications strategy and obtain the necessary approvals.

Task 9: Developmental Impact Considerations

The Contractor shall provide a substantive and detailed report on the potential development impacts for the four Airports projects in Zambia. While specific focus should be paid to the immediate impact(s) of the Project, the Contractor shall include, where appropriate, any additional developmental benefits of the Airports projects, including spin-off and demonstration effects. The Contractor's analysis of potential benefits shall be as concrete and detailed as possible. The development impact factors are intended to provide the Project's decision-makers and other interested parties with a broader view of the Project's potential effects on Zambia. The Contractor shall provide estimates of the Project's potential benefits in the following areas:

(a) Infrastructure and Industry - The Contractor shall provide a statement on the infrastructure impact giving a thorough accounting of new infrastructure to be built upon implementation of the Airports projects.

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

(c) Human Capacity Building - The Contractor shall address the number and type of positions that would be needed to implement, manage, and operate the proposed projects

as well as the number of people who will receive training and a brief description of the training program.

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

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

DELIVERABLE #3: DRAFT FINAL REPORT AND DRAFT EXECUTIVE SUMMARY

The Draft Final Report and Executive Summary shall incorporate comments from the Grantee, DCA and NACL and each of the Airports on the Interim Report and shall include a report of the findings from Tasks 1 through 9. Five copies of the Draft Final Report and the Executive Summary shall be provided to the Grantee in English, and the Grantee shall provide each of the Airports a copy. All plans shall be provided in AutoCAD format.

Task 10: Executive Presentation and Discussion Forum

When the Draft Final Report has been reviewed and approved by the Grantee, the Contractor shall provide a final oral presentation of the Final Executive Summary and the Final Report to the Grantee and other stakeholders utilizing any visual aids as necessary for the presentation.

Task 11: Identification of U.S. Suppliers and Delivery of Final Report

The Contractor shall identify the potential value of U.S. exports of equipment and services and opportunities for the participation of U.S. companies in airport development, and shall provide a complete list of potential U.S. suppliers of equipment and services to the Grantee. The Contractor shall identify and contact U.S. suppliers and investors to assess their level of interest in the project.

The Contractor shall organize a briefing in the U.S. to inform interested parties of the Project, the scope of work, and available opportunities. The Contractor shall develop a targeted list of at the minimum 100 U.S. airport and aviation services companies, current U.S. investors and potential investors in airports in the region to whom the briefing will be marketed. The list shall be reviewed and approved by the Grantee. The Contractor shall mail invitations to the companies identified and prepare a handout that will be distributed at the briefing.

During the briefing, the Contractor shall present, at the minimum, the following information:

- Project scope and findings;
- Implementation Schedule/Timeline;
- List of potential opportunities (equipment, services, investments); and
- Executing agency contact information.

DELIVERABLE #4: EXECUTIVE SUMMARY AND FINAL REPORT

The Contractor shall prepare and provide a comprehensive Final Report for submission to the Grantee and to USTDA, which shall contain the key findings, recommendations, and conclusions of the Study, and shall incorporate all documents and/or reports provided pursuant to Tasks 1 through 11 above. The Contractor shall ensure that the Final Report is submitted in accordance with Clause I of Annex II of the Grant Agreement. The Final Report shall be a substantive and comprehensive report of work performed to carry out all of the Tasks set forth in the Terms of Reference and shall include, among other things, an Executive Summary and all deliverables. The Final Report shall be comprised of four volumes, with each volume containing a report on the findings for each Airport. Each Task of the Terms of Reference shall form a separate chapter in each volume of the Final Report.

The Final Report shall also include a comprehensive list of suppliers, including potential sources of U.S. equipment and services, relevant to the implementation of each component of the Airports projects as outlined in the Study.

The Contractor shall make an oral presentation of the Final Report's findings and conclusions to the Grantee's steering committee.

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.