

**REQUEST FOR PROPOSALS**

**FEASIBILITY STUDY FOR THE**

**NATIONAL ICT BACKBONE NETWORK FEASIBILITY STUDY**

**Submission Deadline: 4:00 P.M**  
**LOCAL TIME**  
**September 22, 2008**

**Submission Place: Seaquest Infotel Niger, S.A.**  
**Boite Postale 817**  
**Niamey, NIGER**

**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, Seaquest InfoTel Niger, S.A. The grant agreement is attached at Annex 4 for reference. The Grantee is soliciting technical proposals from qualified U.S. firms to provide expert consulting services to carry out the Feasibility Study.

### **1.1 BACKGROUND SUMMARY**

Niger has a severe lack of telecommunications backbone capacity, as well as a lack of affordable connectivity to neighboring countries and to the international undersea cable, the SAT-3, off the coast of West Africa. Lack of a backbone means that Niger is forced to rely on expensive satellite connections resulting in high local and international telecommunications costs, limited bandwidth capacity, and inter-operability problems among local carriers. Niger has a very active mobile telecommunications sector, and several operators have begun construction of limited fiber infrastructure. However, none of the local carriers has completed 1) a modern local fiber optic/wireless loop in major cities; 2) intercity landline fiber/wireless connections; or 3) a landline connection via neighboring countries to the SAT-3 cable.

Seaquest InfoTel plans to build a fiber optic backbone infrastructure to support ICT infrastructure development in Niger, transport voice and data, as well as radio and television signals on a nationwide and regional basis. Seaquest InfoTel recently completed a similar project in Mali.

Seaquest InfoTel intends to build a local telecommunications company in Niger on a “carrier’s carrier” model, meaning other operators would route calls over the Seaquest InfoTel network. If deemed feasible, this model may utilize the fiber laid by other companies in Niger. Seaquest InfoTel would focus on the following four business segments:

- i) Open access wholesale capacity to support inter-connectivity between operators and to backhaul international telecom traffic to the SAT-3 undersea cable,
- ii) Service provision access for local businesses,
- iii) Provision of general telephone services, and
- iv) Provision of network and specialist services to national and local government.

Seaquest InfoTel specifically requested USTDA help in conducting a Feasibility Study and providing technical assistance related to the following key requirements for developing and deploying a fiber optic backbone in Niger:

- Verification of planned technical network design and specifications (including whether Seaquest InfoTel could use the unlit fiber laid by other operators);
- Verification of estimated Project costs;
- Validation of market analysis and business plan;
- Evaluation of the regulatory and legal framework.

If the Project is implemented, it would provide fiber optic backbone connectivity, significantly reducing the current prohibitive cost of telephony and Internet services in Niger. The Project will also build connections to Niger's neighboring countries, enabling greater communication and trade linkages to develop throughout the region.

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

## **1.2 OBJECTIVE**

This project will include a feasibility study to Seaquest InfoTel Niger, S.A to assess the technical and financial viability of creating a fiber optic backbone network in Niger. This network would significantly reduce the current prohibitive cost of telephony and internet services, increase universal access to ICT, and stimulate greater cross-border trade with Niger's neighbors. The Government of Niger views this telecommunications Project as crucial to the overall economic development of the country and the expansion of the ICT sector as a whole.

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

## **1.3 PROPOSALS TO BE SUBMITTED**

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

COST will not be a factor in the evaluation and therefore, cost proposals should not be submitted; upon detailed evaluation of technical proposals, one firm will be selected for contract negotiations. The amount for the negotiated contract has been established by a USTDA grant of U.S. \$442,000.

## **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 "Niger: National ICT Backbone Network."

### **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/DEFINITIONAL MISSION REPORT**

USTDA sponsored a Definitional Mission to address technical, financial, sociopolitical, environmental and other aspects of the proposed project. A copy of the Report is attached at Annex 2 for background information only.

### **2.4 EXAMINATION OF DOCUMENTS**

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

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

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

## **2.5 PROJECT FUNDING SOURCE**

The Feasibility Study will be funded under a grant from USTDA. The total amount of the grant is not to exceed U.S. \$442,000.

## **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 French.

## **2.13 PROPOSAL SUBMISSION REQUIREMENTS**

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

Raphael Nbogni  
Managing Director  
Seaquest Infotel Niger, S.A.  
Boite Postale 817  
Niamey, NIGER

Phone: (227) 2073 96 02  
Fax: (227) 2073 96 03

**An Original and eight (8) copies of your proposal must be received at the above address no later than 4:00 p.m., on September 22, 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.

In addition, proposals must be emailed to the following email addresses by **4:00 p.m. on September 22, 2008:**

[rnbogni@seaquest-infotel.com](mailto:rnbogni@seaquest-infotel.com)  
[narmel@seaquest-infotel.com](mailto:narmel@seaquest-infotel.com)  
[info@seaquest-infotel.com](mailto:info@seaquest-infotel.com)

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. \$442,000.

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:

The Feasibility Study Team should have proven and demonstrated expertise in the following areas:

- Academic background and confirmed experience in telecommunications engineering, economics and law (30 percent),
- Creating feasibility studies that consider the technical, economic, legal and institutional impacts associated with the deployment of a fiber optic backbone infrastructure (25 percent),
- Knowledge of telecommunication strategies, policies, and African telecommunication reforms (25 percent),
- Procurement of national telecommunication technologies (10 percent),
- Deployment of fiber optic infrastructure and related systems integration (10 percent).
- Assessment of project for environmental and social matters to IFC performance standards (5 percent)

In addition, the Feasibility Study Team must have a working knowledge of French and demonstrated French language capabilities.

The following positions should be presented for this assignment. The bidder may provide other qualified individuals and local subcontractors (up to 20%) as they see appropriate:

##### Project Manager

*Job Purpose:* The Project Manager will have overall responsibility and serve as the single point for coordination and quality of the Feasibility Study.

##### *Major Skills and Requirements:*

- An established record of providing technical direction and leading multi-disciplinary teams.
- Significant developing country experience, particularly in Sub-Saharan Africa, in identifying constraints to the telecommunications and ICT sector;
- Experience working on regulatory and policy frameworks for the telecommunications industry.
- The Project Manager must have a strong background and skills with an in depth understanding of the technical, business and construction issues involved in national or large scale telecom and ICT backbone projects.

- Strong communication skills, both oral and written.
- Proven project management experience interacting with senior level government officials, and with handling difficult political situations.
- Requires at least a Bachelors degree in Business, Finance, Computer Science or other relevant subject matter, as well as five to ten years industry experience.

### Telecommunications Engineer

*Job Purpose:* The Telecommunications Engineer(s) will take the lead technical role in surveying and analyzing the proposed plan against Niger's existing infrastructure, conducting a requirements analysis, identify any missing gaps, assessing interconnection points, and proposing technical recommendations.

#### *Major Skills and Requirements:*

- Strong understanding of large telecommunication infrastructure projects.
- The individual should have been instrumental in planning telecommunications infrastructure as well as overseen or at least participated in the implementation of the selected vendor networks and systems.
- Extensive knowledge of data, broadband, radio or satellite communication concepts and technologies is required.
- Demonstrated expertise in architecting and developing detailed technical design specifications and standards.
- Demonstrated experience in developing implementation plans, budgets and cost estimates for complex telecom or ICT projects.
- Requires at least a Bachelors degree in Computer Science, Telecommunications, or Electrical Engineering, as well as five to ten years industry experience in telecommunications and infrastructure corporate operations.
- Telecom Engineer with knowledge and experience in developing countries and the Sub-Saharan region, while not a specific requirement would be a plus.

### Telecommunications Regulatory Expert and/or Telecommunications Lawyer

#### *Job Purpose:*

The Consultant may propose either a Telecommunications Regulatory Expert and/or a Telecommunications Lawyer. This function will take the lead role in providing technical assistance and analysis for identifying additions or recommended adjustments to the regulatory, policy and legal framework for implementing a national ICT infrastructure that promotes affordable, non-restrictive access, and a competitive telecommunications environment.

#### *Major Skills and Requirements:*

- Strong background in telecommunications field, preferably with regulatory and operating company practices.
- Knowledge of modern management practices in the telecommunications industry.
- Extensive knowledge of cost and pricing models, tariffs, open access models, and interconnection agreements for the telecommunications industry.
- Demonstrated knowledge of best practices in promoting universal access.

- Strong communication skills, both oral and written.
- Proven project management experience interacting with senior level government officials and with handling difficult political situations.
- Regulatory Expert with knowledge and experience in developing countries and the Sub-Saharan region, while not a specific requirement would be a plus.

### Market/Telecommunications Business Analyst

#### *Job Purpose:*

Marketing/Telecommunications Business Analyst will take the lead in assessing and recommending business models, ownership structure and related financing options for the national ICT infrastructure that is suitable to the Niger environment. The Financing Expert will also assist in developing a detailed project financing strategy and identifying possible financing sources.

#### *Major Skills and Requirements:*

- Experience in and knowledge of telecommunications markets in lower per capita income countries (so-called DAC1 countries), in particular in the Republic of Niger and Sub-Saharan Africa specifically including the ability to source, interpret and document reliable and detailed statistical market data for both public sector and private industry sector market segments relevant to the market for telecommunication services in, from, and to Niger and to make quantitative and qualitative forecasts based thereon.
- Ability to complement statistical market research with data and opinion gathering via interviews of relevant local businesses and government entities.
- Experience or expertise in the telecommunication industries as a practitioner from market and feasibility research engagements. The consultant should be able to measure and project demand for telecommunications services, the likely evolution of prices and costs, the interaction between pricing and demand (price elasticity), the ability to pay, the extent of the market and to research and assess the competitive environment. A background or operational role in the industry can also be of value or interest in this context. Ability to and understanding of the direct and indirect competition and interaction between various telecommunications services and offerings (e.g. mobile versus landline, backbone versus distribution, satellite versus fiber optics and/or wireless) is also considered of relevance.
- Ability to gather, interpret and use as comparative or otherwise relevant information, statistical and other data and information on or relevant to telecommunication services in markets in other countries, with other Sub-Saharan African markets of particular relevance. The number and amount of such comparative data will be discussed with the Sponsors. In general though, the consultant should expect the Sponsors will find historical statistical data, evolution and forecasts for and trends in other Sub-Saharan African countries to be of interest.
- Fluency in French

### Environmental Specialist

- Experience in social and environmental assessments of telecommunications projects in developing countries.
- Experience with IFC environmental and social performance standards and their interpretation. (GuarantCo and other development financial institutions that may co-

finance or guarantee the project require compliance with such standards in environmental and social matters.)

- Ability to assess or to guide the company in developing environmental and social action plans and assessments complying not only with local laws and regulations but also with IFC performance standards
- Fluency in French

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Note: To qualify for consideration of the proposal, the resumes of the Project Manager and the four Senior Specialists must be submitted in a legally binding form, bearing the individuals' original signatures. No substitution of key professionals will be permitted.

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

Price will not be a factor in contractor selection.

## ANNEX 1

Raphael Nbogni; Managing Director; Seaquest Infotel Niger, S.A; Boite Postale 817; Niamey, NIGER; Phone: (227) 2073 96 02; Fax: (227) 2073 96 03

## B - Niger: National ICT Backbone Network Feasibility Study

POC Evangela Kunene, USTDA, 1000 Wilson Boulevard, Suite 1600, Arlington, VA 22209-3901, Tel: (703) 875-4357, Fax: (703) 875-4009.

Niger: National ICT Backbone Network Feasibility Study. The Grantee invites submission of qualifications and proposal data (collectively referred to as the "Proposal") from interested U.S. firms which are qualified on the basis of experience and capability to develop a feasibility study for Seaquest InfoTel Niger, S.A.

Niger has a severe lack of telecommunications backbone capacity, as well as a lack of affordable connectivity to neighboring countries and to the international undersea cable, the SAT-3, off the coast of West Africa. Lack of a backbone means that Niger is forced to rely on expensive satellite connections resulting in high local and international telecommunications costs, limited bandwidth capacity, and inter-operability problems among local carriers. Niger has a very active mobile telecommunications sector, and several operators have begun construction of limited fiber infrastructure. However, none of the local carriers has completed 1) a modern local fiber optic/wireless loop in major cities; 2) intercity landline fiber/wireless connections; or 3) a landline connection via neighboring countries to the SAT-3 cable.

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Seaquest InfoTel intends to build a local telecommunications company in Niger on a "carrier's carrier" model, meaning other operators would route calls over the Seaquest InfoTel network. If deemed feasible, this model may utilize the fiber laid by other companies in Niger. Seaquest InfoTel would focus on the following four business segments:

- i) Open access wholesale capacity to support inter-connectivity between operators and to backhaul international telecom traffic to the SAT-3 undersea cable,
- ii) Service provision access for local businesses,
- iii) Provision of general telephone services, and
- iv) Provision of network and specialist services to national and local government.

Seaquest InfoTel specifically requested the U.S. Trade and Development Agency (USTDA) help in conducting a Feasibility Study and providing technical assistance related to the following key requirements for developing and deploying a fiber optic backbone in Niger:

If the Project is implemented, it would provide fiber optic backbone connectivity, significantly reducing the current prohibitive cost of telephony and Internet services in

Niger. The Project will also build connections to Niger's neighboring countries, enabling greater communication and trade linkages to develop throughout the region.

- Verification of planned technical network design and specifications (including whether Seaquest InfoTel could use the unlit fiber laid by other operators);
- Verification of estimated Project costs;
- Validation of market analysis and business plan;
- Evaluation of the regulatory and legal framework.

The U.S. firm selected will be paid in U.S. dollars from a \$442,000 grant to the Grantee from the USTDA.

A detailed Request for Proposals (RFP), which includes requirements for the Proposal, the Terms of Reference, and a background definitional mission report are available from USTDA, at 1000 Wilson Boulevard, Suite 1600, Arlington, VA 22209-3901. To request the RFP in PDF format, please go to:

<https://www.ustda.gov/USTDA/FedBizOpps/RFP/rfpform.asp>. Requests for a mailed hardcopy version of the RFP may also be faxed to the IRC, USTDA at 703-875-4009. In the fax, please include your firm's name, contact person, address, and telephone number. Some firms have found that RFP materials sent by U.S. mail do not reach them in time for preparation of an adequate response. Firms that want USTDA to use an overnight delivery service should include the name of the delivery service and your firm's account number in the request for the RFP. Firms that want to send a courier to USTDA to retrieve the RFP should allow one hour after faxing the request to USTDA before scheduling a pick-up. Please note that no telephone requests for the RFP will be honored. Please check your internal fax verification receipt. Because of the large number of RFP requests, USTDA cannot respond to requests for fax verification. Requests for RFPs received before 4:00 PM will be mailed the same day. Requests received after 4:00 PM will be mailed the following day. Please check with your courier and/or mail room before calling USTDA.

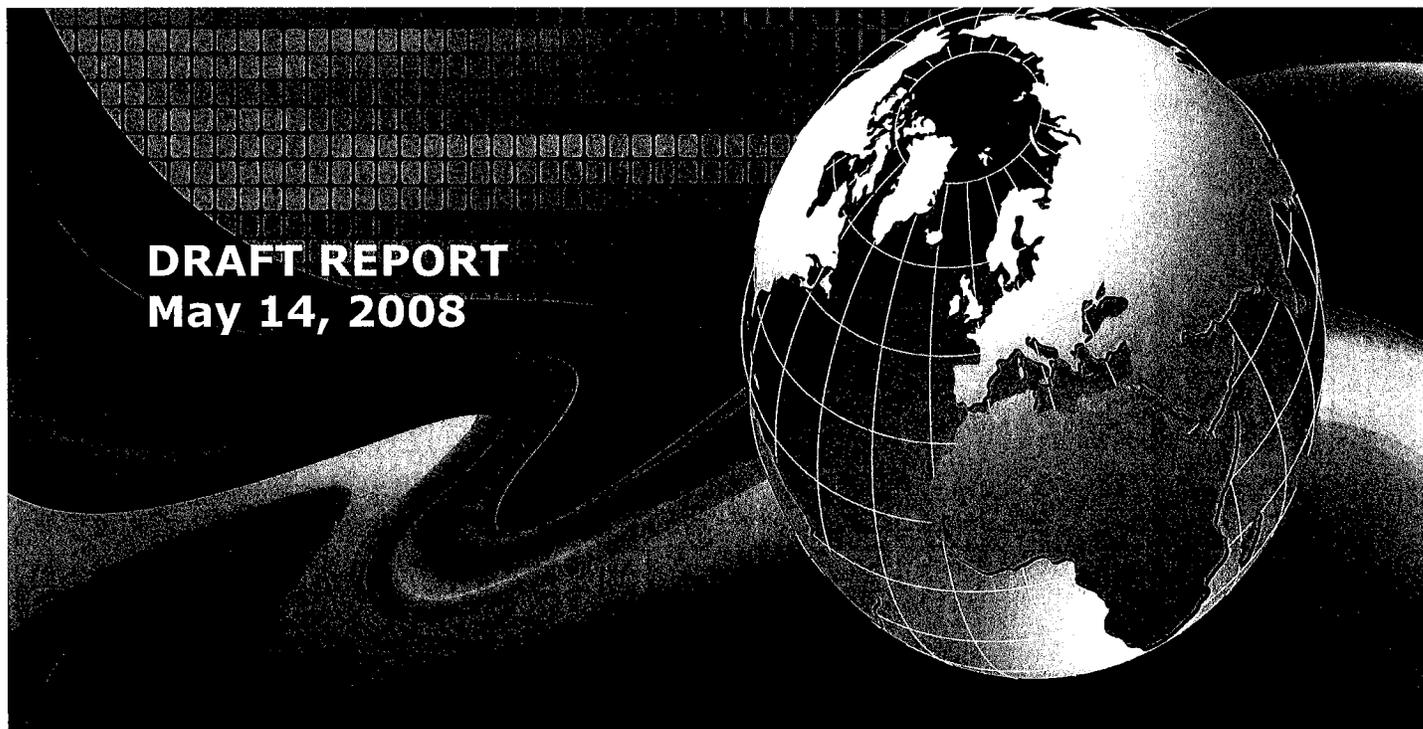
Only U.S. firms and individuals may bid on this USTDA financed activity. Interested firms, their subcontractors and employees of all participants must qualify under USTDA's nationality requirements as of the due date for submission of qualifications and proposals and, if selected to carry out the USTDA-financed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

Interested U.S. firms should submit their Proposal in French directly to the Grantee by 4:00 p.m. on September 22, 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

**U.S. TRADE AND DEVELOPMENT AGENCY  
SUB-SAHARAN AFRICA:  
NIGER SEAQUEST-INFOTEL, S.A.  
FIBER OPTICS PROJECT  
DEFINITITIONAL MISSION**



**DRAFT REPORT  
May 14, 2008**

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# West Africa: NIGER Definitional Mission: Niger Fiber Optic Infra- structure

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# West Africa: NIGER Definitional Mission: Niger Fiber Optic Infra- structure

## 1. Acronyms

ADSL	Asymmetrical Digital Subscriber Line
ARM	The Multi-sector Regulatory Authority
CFA	Unit of West African Currency
DM	Definitional Mission
DOMSAT	Domestic Satellite Network
EAIF	Emerging Africa Infrastructure Fund
FMFM	Frontier Markets Fund Managers
FWA	Fixed-Wireless Access
GB	Gigabits
GSM	Global System for Mobile Communications
ICT	Information and Communications Technology
IT	Information Technology
IMF	International Monetary Fund
IP	Internet Protocol
ISDN	Integrated Services Digital Network
ISP	Internet Service Provider
ITU	International Telecommunications Union
Km	Kilometers
LAAICO	Libyan Arab African Investment Company
Mbs	Megabits
MNJ	Mouvement des Nigeriens pour la Justice
NEPAD	The New Partnership for Africa's Development
NICI	National Information and Communications Infrastructure
PIDG	Private Infrastructure Development Group
SML	Societe des Mines du Liptako
SONICHAR	Societe Nigerienne de Charbon
SONATEL	Societe National de Telecommunications
SAFE	South Africa-Far East Cable
SAT3/WASC	Southern Africa – Western Africa Submarine Cable
TOR	Terms of Reference
US\$	United States Dollar
USAID	U.S. Agency for International Development
USTDA	U.S. Trade and Development Agency
VSAT	Very Small Aperture Terminal



# **West Africa: NIGER Definitional Mission: Niger Fiber Optic Infra- structure**

WAFS	West African Festoon System
WB	World Bank
WiFi	Wireless Fidelity
WIMAX	World Interoperability for Microwave Access
WLL	Wireless Local Loop



# West Africa: ICT Definition Mission Project: Niger Fiber Optics Infrastructure

## 2. Executive Summary

Computer Frontiers, Inc. was contracted by the U.S. Trade and Development Agency (USTDA) to identify projects for the West Africa ICT Roadmap to Opportunities Conference, to be held in Accra, Ghana, July 8-10, 2008. During this process, Computer Frontiers also identified possible projects, which with some assistance from USTDA, would offer greater opportunity for American companies.

Computer Frontiers, Inc. identified a project in Niger, sponsored by the company Seaquest-Infotel, S.A, which has entered into a mandate letter for potential financing with the GuarantCo development fund to build a fiber optic backbone network, connect Niger to the SAT-3 cable and build fiber connections to neighboring countries. This Definitional Mission was developed as a desk study, and researchers did not directly visit Niger. So, the usual fuller scope of meetings and background documentation was not created for this report. That being said, the project remains an excellent possibility for U.S. Trade and Development Agency further funding possibilities.

Seaquest-Infotel, S.A. has approached the GuarantCo fund to arrange a long term partial credit guarantee in local CFA currency for a Niger-wide fiber optic and wireless telecommunications backbone network. Initially, the rollout will concentrate around the capital city of Niamey. Then fiber optic/wireless

connections will be made to cities commercially important to Niger in neighboring countries and will also connect to the SAT-3 international telecommunications cable off the west coast of Africa.

Phase I of the Project, to complete a partially installed fiber loop in Niamey, and connect to the SAT-3 cable, is estimated by Seaquest-Infotel at approximately US\$ 23 million equivalent in CFA francs, of which approximately US\$ 18 million equivalent in CFA francs is likely to be covered by a long term credit guarantee by GuarantCo toward providers of CFA franc denominated loans.

The Financial Sponsors of the project are GuarantCo, and a possible co-guarantor to be agreed upon. The names of possible co-guarantors are 1) Fond de Solidarite Africaine, a Niger based guarantee fund, and 2) American companies that have offered product financing.

The feasibility and due diligence studies, including those for which support of USTDA are requested, are intended to assist Seaquest-Infotel and its existing shareholders in securing financing. This feasibility study will offer the required due diligence before the financial backers will make monetary and other commitments.

GuarantCo ([www.GuarantCo.com](http://www.GuarantCo.com)) is a fund that provides long term project risk guarantees to providers of local currency funding (typically local banks) for projects in developing countries, such as



## West Africa: ICT Definition Mission Project: Niger Fiber Optics Infrastructure

Niger. GuarantCo is managed by Frontier Markets Fund Managers, (FMFM) a separate division of Standard Bank of South Africa.

GuarantCo will evaluate the Sequest-Infotel project together with a related fund, the Emerging Africa Infrastructure Fund (EAIF) ([www.emergingafricafund.com](http://www.emergingafricafund.com)), which includes a development fund that provides long term USD and Euro denominated loans for project finance in Sub-Saharan Africa. Sequest-Infotel's mandate letter with GuarantCo may be re-executed to include EAIF, which would give the fund manager of EAIF and GuarantCo more funding options for the project, but such re-execution had not yet occurred at the time of this submission.

The 100% shareholder of the GuarantCo and EAIF funds is the Private Infrastructure Development Group (PIDG) ([www.pidg.org](http://www.pidg.org)). PIDG has the following shareholders: the Department for International Development of the United Kingdom; the State Federation for Economic Affairs (SECO) of the Swiss Federation; the Netherlands Ministry of Foreign Affairs (DGIS); the Swedish International Development Co-operation Agency (SIDA); the Austrian Development Agency (ADA); and, Irish Aid. IFC/World Bank are also members of PIDG, but not specific shareholders of EAIF and GuarantCo.

GuarantCo and EAIF are to finance infrastructure projects that are develop-

mental in nature, but considered commercially viable, using traditional commercial financing and investment processes.

The rationale for the Project is the severe lack of telecommunications backbone capacity locally within Niger, as well as a lack of affordable terrestrial connectivity to neighboring countries and to the international SAT-3 cable off the coast of West Africa. While Niger has three active mobile telecommunications licensees, and a new unified fixed and mobile license holder (France Telecom to launch in mid-2008), and a partially privatized landline telecommunication carrier, SONITEL, for reasons of competition/rivalry and lack of financial resources, none of the local carriers has successfully completed any of the following on a common carrier basis:

- 1.) Modern local fiber optic/wireless loop in major cities;
- 2.) Intercity landline fiber/wireless connection; or
- 3.) Landline connection via neighboring countries to the SAT-3 cable.

Instead, Niger relies on expensive satellite connections and suffers from high local and international telecommunications costs, lack of bandwidth capacity and a range of inter-operability problems among local carriers. Traffic of mobile operators is, we understand, mostly carried on a mobile tower to mobile tower basis and usually within same-company systems.



# West Africa: ICT Definition Mission Project: Niger Fiber Optics Infrastructure

The Sponsors intend to build a local telecommunications company focused on four business segments to commercially exploit the situation in Niger on a “carrier’s carriers” model. The business segments are:

- i) Open access wholesale capacity to support inter-connectivity between operators and to backhaul international telecom traffic to the SAT-3,
- ii) Service provider providing access for local businesses,
- iii) General telephone carrier and provider of network and specialist services to national and local government authorities and services.

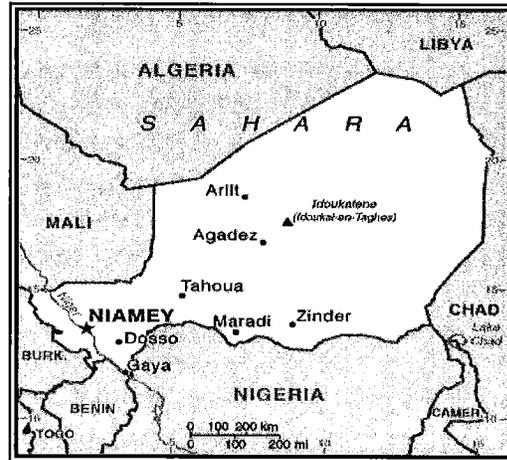
As well as the pass-through and inter-connectivity service, products to be offered in the four segments will include VoIP telephony, Data and Video traffic.

The first phase of the project, which is proposed to be part guaranteed by GuarantCo, focuses predominantly on the open access carrier and interconnectivity service, though some elements of the other services, including the government services contract, (a minor portion of the business plan,) will also be put in place.

In order to finalize their guarantee, GuarantCo requires as part of its overall due diligence, more thorough and updated market research, which is where the USTDA funding will be necessary.

## 3. Project – Niger National Fiber Optics Infrastructure

### A. Background Information



The Republic of Niger is a West African country with a land area of 1,267,000 square kilometers. Landlocked, it is bounded to the west by Burkina Faso and Mali, to the north by Algeria and Libya, to the east by Chad and to the south by Nigeria and Benin. Niger's population is approximately 12 million, of which over 80% are farmers living in rural areas, mainly clustered in an arable band along the southern border of the country.

Niger is a land of great natural resource wealth including oil, gold, uranium, and tourist sites. All are potentially economic growth sectors for Niger, and the government is aware that in order to exploit these resources for the development of the country, improved infrastructure is



## West Africa: ICT Definition Mission Project: Niger Fiber Optics Infrastructure

required, demanding significant investment. Based on the OECD DAC listing of ODA recipients of 2006, Niger remains classified as one of the least developed and poorest countries in the world.

In the area of telecommunications infrastructure, the Government of Niger has taken strides towards supporting economic growth with the establishment of a telecommunications policy and the privatization of the information communications technology (ICT) sector. However, even with early privatization of the sector in 2001 by granting two mobile licenses in turn to Celtel Niger and SahelCom, and in the same year privatizing 51% of the national incumbent SONITEL, growth in the country's telecoms sector seems to be held back by lack of competition and capacity among existing players in the market. The competition in the mobile telephony sector in Niger has still not left much of a mark, with a penetration rate of less than 6.6% at the end of 2007.

In November of 2007, in order to stimulate a new wave of growth in the telecommunications market, the government of Niger awarded a unified fixed and mobile license, in essence a second national operator's license (SNO) for fixed-mobile-Internet operations to a consortium led by France Telecom, for US\$ 71.1 million (Euro 48 million).

The government of Niger in 2005 granted a telecommunications license to Seaquest-Infotel in conjunction with the rollout of IT services for the Franco-

phone Games held in Niger that year. The license includes the authorization to provide for the rollout and management of inter-city links, the rollout and management of city local loops, and the international connection to regional neighbors and to the SAT-3 cable using both fiber optic and wireless networks. The company is currently active in Niger in the following sectors: VoIP and IT support contract services to the Government of Niger.

### REGULATORY BACKGROUND

The Ministry of Communications is tasked with administration and policy-making within the country. The Multi-sector Regulatory Authority (ARM) is the established regulator for the ICT sector. The country's telecommunications policy, The Niger NICI Plan, was finalized in July 2005.

In 2001, before the telecommunications policy was written, Niger privatized SONITEL, the primary telecommunications operator, through the sale of a 51% stake to a consortium including ZTE, a Chinese producer of telecommunications equipment, and a Libyan company, Libyan Arab African Investment Company (LAAICO.) Also included in the deal is a stake in the state-owned mobile operator SahelCom.

An area that requires further investigation for the Seaquest-Infotel Fiber Optic project is to determine the status of the license that Seaquest-Infotel has, and any statutory requirements for Universal



## West Africa: ICT Definition Mission Project: Niger Fiber Optics Infrastructure

Services, interconnection or rollout requirements.

### ICT MARKETS

The ICT sector is commercialized and November 2007 saw the entrance of effectively the Second National Operator, France Telecom, which promises to bring their Orange brand services and capacity to Niger. The new operator will break up a monopoly in the fixed line sector enjoyed by Niger's state phone company SONITEL, which, as previously stated, is controlled by Dataport. France Telecom will compete with SONITEL across all sectors of the market, including mobile and Internet. The mobile market also includes three other players —Celtel Niger, Telecel Niger and SahelCom—for a total of four cellular service providers.

### FIXED LINE

In November, 2006 SONITEL announced it was implementing a high-speed fiber optic network with Siemens. A section of it was inaugurated in the capital Niamey at that time, and a fiber optic backbone network was to link Niger to the SAT-3 undersea cable connecting Portugal to South Africa via the coast of West Africa.

The first phase was to have connected to the SAT-3 cable, and the second phase would install fiber links to SONITEL customers, and a fiber optic loop around the capital. However, to date, the project is only 50% completed, and the fiber that has been built to the SAT-3 is dark.

### EXISTING FIBER OPTIC BACKBONE NETWORK

#### Fiber "Loop" in Niamey

Commencing in 2006 with Siemens, SONITEL has strung approximately 20 km of "dark fiber" in and around Niamey. It is not a complete loop, but rather branches intended to reach SONITEL's top clients. There are conflicting reports as to whether this fiber is lit or not, and the feasibility study would have to take a closer look.

Seaquest-Infotel is in advanced negotiation with SONITEL to co-locate equipment and/or use the existing fiber. Seaquest-Infotel will put its transmission equipment on the partially completed strings of SONITEL fiber, will activate it, and with its own equipment complete a proper fiber loop. The feasibility study should evaluate market demand to determine the optimal routing for the fiber build to achieve the maximum economic impact.

It has been suggested that equipment supplied to SONITEL on its fiber links is inferior, and that SONITEL lacks the technical capacity to effectively utilize it. Under these circumstances, again, there is an excellent window of opportunity for Seaquest-Infotel to enter with their technical skills and expertise, which they have gained from a similar operation in Mali, and for American equipment suppliers to offer their superior goods and services.



## West Africa: ICT Definition Mission Project: Niger Fiber Optics Infrastructure

At this writing, the exact fiber layout in Niamey is unclear. However, it is clear that there is no active fiber infrastructure in the rest of the country, which is about twice the size of Texas. The following section describes the current reported state of fiber access in the country.

**Fiber Optic Connection: Niamey to SAT-3.** Current information indicates that there is no working/completed link to SAT-3 from Niger, despite much fanfare in the press. However, there are several partially completed dark cables built by SONITEL, with no active equipment.

Seaquest-Infotel is proposing to make these links active under agreements with SONITEL. Seaquest-Infotel indicated the following to be in existence:

**Niamey to Burkina Faso Fiber Optic Connection.** There is an active fiber optic cable coming from SAT-3 to the city of Coupela in Burkina Faso, 350 km from the Niger border. SONITEL had a deal with Siemens to string fiber from Niamey to the Burkina Faso border. However, due to lack of funding, this cable stops close to the border, is not active, and there is no equipment installed.

Under the Seaquest-Infotel Project, active negotiations are underway with SONITEL to use this fiber and connect to the fiber stopping in Coupela, Burkina Faso, initially via radio wave equipment.

**Niamey to Benin Fiber Optics Connection.** It is reported that there is an active cable coming from SAT-3 via Benin, which is live until the Benin city of Malianville, and runs further inactive to Paracou 450 km from the Niger border. On the Niger side of the Benin border there is a cable from Niamey to Doso and then on to Gaya on the border with Benin. Again this cable is not active and there is no active equipment on it.

Under the Seaquest-Infotel Project, Seaquest-Infotel is negotiating with SONITEL to put in equipment to activate the cables, and connect to the Benin cable by radio links.

**Niamey to Chad Fiber Optic Connection.** From Niamey to Zender to Diffa, on the Niger side of the border with Chad, there is an inactive SONITEL fiber optic cable. On the Chad side of the border, from the city of Mao, there is no fiber link to the Chadian capital of Ndjamerina. However, the SAT-3 cable does link to Ndjamerina, following the oil pipeline, and connecting via Cameroon.

Under the Seaquest-Infotel Project, they again propose to negotiate with SONITEL to use the inactive fiber optic cable, provide equipment, and connect them initially via wireless/radio wave equipment to Ndjamerina.

**Niamey to Mali Fiber Optic Connection.** There is no fiber optic cable from Niamey to Atayou, the closest city to the Mali border, opposite Gao in Mali.

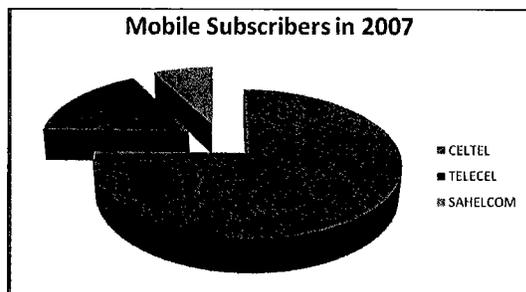


## West Africa: ICT Definition Mission Project: Niger Fiber Optics Infrastructure

Seaquest-Infotel plans to lay a fiber optic cable from Niamey to Atayou in a later phase. It is reported that there is an active cable or radio connection in Triraberi that can be connected to Gao.

### MOBILE

There are currently three active mobile cellular phone operators. Chart XX shows a picture of their current market share, and this section briefly describes the three mobile competitors.



*African Telecoms & Internet Markets: Part 1, Balancing Act, 2007*

**Celtel Niger:** This is a subsidiary of Celtel International which is also present in 14 other African countries and is 100% owned by MTC, the Kuwait telecommunications group, Celtel Niger is the dominant operator in the mobile market in the country with more than 75% of market share.

**Telecel Niger:** Telecel Niger is owned by Atlantique Telecom in partnership with Etisalat (Emirates Telecommunication Corporation) and also present in 6 other countries in West Africa. With its 80,000 subscribers Telecel is the second operator in Niger.

**SahelCom:** SahelCom is the mobile branch of SONITEL, the privatized incumbent operator. Despite this advantage, SahelCom has only managed to attract around 8% of the mobile market.

### VOIP

The regulator issued a decision (N°008/CNR-ARM 2005 of the 14th April 2005) setting out the conditions to operate Internet-based services including VoIP in Niger. And based on this decision, 11 operators have been granted authorization to offer VoIP services:

- Access Niger (Niamey);
- I Telecom SA (Niamey);
- Dune Telecom (Niamey);
- Connecteo (Agadez, Tahoua, Zinder);
- Seaquest Infotel Niger SA (Niamey);
- Ixcom Niger SA (Niamey);
- Migas SA (Arlit, Maradi); Afreetel Telecom;
- Nigerphone (Niamey);
- SahelCom SA (Niamey); and
- Telestar (Niamey).

### INTERNET

In September 2007, the International Telecommunications Union reported only 40,000 internet users, or 0.3% of the population, with only 212 of those users being fixed broadband internet subscribers. The sector remains stymied by low literacy rates, low numbers of



## West Africa: ICT Definition Mission Project: Niger Fiber Optics Infrastructure

computers, and relatively expensive methods of Internet access, where there is limited fixed line capacity, and lack of fiber optic connections to the international Internet backbone. Despite these challenges, the Internet sector is growing, going from 1 Internet provider in 2004, to 13 today. There are several initiatives of note, and the key players in the market are highlighted below.

**SONITEL** has several initiatives that are worth noting in the Internet sector. A CDMA infrastructure (Dogonay) has been deployed on which voice and Internet services are offered. SONITEL also runs a Wi-Fi infrastructure for clients with Wi-Fi devices wishing to access the Internet. It also has an ADSL infrastructure that does not yet cover the whole country but where it is available; the customer can enjoy speeds of up to 2MBs.

**Alink Telecom Niger:** A subsidiary of Atlantique Telecom, the West African Telecom operator, Alink Telecom has taken over Afripa Telecom Niger's activity which had been operating in the country since November 2000. Alink Telecom targets the corporate market with its offering of high speed, wireless broadband.

**Dune Telecom** is a joint venture between Mohamed Rissa, a Nigerien investor and Laurent Potard, the former representative of Siemens in West and Central Africa. The company launched services in 2005, offering voice and Internet Access via its Dune Telecom Antenna and

Dune Box deployed at the customer premises.

**Lipinfor SA** provides wireless voice and data services to businesses and organizations via its networks deployed in Niamey, Agadez, Maradi, Tahoua, Zinder and Konni. They also cater to tourists and business travelers in the larger hotels in these cities, offering Wi-Fi connection.

**Liquid Telecom** is a voice, data and internet service provider, specializing in supplying wholesale satellite and international carrier services to independent mobile and fixed telecommunications operators. Liquid Telecom owns and operates multiple satellite ground facilities in the United Kingdom, Botswana, Nigeria, Zimbabwe, Lesotho, Somalia, Burundi, Niger and Kenya.

**Nigerpac** provides data transmission service for both national and international requirements. Established in 1989, they offer data transmissions per X75 packages and X25, in addition to Internet and the French Minitel network access.

**SahelCom** is the mobile and Internet subsidiary of SONITEL, the privatized incumbent. SahelCom offers dial-up as well as broad-band connections using a Wireless Local Loop infrastructure and offering connection speed of up to 256 Kbps.

Due to the state of fixed infrastructure in Niger, most of the Internet offers are in the broadband wireless category. Only



## West Africa: ICT Definition Mission Project: Niger Fiber Optics Infrastructure

SahelCom is offering dial-up connections, while all the other players are offering services based on WLL, WiMax or other of wireless links.

### SATELLITE

Niger has five domestic earth stations and two international stations. The two international connections are via Intelsat satellite earth stations, one over the Atlantic Ocean and one over the Indian Ocean. In 2005, Siemens Networks digitized the country's DOMSAT (domestic satellite) for SONITEL. DOMSAT connects the fixed line telephone network and SahelCom mobile network, covering the capital, Niamey, and links to areas as far away as Diffa, Agadez and Bilma.

### Economic & Commercial Overview

Oil, gold, uranium and tourism are some of the building blocks that can be used by the Government of Niger to build the future economy. The country has deposits of all three resources and is working to exploit these in order to create industry, jobs, and revenue in Niger, now listed near the bottom of the United Nations Human Development Index. Exploration of these resources, along with economic reform and debt relief, are part of the government's plan for economic recovery. In addition, political stability will encourage investment and commerce and help the country to its feet.

### OIL

The Government of Niger is trying to attract new bids on the Agadem block for 2008. The China National Petroleum Corporation (CNPC), the Chinese state oil company, is continuing to explore two other concessions in Niger. Agadem is seen as the most promising concession in Niger because it forms part of the same geological rift system from which its eastern neighbor, Chad, has started producing oil.

### COAL

The government-owned SONICHAR (Societe Nigerienne de Charbon) in Tchirozerine (north of Agadez) extracts coal from an open pit and fuels an electricity-generating plant that supplies energy to the uranium mines. There are additional coal deposits southwest of the current mines. Substantial deposits of phosphates, iron, limestone and gypsum also have been found in Niger.

### GOLD

Gold exists between the Niger River and Niger's border with Burkina Faso. In 2004, the Samira Hill Gold Mine in the Tera region was opened. This was the first commercial gold production for the country. A joint venture between Moroccan and Canadian companies called the Societe des Mines du Liptako (SML) owns the gold mining operation. In 2006, gold accounted for 13.6% of Niger's total exports. In 2007, Caracel Gold Burkina, an Anglo-American Corporation were awarded permits to explore for gold in the region.



## West Africa: ICT Definition Mission Project: Niger Fiber Optics Infrastructure

### URANIUM

The global rise in oil prices has caused many countries to revisit nuclear energy as an alternate to oil-burning power plants. This has resulted in a global price increase for uranium, the thermal power source used in nuclear power plants. Niger has large deposits of uranium, and global price increases mean higher revenues for Niger's uranium sector, which provides approximately 55.4% of national export proceeds. The French nuclear power concern AREVA owns controlling shares in Niger's two national uranium mining companies. As a result of higher world prices in 2007, AREVA agreed to pay the Government of Niger double what it had been paying for uranium. In 2007, the U.S. public utility holding company Exelon Corporation signed a contract with the Government of Niger to buy 300 tons of uranium each year for the next ten years. In 2007, the Government of Niger awarded 122 new mineral exploration licenses to companies from France, China, Canada, Australia, India, South Africa and the United States.

A downside to the increase in uranium prices and exports is current civil unrest that has gone on for the past year involving a previously unknown group now known as the Mouvement des Nigériens pour la Justice (MNJ). This group is labeled a rebel organization by the government and their attacks and actions have severely impacted tourism and mining in the country. The group wants more autonomy and more money from

the current mining and exploration going on in the northern part of the country. The Niger government has not extended them any credibility and blames their violence on banditry and drug trafficking.

### TOURISM

While not yet a major economic contributor, there is great potential for tourism in Niger. The country is home to the Addax Sanctuary, which is 3.2 million acres of Sahara Desert protected by international agencies. Tourism to the Sahara Desert and boat tours up the Niger River to see lions, elephants, cheetahs, hippos and both rare and migratory birds attract high value elite and adventure tourists. Many tours start out in Niamey, which houses world-class hotels like the Grand Hotel Niger. Scientists and archeologists alike are also attracted to the country's prehistoric human, animal and botanical findings.

While tourism, uranium and gold are all good bets to improve the economy, the country's difficult financial condition has also been improved through debt relief. In 2005, the IMF canceled all of Niger's outstanding debts (approximately US\$ 111 million). In 2006, the African Development Fund canceled US\$ 193 million in debt for Niger. The World Bank announced that approximately US\$ 745 million in debt relief for Niger would be phased in over the next 37 years. Niger is also the beneficiary of international donors, including France, the European Union, the World Bank, the IMF and UN agencies. The United



# West Africa: ICT Definition Mission Project: Niger Fiber Optics Infrastructure

States is a major donor, contributing on average US\$ 30 million each year to Niger's development. In late 2006, Niger qualified for Millennium Challenge Account threshold status. Foreign aid represents 8.3% of Niger's GDP and over 40% of government revenues.

## FOREIGN INVESTMENT

The Government of Niger actively seeks foreign private investment and considers it key to restoring economic growth and development. With the assistance of the United Nations Development Program (UNDP), it has undertaken a concerted effort to revitalize the private sector. It revised the investment code (1997 and 2000), petroleum code (1992 and 2007), and mining code (1993), moves all aimed at attracting investors. Foreign and domestic capital are legally equal. Investments are not screened, and all sectors are open except for those related to security purposes. Land ownership requires authorization. Foreign investment is relatively low for the region; most involves the mining sector, especially uranium. Residents may hold foreign exchange accounts subject to some restrictions.

## B. Project Description

### Project Summary Information

Host Country	Niger
Project Name	Niger Fiber Optic Backbone Project
Sector	ICT
Region	Sub-Saharan Africa

Project Location	Niger
Project Costs	US\$ 23 million
US Exports	US\$ 15 million
Grantee	Sequest - Infotel Niger, SA

## About the Grantee and Supporting Organizations

Sequest-Infotel Niger S.A. was created in July, 2005, in the context of a partnership with the Government of Niger and a group of collaborating partners, for the purpose of developing new information and communications technologies. Sequest-Infotel has a shareholding of the following members:

- Sequest-Infotel Tel Inc, 50%
- Eau et Nature SARL, a Niger company, 20%
- Enterprises Abarchi Moussa SARL, a Niger company, 10%
- Achats Service International S.A., a Niger Company, 10%
- Mr. Raphael Nbogni, CEO, 10%

Sequest-Infotel Niger S.A. is headed by Raphael Nbognjin, Ph.D. His first degree is in Mechanical Engineering from the Ecole Polytechnique, Cameroon. He also has an IT engineering degree from the University of Quebec, Montréal, Canada, as well as a Masters of informatics from the same university. He received his Ph.D. degree in telecommunications from the University of Concordia, Montréal. Mr. Nbognjin was a Professor of Informatics and Telecommunications at the University of Quebec for 7



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years; then director of the department. He is among the founders of Seaquest-Infotel, Inc. in Canada, and has been an officer of Seaquest since 1990.

Mr. Nbognjin has been CEO of Seaquest-Infotel Mali and Niger since their founding in 2005. His professional experience in telecommunications includes messaging services, SDH transmissions, routers, main street system transfers, etc. He is originally from Cameroon, is a citizen of Canada, and is a permanent resident of Mali and Niger.

Mr. Nbognjin has a strong management team, and is prepared for this project in Niger, having completed a similar activity in Mali. Other team members include the chairman of Seaquest-Infotel Niger, Mr. Ali Abdoulaye who has 30 years of experience leading other Niger companies. Mr. Bernard Alain Wouako, who has a diploma in MCSE and an HEC diploma from Montréal, is the technical/operations director. Mr. Alain Kenfack, holds a Masters degree in Marketing, is the local administrative director in Niger. Mr. Nicolas Kanelopolous is the Finance Director. Seaquest-Infotel makes further staff and expertise available from Mali and Canada, as outlined in its business plan.

The Financial Sponsors of the project are GuarantCo, and a possible co-guarantor to be agreed upon. The possible co-guarantors include: 1.) Fond de Solidarite Africaine, a Niger based guarantee fund, and 2) several American companies that have offered product financing.

The selected providers of CFA loans to Seaquest-Infotel under the GuarantCo guarantee, which may also share some of the risk, are yet to be selected but discussions have been held with Ecobank and Société Générale. Seaquest-Infotel, S.A. Niger is also seeking additional equity, as the lenders and guarantors will seek a reasonable debt/equity ratio, but GuarantCo has expressed willingness to help find additional equity. GuarantCo has also been willing to approach a technical assistance fund, associated with GuarantCo, to cover some of the required due diligence. It will cover tasks other than the study for which USTDA has been approached to support.

The feasibility studies, including those for which support of USTDA are requested, are intended to benefit Seaquest-Infotel Niger and its existing shareholders to facilitate procuring financing of the project. This feasibility study will offer the required due diligence before the financial backers will make monetary and other commitments. GuarantCo ([www.GuarantCo.com](http://www.GuarantCo.com)) is a fund that provides long term project risk guarantees to providers of local currency funding (typically local banks) for projects in developing countries, such as Niger. GuarantCo is managed by Frontier Markets Fund Managers, (FMFM) a separate division of Standard Bank of South Africa.

GuarantCo, together with a related fund, the Emerging Africa Infrastructure Fund (EAIF) ([www.emergingafricafund.com](http://www.emergingafricafund.com)), which is a development fund that pro-



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vides long term USD and Euro denominated loans for project finance in Sub-Saharan Africa, will evaluate the Sequest-Infotel project. As indicated, the mandate letter of GuarantCo with Sequest-Infotel Niger may be re-executed to include EAIF, which could lead EAIF to also potentially become a financier of the project.

The 100% shareholders of the GuarantCo and EAIF funds is the Private Infrastructure Development Group (PIDG) ([www.pidg.org](http://www.pidg.org)). PIDG has the following shareholders: The Department for International Development of the United Kingdom, the State Federation for Economic Affairs (SECO) of the Swiss Federation, the Netherlands Ministry of Foreign Affairs (DGIS), and the Swedish International Development Co-operation Agency (SIDA); the Austrian Development Agency (ADA), and Irish Aid. IFC/World Bank are also members of PIDG, but not specific shareholders of EAIF and GuarantCo.

GuarantCo and EAIF are to finance infrastructure projects that are developmental but based on commercial viability, using a commercial process.

### Objectives

While Niger has three active mobile telecommunications licensees, and a new unified fixed and mobile license holder (France Telecom to launch in mid-2008), and a partially privatized landline telecommunication carrier, SONITEL, for

reasons of competition/rivalry and lack of financial resources, none of the local carriers has successfully completed any of the following on a common carrier basis:

- 1.) Modern local fiber optic/wireless loop in major cities;
- 2.) Intercity landline fiber/wireless connection; or
- 3.) Landline connection via neighboring countries to the SAT-3 cable.

Instead, Niger relies on expensive satellite connections and suffers from high local and international telecommunications costs, lack of bandwidth capacity and a range of inter-operability problems among local carriers. Traffic of mobile operators is, we understand, mostly carried on a mobile tower to mobile tower basis and usually within same-company systems.

The Sponsors intend to build a local telecommunications company focused on four business segments to commercially exploit the situation in Niger on a "carrier's carriers" model. The business segments are:

- i) Open access wholesale capacity to support inter-connectivity between operators and to backhaul international telecom traffic to the SAT-3,
- ii) Service provider providing access for local businesses,
- iii) General telephone carrier and provider of network and specialist services to national and local government authorities and services.



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As well as the pass-through and interconnectivity service, products to be offered in the four segments will include VoIP telephony, Data and Video traffic.

Seaquest-Infotel is in discussion with SONITEL to utilize existing fiber infrastructure that is operational, and fiber portions that are not yet lit, as a basis for kicking off the project.

In order to finalize their guarantee, GuarantCo requires as part of its overall due diligence, more thorough and updated market research, which is where the USTDA funding will be necessary.

Seaquest-Infotel recognizes that the first phase of the Project focuses predominantly on the open access pass-through/interconnectivity service, though some elements of the other services, including a government services contract will also be put in place. The government services contract is not intended to be a significant part of the business plan but the sponsors wish to continue to build on goodwill with the Government of Niger, which dates from Seaquest-Infotel's assistance to the Government of Niger in 2005 during the Inter-francophone games. Seaquest-Infotel installed and implemented a security and telecommunications services during the games. This experience gave the backers of Seaquest-Infotel the initial understanding of the severe lack of telecommunications backbone infrastructure in Niger and the opportunity to fill this gap.

### Challenges and Constraints

To enable the implementation of the Project, we understand Seaquest-Infotel would have obtained telecommunications operator licenses from Niger and from neighboring countries under the international SAT-3 interconnectivity treaty provisions for connections via and to neighboring Mali, Burkina Faso, Chad and Nigeria. Confirmation of licenses needs to be determined, and the difficulty for obtaining further licenses need be evaluated.

The following elements are challenges and constraints within the national ICT environment:

- low level of development of local expertise,
- market viability for consumption of services, and
- New entry by France Telecom, and its impact on the market.

### Next Steps

There are several next steps needed to move the project forward. These steps will help shape and prepare the project for procurement and implementation.

The Financing Sponsors, who would provide most of the financing for the Project but are less familiar with the market, are hesitant to make the investment without an in-depth analysis of the market for telecommunication services in, from, and to Niger, and in particular



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for the type of telecommunications services being considered for Phase I of the Seaquest-Infotel Niger project. The Financial Sponsors also want to understand whether the cost and technical characteristics and specifications of the intended Seaquest-Infotel's offering (product and equipment) would allow Seaquest-Infotel to reasonably and successfully enter and profitably operate in its targeted markets in Niger. Therefore technical and cost viability (both in terms of capital expenditure and long term operating expenditure) are also a component of the required study. However, the Sponsors would consider segregating the technical/engineering work required into a separate assignment.

First, a technical feasibility study and technical network design needs to be developed for the national ICT backbone infrastructure. To date, a technical feasibility has not been conducted nor has a technical network plan been developed. This feasibility study is crucial in helping to define the project and technical implementation plan.

A key question to be answered as part of the technical feasibility study is whether a single, new network will need to be built or whether the existing telecom operators and infrastructure owners will allow their communications networks to be shared or blended together as part of proposed build-out of national ICT infrastructure. This question will have implications for the technical design as well as for the ownership, management, financing options and regulatory frame-

work for the proposed national ICT network.

Second, realistic and detailed estimated project costs need to be developed based upon the technical network design and project implementation plan. Documents shared with the DM consultant provide a broad overview of the proposed project but do not contain estimated costs. Part of the next steps is to cost out the various components of the proposed network as well as an aggregated estimated project cost.

Third, there are concerns about gaining licenses in the neighboring countries, and a mapping of the processes and timeline to accomplish those licenses would need to be drawn out, as it would have great impact on the overall revenue generation for the project and the technology solutions. Seaquest-Infotel Niger believes it can rely on pass through rights (against pass through fees) based on its Niger license, but this needs to be confirmed, together with a check on whether further licenses in neighboring countries are needed.

Fourth, a project financing strategy needs to be firmly established from the feasibility study. There are identified investors; however, only when a study more adequately defines the risks and rewards of the project, can an adequate financing plan be put into place.



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### C. Developmental Impact

The overall objective of this project is to provide fiber optic carrier class connectivity, significantly reducing the current prohibitive cost of telephony and internet services in Niger. Currently Niger is served by restricted and expensive satellite connections requiring transit through third countries outside the region for country to country communication and information exchange.

The benefits of this project will improve ICT infrastructure and increase universal access to ICT. By reducing expensive telecommunication costs with Niger's neighboring countries, the project will also help support and stimulate greater cross-border trade and economic transactions in the West Africa region.

The Government of Niger views this telecommunications project as crucial to overall economic development of the country and to expansion of the ICT sector as a whole.

Potential benefits and development impact include:

- **Infrastructure/Industry:** The project will establish the physical and ICT infrastructure for the whole country, resulting in a significant increase in the supply of high quality, reliable broadband capacity while simultaneously reducing bandwidth costs. The improved access to the Internet resulting from the project will also lead to a parallel reduction in end-user

prices for telecommunications service (both telephony and Internet). This is expected to help provide the conditions for growth of existing businesses and to attract new enterprises that need modern low cost connectivity.

- **Market Oriented Reform:** The project will foster an open, non-discriminatory communications regime that ensures that capacity is available to all at a fair price. By providing interconnection points to Niger's neighbors, the project will also stimulate the growth of cross-border trade and economic activity.
- **Human Capacity Development:** The improved access to the internet resulting from the project would also benefit educational and medical institutions and will help boost general computer usage and literacy through the country.
- **Technology Transfer/Productivity Improvement:** The project will help Niger acquire new equipment and upgrades necessary to bring the country in-line with other nations in the region. The study will also help Niger understand U.S. technology in the areas of telecommunications and ICT.

### D. Implementation Financing

Seaquest-Infotel has made a gross estimate of the cost of the fiber optic backbone infrastructure. This estimate is



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based on a study they have conducted, including Seaquest-Infotel's own costing estimates, based on discussions with possible suppliers for its Niger project and its experience with installing a similar system in Mali. The total estimated cost is US\$ 23 million as the cost for this infrastructure.

Accordingly, a break down can be done as follows, as a percentage of total cost:

- Fiber/wireless: 17.1%
- Civil work: 54.6%
- Equipments: 24.7%
- Survey and control: 3.6%

In the terms of reference it is specified that the feasibility study will provide a more precise evaluation of the backbone costs for the fiber optic infrastructure.

There are several possible sources of implementation financing for the proposed project. An important aspect of the feasibility study will include assisting the potential financiers with inputs on costs and anticipated revenues, based on market size, potential share, growth and pricing. These are key drivers that will determine the financial viability of the project

## 4. TDA Evaluation Factors

### A. U.S. Export Potential

The Fiber Optic infrastructure in Niger will be a major generator of U.S. exports. It is estimated that up to 70% of material and services costs for the optic fiber cable, transmission equipment, power supply system, telecommunications engineering, installation, and integratoin could be of U.S. origin.

Some of the potential U.S. suppliers and companies that would benefit from the proposed fiber optic network rollout could include:

- Fiber optic plant: AMP, GTE Communicaitons Systems, Harris
- Transmission/Distribution equipment: Lucent, Harris, Nortel, Motorola
- Switches and routers: Cisco, Lucent, Nortel, Qualcomm
- Packet switching equipment: Digital Hewlett Packard, Hughes, Micom
- Communicaitons processors: IBM, Unisys, Amdahl, Harris, Digital
- Data storage manufacturers: EMC, Hewlett Packard

### B. Foreign Competition

While U.S. companies are strong players in the telecommunications market, they face fierce competition in West Africa from European (especially France) and



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Asian (especially Chinese) telecommunications equipment manufacturers.

As a result of former historical ties to colonial European powers, many markets in West Africa are traditionally a European-oriented business climate. Siemens, Ericsson, and Nokia are three examples of European companies with strong ties to the telecommunications industry in Niger and the West Africa region.

Among the Asian competitors, Chinese vendors, in particular, have a growing advantage in Africa due to the prevalence of vendor financing and availability of government loans offered by the Government of China. Huawei and ZTE are two Chinese companies that have shown strong interest in the African market and have succeeded in closing major contracts for fiber optic and mobile backbone network deployments.

USTDA funding of the proposed feasibility study would help U.S. vendors create a "U.S. footprint" by getting in at an early stage of project development and by establishing commercial relationships with the sponsor and its partners. In addition, the feasibility study would also advise on network design and the most suitable telecommunications equipment and technology solutions for building the national ICT infrastructure in Niger, and U.S. companies are known to produce some of the world's best telecommunications equipment.

The sponsors of the project are likely to undertake the entire procurement process through open competition, where U.S. companies will be eligible to apply. If U.S. consultants develop the specifications and rollout plan, it is likely that the U.S. companies would be better placed to win the resulting contracts.

### **C. Impact on the Environment**

The project is not expected to have any adverse impact on the environment. However, the build-out of the backbone network will require an examination of existing grids (i.e. telecommunications, power, railroad, etc.) in Niger that could be used to lay fiber for the national backbone. It is also envisioned that, wherever possible, the fiber route will be laid on existing infrastructure or in parallel with the roadways and rail lines. In some instances, civil works construction or trenching may be required. Therefore, environmental considerations should be evaluated during the feasibility study for such facts as grid-siting, power supply, road access, and other potential environmental impacts.

### **D. Impact on U.S. Labor**

The project would not reduce the number of employees of any U.S. company and will not displace any U.S. company outside of the United States.

Funding for the proposed project will result in the creation of U.S. jobs if ma-



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major telecommunications equipment items as well as systems integration and computer hardware and software are purchased from U.S. manufacturers and engineering firms.

### **E. Qualifications Required by the TA Contractors**

The Feasibility Study Team should have proven and demonstrated expertise in the following areas:

- Academic background and confirmed experience in telecommunications engineering, economics and law (30 percent),
- Creating feasibility studies that consider the technical, economic, legal and institutional impacts associated with the deployment of a fiber optic backbone infrastructure (25 percent),
- Knowledge of telecommunication strategies, policies, and African telecommunication reforms (25 percent),
- Procurement of national telecommunication technologies (10 percent),
- Deployment of fiber optic infrastructure and related systems integration (10 percent).
- Assessment of project for environmental and social matters to IFC performance standards (5 percent)

In addition, the Feasibility Study Team must have a working knowledge of French and demonstrated French language capabilities.

The following positions should be presented for this assignment. The bidder may provide other qualified individuals and local subcontractors (up to 20%) as they see appropriate:

### Project Manager

*Job Purpose:* The Project Manager will have overall responsibility and serve as the single point for coordination and quality of the Technical Assistance.

### *Major Skills and Requirements:*

- An established record of providing technical direction and leading multidisciplinary teams.
- Significant developing country experience, particularly in Sub-Saharan Africa, in identifying constraints to the telecommunications and ICT sector;
- Experience working on regulatory and policy frameworks for the telecommunications industry.
- The Project Manager must have a strong background and skills with an in depth understanding of the technical, business and construction issues involved in national or large scale telecom and ICT backbone projects.
- Strong communication skills, both oral and written.
- Proven project management experience interacting with senior level government officials, and with handling difficult political situations.
- Requires at least a Bachelors degree in Business, Finance, Computer Science or other relevant subject matter, as



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well as five to ten years industry experience.

### Telecommunications Engineer

*Job Purpose:* The Telecommunications Engineer(s) will take the lead technical role in surveying and analyzing the proposed plan against Niger's existing infrastructure, conducting a requirements analysis, identify any missing gaps, assessing interconnection points, and proposing technical recommendations.

#### *Major Skills and Requirements:*

- Strong understanding of large telecommunication infrastructure projects.
- The individual should have been instrumental in planning telecommunications infrastructure as well as overseen or at least participated in the implementation of the selected vendor networks and systems.
- Extensive knowledge of data, broadband, radio or satellite communication concepts and technologies is required.
- Demonstrated expertise in architecting and developing detailed technical design specifications and standards.
- Demonstrated experience in developing implementation plans, budgets and cost estimates for complex telecom or ICT projects.
- Requires at least a Bachelors degree in Computer Science, Telecommunications, or Electrical Engineering, as well as five to ten years industry ex-

perience in telecommunications and infrastructure corporate operations.

- Telecom Engineer with knowledge and experience in developing countries and the Sub-Saharan region, while not a specific requirement would be a plus.

### Telecommunications Regulatory Expert and/or Telecommunications Lawyer

#### *Job Purpose:*

The Consultant may propose either a Telecommunications Regulatory Expert and/or a Telecommunications Lawyer. This function will take the lead role in providing technical assistance and analysis for identifying additions or recommended adjustments to the regulatory, policy and legal framework for implementing a national ICT infrastructure that promotes affordable, non-restrictive access, and a competitive telecommunications environment.

#### *Major Skills and Requirements:*

- Strong background in telecommunications field, preferably with regulatory and operating company practices.
- Knowledge of modern management practices in the telecommunications industry.
- Extensive knowledge of cost and pricing models, tariffs, open access models, and interconnection agreements for the telecommunications industry.
- Demonstrated knowledge of best practices in promoting universal access.



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- Strong communication skills, both oral and written.
- Proven project management experience interacting with senior level government officials and with handling difficult political situations.
- Regulatory Expert with knowledge and experience in developing countries and the Sub-Saharan region, while not a specific requirement would be a plus.

### Market/Telecommunications Business Analyst

#### *Job Purpose:*

Marketing/Telecommunications Business Analyst will take the lead in assessing and recommending business models, ownership structure and related financing options for the national ICT infrastructure that is suitable to the Niger environment. The Financing Expert will also assist in developing a detailed project financing strategy and identifying possible financing sources.

#### *Major Skills and Requirements:*

- Experience in and knowledge of telecommunications markets in lower per capita income countries (so-called DAC1 countries), in particular in the Republic of Niger and Sub-Saharan Africa specifically including the ability to source, interpret and document reliable and detailed statistical market data for both public sector and private industry sector market segments relevant to the market for telecommunication

services in, from, and to Niger and to make quantitative and qualitative forecasts based thereon.

- Ability to complement statistical market research with data and opinion gathering via interviews of relevant local businesses and government entities.
- Experience or expertise in the telecommunication industries as a practitioner from market and feasibility research engagements. The consultant should be able to measure and project demand for telecommunications services, the likely evolution of prices and costs, the interaction between pricing and demand (price elasticity), the ability to pay, the extent of the market and to research and assess the competitive environment. A background or operational role in the industry can also be of value or interest in this context. Ability to and understanding of the direct and indirect competition and interaction between various telecommunications services and offerings (e.g. mobile versus landline, backbone versus distribution, satellite versus fiber optics and/or wireless) is also considered of relevance.
- Ability to gather, interpret and use as comparative or otherwise relevant information, statistical and other data and information on or relevant to telecommunication services in markets in other countries, with other Sub-



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Saharan African markets of particular relevance. The number and amount of such comparative data will be discussed with the Sponsors. In general though, the consultant should expect the Sponsors will find historical statistical data, evolution and forecasts for and trends in other Sub-Saharan African countries to be of interest.

- Fluency in French

### Environmental Specialist

- Experience in social and environmental assessments of telecommunications projects in developing countries.
  - Experience with IFC environmental and social performance standards and their interpretation. (GuarantCo and other development financial institutions that may co-finance or guarantee the project require compliance with such standards in environmental and social matters.)
  - Ability to assess or to guide the company in developing environmental and social action plans and assessments complying not only with local laws and regulations but also with IFC performance standards
  - Fluency in French
- 

### **F. Grantee's Request**

Seaquest-Infotel plans to build out fiber optic backbone infrastructure to support the ICT infrastructure development in Niger, to transport voice and data, as well as radio and television signals on a nationwide and regional basis.

However, as referenced in the project description section, there are several steps which must first be taken in order to move this project to an implementation phase.

Therefore, Seaquest-Infotel, is specifically requesting USTDA help in conducting a feasibility study and providing technical assistance related to the following key requirements for developing and deploying a fiber optic backbone in Niger:

- Verification of planned technical network design and specifications;
- Verification of estimated project costs;
- Validate market analysis and business case;
- Evaluate the regulatory and legal framework.

### **G. Justification**

USTDA involvement in this project is justified on the basis of U.S. export potential as well as the critical market timing, strategic importance and developmental impact of this project to Niger.



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At a policy level, the Government of Niger is committed to improving the national ICT infrastructure and increasing access to ICT. At an economic level, Niger views this project as a critical and basic economic infrastructure (just as it views the building of roads, dams, power plants, etc.)

If U.S. consultants assist Niger in developing the feasibility study then it is highly likely that U.S. technology would be used for all or key parts of the project. On the other hand, if Niger retains European or other consultants to develop this plan, there is a very real risk that the technology would be procured from suppliers in Europe or other countries, including France and China. If Niger turns to China for government supported loans or vendor financing schemes, then the debt/burden of Niger is likely to be negatively impacted.

In addition to providing valuable technical recommendations for the national ICT infrastructure, we believe that USTDA can provide expertise and draft the roadmap for success using U.S. market and industry best practices in developing sound business models, management and organizational structure, and project financing strategies for implementing the national ICT infrastructure project.

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## H. Terms of Reference and Budget

### Objective

Seaquest-Infotel has determined that there is a need to create a fiber optic backbone network that enables operators to effectively transport voice, data, and video to all of Niger's major population centers and other regions of Niger ("Host Country").

The tasks below describe the activities that will take place as part of the Feasibility Study ("Study") that will review the technical, economic, legal and institutional aspects associated with the successful deployment of a Fiber Optic Backbone Network ("Project") in the Host Country. The Grantee for this Study is Seaquest-Infotel ("Grantee").

### Tasks and Scope of Work

#### Task 1: Background Research

The Contractor shall conduct background research to thoroughly familiarize itself with the Project and to review similar studies and relevant models for this type of development activity. Particularly:

- 1.1 The Contractor shall familiarize itself with the key stakeholders and ICT environment of the Host Country as it relates to the Project;
- 1.2 The Contractor shall gather reports or background documents, relevant



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to the Project, from the Grantee and from local network operators;

- 1.3 The Contractor shall review similar projects or models for ICT backbone networks in other countries in Sub-Saharan Africa and the lessons learned; and
- 1.4 The Contractor shall host a kick-off meeting with the Grantee to review and agree on the method and approach for completing the Terms or Reference.

## Deliverables for Task 1:

- a) The Contractor shall prepare a written report summarizing the kick-off meeting proceedings, including key comments and issues raised.
- b) The Contractor shall prepare a work plan for implementing the TOR of the Study, with timelines and major milestones to be achieved. The work plan shall be reviewed by the Grantee.

The deliverables of Task 1 shall be included in the Final Report.

## **Task 2: Requirements Analysis**

The Contractor shall work with the Grantee, and other stakeholders, such as the local network operators (fixed, mobile and Internet), to evaluate the existing infrastructure and to comprehensively define the scope of the Project.

2.1 The Contractor shall review and assess any existing studies identified by the Grantee or from private sector operators that examined technical requirements and options for development and construction of the Project, a fiber optic backbone, optimized for the mutual transport of voice, data and video.

2.2 The Contractor shall review existing telecom infrastructure within the Host Country and how existing components can be leveraged and integrated into the build-out of the Project. This shall include interviews and visual inspections of the various telecommunication operator networks and communication infrastructure in the Host Country, including:

- SONITEL (fixed line service in Niger)
- Saheltel (GSM network)
- Celtel GSM Network
- Telecel GSM Network
- SONITEL Fiber optic ring in Niamey
- SONITEL Fiber branches to border cities
- Other Internet Service Providers

2.3 The Contractor shall explore and identify existing grids that can be used for laying fiber (i.e. existing microwave networks, power grids, rail lines, and roads) and identify any gaps in existing grids that will require new construction.



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2.4 In consultation with the Grantee, the Contractor shall determine the targeted population centers, regions and locations for deploying the Project in the Host Country. Population centers likely to be included are: 36 districts in 8 regions of the Host Country. The need to provide drop/insert points at strategic locations, such as headquarters of communes, on the way shall be taken into account.

2.5 In consultation with the Grantee, the Contractor shall determine the most likely routes and trans-border linkage points for interconnection to three of the Host Country's neighboring countries (Burkina Faso, Niger and Nigeria). As part of this task, the consultant shall:

- Visit and assess the telecommunications readiness of the identified trans-border points (on the Host Country side of the border); and
- Identify and define the requirements for building a terrestrial spur or other technologies to link the proposed Project to each identified trans-border linkage point.

2.6 In identifying possible trans-border linkage points, the Contractor shall obtain information and take into consideration the Project status, implementation timelines, technical requirements, and planned physical locations of trans-border points for interconnecting to the following re-

gional infrastructure build-out efforts:

- The Siemens Network and SONITEL project which consists of building out a fiber optic loop in the Niamey area with links between Niger and Burkina Faso, Niger and Chad, Niger and Mali, Niger and Nigeria, and Niger and Benin, with a connection to the SAT-3 cable through Benin.

The Contractor shall also identify and assess any similar fiber optic loops or other regional efforts to connect the Host Country to neighboring countries or to undersea cables in West Africa.

2.7 The Contractor shall identify and define major issues and gaps in the current infrastructure, grids, equipment, technical operations, and network coverage necessary to support the build-out of the Project.

2.8 The Contractor shall, based on the information gathered, recommend the best choice of backbone technologies for construction of the Project, preferably a fiber optic backbone, optimized for the mutual transport of voice, data and video.

2.9 The Contractor shall consolidate findings into a draft requirements assessment, which shall be provided to the Grantee for review. The Contractor shall convene a meeting with representatives of the Grantee and other stakeholders to discuss and refine the



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requirements assessment. The Contractor shall revise the requirements assessment based on the outcome of the stakeholders meeting.

## Deliverables for Task 2:

- a) The Contractor shall develop a written technical assessment of the current technical capabilities such as infrastructure, grids, equipment, technical operations, and network coverage. The Contractor shall indicate what is in place today that can be used to support the Project.
- b) The Contractor shall develop a written technical assessment of the gaps in the existing technical capabilities and expansion plans with respect to infrastructure, grids, equipment, network coverage, and trans-border interconnection points for the Project.
- c) The Contractor shall develop and provide recommendations for infrastructure development, technology, equipment and materials needed to support build-out of the Project.

The deliverables of Task 2 shall also be included in the Final Report.

## **Task 3: Technical Network Design, Equipment Specifications, and Project Costs**

The Contractor shall use the input from Task 2 to develop a detailed network design and a list of the necessary prod-

ucts and services required for the implementation of the fiber optic backbone infrastructure, including, but not limited to:

- Ducts, fibers, and chambers;
- Trenching, communications towers or other civil works;
- SDH, microwave radio, and other equipment;
- Routers, gateways, and other active equipment; and
- Power and ancillary equipment.

The Contractor shall develop an implementation plan and project costs for deploying the Project in the Host Country. The Contractor shall take into consideration all options to maximize efficiencies for the Project in terms of time, resources, and costs, including, but not limited to, the integration of key fiber optic backbone components with legacy systems and equipment. While preparing the implementation plan, the Contractor shall take into consideration and make a specific recommendation as to whether the Project should be implemented as a single network deployment or implemented in a segmented or phased approach.

3.1 The Contractor shall create a high level network architecture schematic focusing on optimizing the use of the existing infrastructure while meeting the stated goals for coverage, capacity, and functionality of the Project. This schematic shall serve as a baseline reference and planning tool for the remainder of the Project efforts.



## West Africa: ICT Definition Mission Project: Niger Fiber Optics Infrastructure

- 3.2 The Contractor shall develop a Project implementation plan for building the Project based on the recommended rollout schedule of individual network segments.
- 3.3 The Contractor shall develop a detailed budget estimate and major investment expenditures associated with the recommended network design and equipment specifications. These figures should take into account: equipment, survey, network design, transport and installation, network integration and commissioning, and documentation.
- 3.4 The Contractor shall develop a total cost for the Project as well as a breakdown of costs for each phase of the Project implementation plan.
- c) For each required product and service, the Contractor shall develop detailed specifications (e.g. functionality, capacity, quality guarantees, and compatibility requirements).
- d) The Contractor shall compile a list of potential U.S. suppliers for each major product and service area.
- e) The Contractor shall develop a detailed Project budget and major investment expenditures.
- f) The Contractor shall develop a schedule of Project costs and projected cash outflows based on the phased Project implementation plan.
- The deliverables of Task 3 shall also be included in the Final Report.

### Deliverables for Task 3:

- a) The Contractor shall identify the high level technology architecture, standards and network design for deploying the Project to targeted regions and locations throughout the Host Country.
- b) The Contractor shall prepare a detailed list of the specific products and services necessary for implementation and rollout of the Project.

### **Task 4: Market Assessment**

#### 4.1 Overall Market Size, Market Demand and Pricing Analysis.

Phase I of the Project mainly focuses on inter-carrier “wholesale” services, which also contains elements of “retail/end-user” services. A thorough understanding of the overall and “end user markets” helps in assessing the realism of the business case for the Seaquest-Infotel Phase I Project.

The overall market information assessed and provided by the consultant, should include: historical and projected telecommunications traffic volume (inside and from and to Ni-



## West Africa: ICT Definition Mission Project: Niger Fiber Optics Infrastructure

ger) and pricing for the past 10 years and (projected) for the next 10 years, broken down by type of traffic (with particular emphasis on the types of products/markets of relevance to Seaquest-Infotel (Phase I) for Niger and other Sub-Saharan African markets and distinguishing between the end user and carrier-to-carrier/wholesale markets; the internal market and the market for traffic through and from Niger should also be broken down separately. The consultant should also provide a geographic view of demand, identifying areas of pent-up or un-served demand for services, which will impact the network design or at a minimum, the priority of the phases built.

The consultant is expected to deliver detailed historical statistics and estimates with extensive discussion of key market drivers and assumptions made. Apart from segmenting traffic between specific products and/or services (e.g. voice traffic, internet traffic, etc.) and communications modes or channels (landline, wireless, satellite, etc.), the consultant should establish traffic volume (and market share) by participating/competing telecommunications provider and distinguish the end-user and inter-carrier traffic markets. Other useful segmentations such as business versus private use and for international traffic incoming versus outgoing traffic (with identification of origin and destination by country

for major flows) should also be made.

In assessing the overall end-user market and end-user market growth, the consultant should not only provide “off-the-shelf” comparative projections for Sub-Saharan markets and Niger itself, but should also carefully consider, describe, assess and project available local purchasing power, population growth (in terms of resulting potential use of telecommunications services), potential pent up but unmet demand for telecommunications services and the likely effect of pricing trends on increasing overall communications volume and revenues. Consideration should be given to the likely or observed, if any, price elasticity of demand in making alternative volume projections; in as far as it can reasonably be measured or estimated.

In assessing the carrier-to-carrier/inter-carrier market within Niger and to and from Niger, the consultant should establish historical and existing traffic patterns. In making projections the consultant should consider market structures and deficiencies, if any.

- 4.2 Market Structure, Supply and Competition Analysis: Description and assessment of the current telecommunications network(s) and services offered or planned for introduction in Niger and for communications from and to Niger, including available and



## West Africa: ICT Definition Mission Project: Niger Fiber Optics Infrastructure

projected bandwidth and other relevant capacity. The market should be assessed from both a technical “capacity installed, technology used and available functionality” point of view and from a “competitive environment and competitor analysis” point of view.

The consultant should assess available existing networks and in particular inter-network capabilities and systems in Niger and connections abroad both to neighboring countries and population centers as well as to the SAT-3, satellite and other communication links to global telecommunications systems.

Logical geographical, population and other markets for telecommunications markets should be assessed for viability (i.e. whether they should be addressed notably by Sequest-Infotel) and it should be determined to what extent they are adequately or inadequately served. It should also be assessed if these markets could cost effectively be accessed and served, where not currently served by existing competitors in the market. Where a market is not served, the reasons why current competitors are not addressing this market should also be assessed.

Incomplete (e.g. due to lack of funding) projects potentially relevant to the Sequest-Infotel Project, should be identified and assessed to the extent possible.

Deficiencies in the network structure should be assessed (e.g. is there really a lack of local backbone capacity and is there a viable, profitable potential market for open access pass through/inter-connectivity services or for opening over-land connections to neighboring large population and commercial centers. The likelihood of potential existing competitors accepting to pay for services for a new entrant should also be assessed, as should potential reactions to a new entrant.

The market position, market share and financial position as well as overall strength and weaknesses of the participants (and potential participants) in the market should also be assessed. The willingness of market participants to pay for the services of an open access wholesale pass-through/inter-connectivity provider should also be assessed.

### 4.3 Pricing and competitive Analysis.

Detailed analysis of competitive landscape for telecommunications in, from, and to Niger, including both direct and indirect competition, including:

- Quantitative comparison of Sequest-Infotel’s proposed pricing vis-à-vis other competitors;
- Statistics on pricing, including identification of any regulated/tariff pricing, etc. and projections of pricing.
- Qualitative and quantitative analysis of Sequest-Infotel’s



## West Africa: ICT Definition Mission Project: Niger Fiber Optics Infrastructure

product offer versus available and/or planned alternatives (e.g. satellite connections etc.);

- Likelihood of possible contracts for Sequest-Infotel.

Against an assessment of the overall market background, the consultant should pay particular attention to demand and pricing for the market segments intended to be addressed by Sequest.

#### 4.4 Composition of networks in Niger and connections to and from Niger.

Evaluate the past ten year historical evolution and current size and composition in terms of numbers and quality of the networks. Long term contracts or investments (e.g. for satellite services) should be identified.

#### 4.5 Political and economic factors influencing market size and growth:

The consultant should consider political and economic factors that could have significant impacts on future demand for telecommunications services in Niger. In this context the consultant should assess the programs and priorities of opposition parties as opposed to the current ruling party or coalition parties.

#### 4.6 Supply and Demand Balance: Bearing in mind the available and projected demand and supply the consultant should also assess the historical, current and projected future supply/demand balance in the market and

likely utilization rates and price evolutions.

#### **General Factors to Be Analyzed and included in the Above:**

To avoid distortions due to exchange rate movements, such as the current rapid depreciation of the United States Dollar in international currency markets, whenever reporting monetary values the consultant should report data in both local currency (CFA Francs) and a major international currency, also indicating the exchange rate used.

Sources for statistical and other data should always be clearly and precisely identified, to allow fact verification by the Sponsors. Assumptions, assertions and inferences should be clearly distinguished and identified, and contrasted with facts.

Segment the market: The size (by volume and monetary value) of the market for telecommunications services within Niger and to and from Niger (including internet and value added services such as VoIP, data, and video services at end user and carrier-to-carrier level) is to be included in the project and segmentation definitions provided

#### Deliverables for Task 4:

- a) The Contractor shall provide a written report recommending optimal business, ownership and financial models that best fit and support the Host Country's priorities and goals



## West Africa: ICT Definition Mission Project: Niger Fiber Optics Infrastructure

for managing the Project on a non-restrictive access and competitive telecommunications environment.

- b) The Contractor shall identify and recommend alternative financial models that would minimize the Government of Niger's debt burden in constructing and managing the Project.
- c) In close consultation with the Grantee, the Contractor shall make presentations to other stakeholders of the various scenarios and participate in discussions that will assist the stakeholders to reach a consensus on the best scenario to be adopted. In addition, the Contractor shall develop the written business case, ownership structure, and supporting justification for the business and financial model to be used for the Project based on the most likely scenario to be adopted.

The deliverables of Task 4 shall also be included in the Final Report.

### **Task 5: Regulatory and Legal Framework**

Based on results and recommendations of Task 4 the Contractor shall analyze the impact of the current regulatory and legal framework upon the market assessment. Specifically:

- 5.1 Regulatory Framework and Licenses: Description and assessment

of the regulatory framework. Assess whether the licenses obtained or to be obtained by Seaquest-Infotel adequately cover its intended scope of operations. Assessment of which other permits Seaquest-Infotel may require, e.g. inter-connection rights and agreements, environmental assessments and/or permits, etc.

- 5.2 The Contractor shall assist the Grantee in reviewing the existing ICT regulatory framework and policies in the Host Country that impact build-out, management and operation of the recommended Project.

- 5.3 The Contractor shall review the Host Country's existing interconnection cost and pricing models, including cost-based, market-based and other models specifically related to inter-connection of operators within the Host Country as well as interconnection of neighboring countries to the Project.

### Deliverable for Task 5:

- a) The Contractor shall prepare a written report that recommends and explains the regulatory framework, and its impact on the project.

The deliverables of Task 5 shall also be included in the Final Report.

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# West Africa: ICT Definition Mission Project: Niger Fiber Optics Infrastructure

## Task 6: Environmental Impact Assessment

The Contractor shall perform a preliminary review of the Project's environmental impacts consistent with local requirements in the Host Country and those of the financiers. This review shall identify potential negative impacts, discuss the extent to which they can be mitigated, and develop plans for a full environmental impact assessment if and when the Project moves forward to implementation stage. Specifically, the Contractor shall focus on developing plans for a full environmental impact assessment related to the buildings and sites for communications towers, their emissions, and power requirements, and their location in regards to schools, water sources, hospitals and other internationally recognized site location restrictions relative to human habitation.

### Deliverable for Task 6:

The Contractor shall prepare a report on its preliminary review of the short and long term environmental impacts. Measures for environmental control and mitigation, and treatment facilities shall be proposed, including their costs.

The complete findings of Task 6 shall also be included in the Final Report.

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## Task 7: Development Impact Assessment

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

(A) Infrastructure/Industry - The Contractor shall provide a statement on the infrastructure impact. The contractor shall provide a high level estimate of the economic benefits to the communication industry in the Host Country, in terms of various measures such as the potential of service development and time to market.

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



## West Africa: ICT Definition Mission Project: Niger Fiber Optics Infrastructure

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

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

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

### Deliverables for Task 7:

The Contractor shall create a report on the developmental impact and the advantages of building a modernized, convergent and shared telecommunication infrastructure in the Host Country.

### **Task 8: Final Report**

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 U.S. suppliers, including potential sources of U.S. equipment and services, relevant to the implementation of each component of the Project as outlined in the Study.

The Contractor shall submit the Final Report in English and in French. The Contractor shall provide, in English and in French, 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.

### **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 products that is developed under these Terms of Reference.



## West Africa: ICT Definition Mission Project: Niger Fiber Optics Infrastructure

### **Contractor Commitment**

The Contractor shall commit not to communicate to any party about, or make any other use of, the information or findings gathered as part of this project without formal authorization of the Government of Niger.

### **Contractor Technical and Financial Offers**

The Contractor shall submit individual technical and financial offers.

The technical offer shall include the following:

- Contractor references and experience, particularly all references for projects of similar scope,
- Firm's experience in the country/region/continent,
- Description of the methodology that will be used to carry out the study,
- Implementation plan that includes a clear indication of the person(s) in charge of each step,
- Curriculum vitae of every person involved in the study,
- Proposed format/structure of your report,
- Confirmation that your firm does not have any conflict of interest with any involved party in the Project (e.g. work for competing enterprises; any significant on-going business relationship with any of the Sponsors/Grantees should also be disclosed), and
- Provide any further information (i.e. documents, etc.) required to undertake the assignment.

Our preference is for submission of your proposal by Word 2003 and in Adobe Acrobat PDF file formats, attached to an e-mail or sent via a secure file transfer service such as yousendit.com; a follow-on printed version is appreciated, but not essential.

The Grantee expects the consultant to enter into a confidentiality agreement with the Grantee.

The financial offer shall include a clearly justified description of all costs associated with the Contractor services.

### **Timeframe**

It is expected that the work shall take the Contractor four to six weeks, and shall conduct the tasks outlined above within a three (03) month calendar period.

### **Budget for the Feasibility Study and Technical Assistance**

The Computer Frontiers' estimate (budget) for the cost to implement the Contractor's portion of the TOR is US\$ 344,306.

The work will need to be performed in the U.S. and on-site in Niger. The requirements analysis and environmental assessment will require travel to selected regional centers within Niger as well as to approximately 5 border points with Mali, Nigeria, Benin, Burkina Faso and Chad (on the Niger side of the border only.) International travel is limited to Niger only. Although the consultants need to be familiar with and to take into



## **West Africa: ICT Definition Mission Project: Niger Fiber Optics Infrastructure**

consideration efforts of Niger's neighbors to extend fiber optic loops to the border with Niger, the focus of this Feasibility Study is limited to development of the national ICT infrastructure within Niger. Therefore, additional travel will not be required outside of Niger.

Given the complexity of working with various stakeholders to research the technical plans, the regulatory environment, conduct a marketing assessment, conduct an environmental impact study and a developmental assessment of the projects impact, it will be necessary for the Project Manager, the Telecommunications Engineer, the Telecommunications Market Analyst, and the Regulatory Expert to work in-country in order to provide the required results. These tasks will also require in-country interviews with local companies, existing and potential customers, and government agencies. Therefore, the budget reflects up to 35 days of in-country travel in Niger for the Project Manager, Telecommunications Engineer, the Telecommunications Market Analyst, and the Regulatory Expert, respectively.

Some project management office (PMO) tasks and some of the research and reporting can be written in the U.S.

The recommended budget is included below.



# West Africa: ICT Definition Mission Project: Niger Fiber Optics Infrastructure

## Feasibility Study Budget for Sequest-Infotel, SA Niger Fiber Optics Project

	Daily Rate - US\$	Project Manager	Telecom Engineer	Telecom Market Analyst	Regulatory Expert	Environmental & Social Expert	Sub-Total Days	Totals
	\$1,500	\$1,500	\$1,700	\$1,700	\$1,700	\$1,500		
Task 1: Background Research		3	2	2	1		8	\$12,300
Task 2: Requirement Analysis		3	25				28	\$42,000
Task 3: Network Design, Equipment Specifications & Project Costs		3	25				28	\$42,000
Task 4: Market Analysis		3		40	3		46	\$76,700
Task 5: Regulatory Framework		3			25		28	\$39,500
Task 6: Environmental Impact Assessment		2	2		1	8	13	\$19,400
Task 7: Development Impact		2	1		1		4	\$5,900
Task 8: Final Report		10	5				15	\$22,500
Total Days		29	60	42	31	8	162	
Total Days on Location		29	35	35	25	8	132	
<b>Total Labor Costs</b>								
					<b>Unit Cost</b>			<b>\$260,500</b>
<b>Other Direct Costs</b>								
International Airfares RT to/from Niger				9	3000			\$27,000
Hotel**				132	135			\$17,820
Meals & Incidentals**				91	146			\$13,286
Ground Transport**				40	50			\$2,000
Internet access/copies/communications				40	60			\$2,400
French translation								\$22,000
<b>Total Direct Costs</b>								
								<b>\$54,506</b>
<b>Total Cost of Technical Assistance</b>								
								<b>\$344,806</b>

\*\* Sequest Infotel may offer and carry the cost of hotel, meals and ground transport with its own guesthouse and drivers; in that case this cost can be reduced, and used as a contingency reserve for possible cost overruns on other cost components



# West Africa: ICT Definition Mission Project: Niger Fiber Optics Infrastructure

## 5. Recommendation

USTDA involvement in this project is justified on the basis of export potential and the opportunities for U.S. vendors and consultants as well as the strategic and development impact of the project in dramatically improving the provision of telecommunications as increased capacity and lower costs in Niger.

Computer Frontiers is recommending that USTDA fund this project as described in the Terms of Reference with an estimated budget cost of US\$ 344,806

## 6. Contacts Consulted During DM

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## 5. Glossary of Technical Terms

*ADSL – Asymmetrical Digital Subscriber Line* is a data communications technology that uses copper telephone lines but with faster data transmission speeds and over short distances.

*Fiber Optics –* An optical fiber is a glass or plastic fiber that carries light along its length. Optical fibers are widely used in fiber optic communication, which permits transmission over longer distances and at higher data rates than other forms of communications.

*ISP – Internet Service Provider* is a business or organization that provides access to the Internet and related services to customers.

*SAT-3 - Submarine communications cable* linking Portugal and Spain to South Africa, with connections to several West African countries along the route. It forms part of the SAT-3/WASC/SAFE cable system, where the SAFE cable links South Africa to Asia.

*VoIP – Voice over Internet Protocol* is the routing of voice conversations over the Internet or any other IP-based network.

*WiFi – Wireless Fidelity* is a certification for technologies that meet the IEEE 802.11 specifications and was originally licensed by the Wi-Fi Alliance. It is used primarily for wireless devices such as laptops but is increasingly being extended to new, advanced services.

## 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

CONTRACT # 08-11024A

## GRANT AGREEMENT

*pp/sgul* as of the  
10/10/08  
RECEIVED  
JUL 14 2008  
*J.M. CF*  
*- Di France*  
*AK*

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 Seaquest InfoTel Niger S.A. ("Grantee"). USTDA agrees to provide the Grantee under the terms of this Agreement US\$442,0000 ("USTDA Grant") to fund the cost of goods and services required for a feasibility study ("Study") on the proposed National ICT Backbone Network ("Project") in Niger ("Host Country").

### 1. USTDA Funding

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

### 2. Terms of Reference

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

### 3. Standards of Conduct

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

### 4. Grantee Responsibilities

The Grantee shall undertake its best efforts to provide reasonable support for the Contractor, such as 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](http://www.fedbizopps.gov)). Upon request, the Grantee will submit these contracting procedures and related documents to USTDA for information and/or approval.

### **(B) USTDA Approval of Contractor Selection**

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

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

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

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

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

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

**(E) Grant Agreement Controlling**

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

**6. Disbursement Procedures**

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

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

**(B) Contractor Invoice Requirements**

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

**7. Effective Date**

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

**8. Study Schedule**

**(A) Study Completion Date**

The completion date for the Study, which is February 28, 2009, is the date by which the parties estimate that the Study will have been completed.

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

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

## **9. USTDA Mandatory Clauses**

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

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

### **(A) Air**

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

### **(B) Marine**

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

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

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

## **12. Taxes**

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

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

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

### **14. Implementation Letters**

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

### **15. Recordkeeping and Audit**

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

### **16. Representation of Parties**

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

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

Any notice, request, document, or other communication submitted by either party to the other under the Grant Agreement shall be in writing or through a wire or electronic medium which produces a tangible record of the transmission, such as a telegram, cable or facsimile, and will be deemed duly given or sent when delivered to such party at the following:

To: Seaquest Infotel Niger, S.A.  
Boite Postale 817  
Niamey, NIGER

Phone: (227) 2073 96 02  
Fax: (227) 2073 96 03

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

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

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

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

Appropriation No.: 11 8/9 1001  
Activity No.: 2008-11024A  
Reservation No.: 2008110043  
Grant No.: GH2008110011

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

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

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

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

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

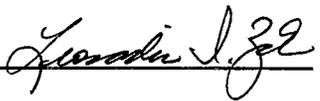
By funding this Study, USTDA seeks to promote the project objectives of the Host Country through the use of U.S. technology, goods, and services. In recognition of this purpose, the Grantee agrees that it will allow U.S. suppliers to compete in the procurement of technology, goods and services needed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

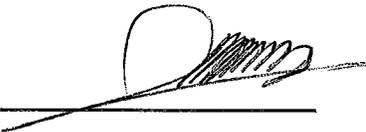
**[THE REMAINDER OF THIS PAGE IS INTENTIONALLY LEFT BLANK]**

**IN WITNESS WHEREOF, the Government of the United States of America and Seaquest InfoTel Niger S.A., 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 Seaquest InfoTel  
Niger S.A.**

By: 

By: 

Date: 7/9/08

Date: 09-07-2008

**Annex I -- Terms of Reference**

**Annex II -- USTDA Mandatory Clauses**

## Annex I

### Terms of Reference

#### **Objective**

Seaquest InfoTel Niger S.A. has determined that there is a need to create a fiber optic backbone network that enables operators to effectively transport voice, data, and video to all of Niger's major population centers and other regions of Niger ("Host Country").

The tasks below describe the activities that will take place as part of the Feasibility Study ("Study") that will review the technical, economic, legal and institutional aspects associated with the successful deployment of a National ICT Backbone Network ("Project") in the Host Country. The Grantee for this Study is Seaquest InfoTel Niger S.A. ("Grantee").

#### **Task 1: Background Research**

The Contractor shall conduct background research to thoroughly familiarize itself with the Project and to review similar studies and relevant models for this type of development activity. Particularly:

- 1.1 The Contractor shall familiarize itself with the key stakeholders and ICT environment of the Host Country as it relates to the Project;
- 1.2 The Contractor shall gather reports or background documents, relevant to the Project, from the Grantee and from local network operators;
- 1.3 The Contractor shall review similar projects or models for ICT backbone networks in other countries in sub-Saharan Africa and the lessons learned; and
- 1.4 The Contractor shall host a kick-off meeting with the Grantee to review and agree on the method and approach for completing the Terms or Reference.

#### Deliverables for Task 1:

- a) The Contractor shall prepare a written report summarizing the kick-off meeting proceedings, including key comments and issues raised.
- b) The Contractor shall prepare a work plan for implementing the TOR of the Study, with timelines and major milestones to be achieved. The work plan shall be reviewed by the Grantee.

The deliverables of Task 1 shall be included in the Final Report.

## **Task 2: Requirements Analysis**

The Contractor shall work with the Grantee, and other stakeholders, such as the local network operators (fixed, mobile and Internet), to evaluate the existing infrastructure and to comprehensively define the scope of the Project.

- 2.1 The Contractor shall review and assess any existing studies identified by the Grantee or from private sector operators that examined technical requirements and options for development and construction of the Project, a fiber optic backbone, optimized for the mutual transport of voice, data and video.
- 2.2 The Contractor shall review existing telecom infrastructure within the Host Country and how existing components can be leveraged and integrated into the build-out of the Project. This shall include interviews and visual inspections of the various telecommunication operator networks and communication infrastructure in the Host Country, including:
  - SONITEL (fixed line service in the Host Country)
  - Saheltel (GSM network)
  - Celtel GSM Network
  - Telecel GSM Network
  - SONITEL Fiber optic ring in Niamey
  - SONITEL Fiber branches to border cities
  - Other Internet Service Providers
- 2.3 The Contractor shall explore and identify existing grids that can be used for laying fiber (i.e. existing microwave networks, power grids, rail lines, and roads) and identify any gaps in existing grids that will require new construction.
- 2.4 In consultation with the Grantee, the Contractor shall determine the targeted population centers, regions and locations for deploying the Project in the Host Country. Population centers likely to be included are: 36 districts in 8 regions of the Host Country. The need to provide drop/insert points at strategic locations, such as headquarters of communes on the way, shall be taken into account.
- 2.5 In consultation with the Grantee, the Contractor shall determine the most likely routes and trans-border linkage points for interconnection to three of the Host Country's neighboring countries (Burkina Faso, Benin and Nigeria). As part of this task, the Contractor shall:
  - Visit and assess the telecommunications readiness of the identified trans-border points (on the Host Country side of the border); and
  - Identify and define the requirements for building a terrestrial spur or other technologies to link the proposed Project to each identified trans-border linkage point.
- 2.6 In identifying possible trans-border linkage points, the Contractor shall obtain information and take into consideration the Project status, implementation timelines,

technical requirements, and planned physical locations of trans-border points for interconnecting to the following regional infrastructure build-out efforts:

- The Siemens Network and SONITEL project, which consists of building out a fiber optic loop in the Niamey area with links between the Host Country and Burkina Faso, Chad, Mali, Nigeria, and Benin, with a connection to the SAT-3 cable through Benin.

The Contractor shall also identify and assess any similar fiber optic loops or other regional efforts to connect the Host Country to neighboring countries or to undersea cables in West Africa.

- 2.7 The Contractor shall identify and define major issues and gaps in the current infrastructure, grids, equipment, technical operations, and network coverage necessary to support the build-out of the Project.
- 2.8 The Contractor shall, based on the information gathered, recommend the best choice of backbone technologies for construction of the Project, a fiber optic backbone, optimized for the mutual transport of voice, data and video.
- 2.9 The Contractor shall consolidate findings into a draft requirements assessment, which shall be provided to the Grantee for review. The Contractor shall convene a meeting with representatives of the Grantee and other stakeholders to discuss and refine the requirements assessment. The Contractor shall revise the requirements assessment based on the outcome of the stakeholders meeting.

Deliverables for Task 2:

- a) The Contractor shall develop a written technical assessment of the current technical capabilities such as infrastructure, grids, equipment, technical operations, and network coverage. The Contractor shall indicate what is in place today that can be used to support the Project.
- b) The Contractor shall develop a written technical assessment of the gaps in the existing technical capabilities and expansion plans with respect to infrastructure, grids, equipment, network coverage, and trans-border interconnection points for the Project.
- c) The Contractor shall develop and provide recommendations for infrastructure development, technology, equipment and materials needed to support build-out of the Project.

The deliverables of Task 2 shall also be included in the Final Report.

### **Task 3: Technical Network Design, Equipment Specifications, and Project Costs**

The Contractor shall use the input from Task 2 to develop a detailed network design and a list of the necessary products and services required for the implementation of the fiber optic backbone infrastructure, including, but not limited to:

- Ducts, fibers, and chambers;
- Trenching, communications towers or other civil works;
- SDH, microwave radio, and other equipment;
- Routers, gateways, and other active equipment; and
- Power and ancillary equipment.

The Contractor shall develop an implementation plan and project costs for deploying the Project in the Host Country. The Contractor shall take into consideration all options to maximize efficiencies for the Project in terms of time, resources, and costs, including, but not limited to, the integration of key fiber optic backbone components with legacy systems and equipment. While preparing the implementation plan, the Contractor shall take into consideration and make a specific recommendation as to whether the Project should be implemented as a single network deployment or implemented in a segmented or phased approach.

3.1 The Contractor shall create a high level network architecture schematic focusing on optimizing the use of the existing infrastructure while meeting the stated goals for coverage, capacity, and functionality of the Project. This schematic shall serve as a baseline reference and planning tool for the remainder of the Project efforts.

3.2 The Contractor shall develop a Project implementation plan for building the Project based on the recommended rollout schedule of individual network segments.

3.3 The Contractor shall develop a detailed budget estimate and major investment expenditures associated with the recommended network design and equipment specifications. These figures should take into account: equipment, survey, network design, transport and installation, network integration and commissioning, and documentation.

3.4 The Contractor shall develop a total cost for the Project as well as a breakdown of costs for each phase of the Project implementation plan.

#### Deliverables for Task 3:

- a) The Contractor shall identify the high level technology architecture, standards and network design for deploying the Project to targeted regions and locations throughout the Host Country.
- b) The Contractor shall prepare a detailed list of the specific products and services necessary for implementation and rollout of the Project.

- c) For each required product and service, the Contractor shall develop detailed specifications (e.g. functionality, capacity, quality guarantees, and compatibility requirements).
- d) The Contractor shall compile a list of potential U.S. suppliers for each major product and service area.
- e) The Contractor shall develop a detailed Project budget and major investment expenditures.
- f) The Contractor shall develop a schedule of Project costs and projected cash outflows based on the phased Project implementation plan.

The deliverables of Task 3 shall also be included in the Final Report.

#### **Task 4: Market Assessment**

##### **4.1 Overall Market Size, Market Demand and Pricing Analysis.**

The Project focuses on inter-carrier “wholesale” services, which also contains elements of “retail/end-user” services. To assess the realism of the business case for the Project, a thorough understanding of the overall and “end user markets” is necessary.

The Contractor shall assess the overall market information, including, but not limited to: historical and projected telecommunications traffic volume (inside the Host Country as well as from and to the Host Country) and pricing for the past 10 years and projected pricing for the next 10 years, broken down by type of traffic (with particular emphasis on the types of products and/or markets of relevance to the Grantee for the Host Country and, secondarily, for other sub-Saharan African markets, distinguishing between the end user and carrier-to-carrier/wholesale markets. The internal market and the market for traffic through and from the Host Country shall be broken down separately by the Contractor. The Contractor shall also provide a geographic view of demand, identifying areas of pent-up or un-served demand for services, which will impact the network design or, at a minimum, the priority of the routes built.

The Contractor shall deliver detailed historical market statistics and estimates, with extensive discussion of key market drivers and assumptions made. The Contractor shall segment traffic between specific products and/or services (e.g. voice traffic, internet traffic, etc.) and communications modes or channels (landline, wireless, satellite, etc.), as well as establish the traffic volume (and market share) per participating/competing telecommunications provider and distinguish the end-user and inter-carrier traffic markets. The Contractor shall also prepare information on the business versus private telecommunications traffic and international incoming traffic

versus outgoing traffic (with identification of origin and destination by country for major flows).

In assessing the overall end-user market and end-user market growth, the Contractor shall not only provide “off-the-shelf” comparative projections for sub-Saharan markets and the Host Country itself, but should also consider, describe, assess and project available local purchasing power, population growth (in terms of resulting potential use of telecommunications services), potential pent up but unmet demand for telecommunications services and the likely effect of pricing trends on increasing overall communications volume and revenues. The Contractor shall give consideration to the likely or observed price elasticity of demand in making alternative volume projections; in as far as it can reasonably be measured or estimated.

In assessing the carrier-to-carrier/inter-carrier market within the Host Country and to and from the Host Country, the Contractor shall establish historical and existing traffic patterns. In making projections, the Contractor shall consider market structures and deficiencies, if any.

4.2 Market Structure, Supply and Competition Analysis: The Contractor shall describe and assess the current telecommunications network(s) and services offered or planned for introduction in the Host Country and for communications from and to the Host Country, including available and projected bandwidth and other relevant capacity. The Contractor shall assess the market from both a technical “capacity installed, technology used and available functionality” point of view and from a “competitive environment and competitor analysis” point of view.

The Contractor shall assess available existing networks and in particular inter-network capabilities and systems in the Host Country and connections abroad both to neighboring countries and population centers, as well as to the SAT-3, satellite, and other communication links to global telecommunications systems.

The Contractor shall assess logical geographical, population, and other markets for telecommunications markets for viability (i.e. whether they should be addressed by the Grantee) and determine to what extent they are adequately or inadequately served. The Contractor shall assess if these markets could cost effectively be accessed and served, where not currently served by existing competitors in the market. Where a market is not served, the Contractor shall also assess the reasons why current competitors are not addressing this market.

The Contractor shall identify and assess, to the extent possible, incomplete (e.g. due to lack of funding) fiber optic cable projects potentially relevant to the Project.

The Contractor shall assess deficiencies in the network structure (e.g. is there a lack of local backbone capacity and is there a viable, profitable potential market for open access pass-through/inter-connectivity services or for opening over-land connections

to neighboring large population and commercial centers). The Contractor shall assess the likelihood of potential existing competitors accepting to pay for services for a new entrant, as well as potential reactions to a new entrant.

The Contractor shall assess the market position, market share and financial position as well as overall strength and weaknesses of the participants (and potential participants) in the market. The Contractor shall assess the willingness of market participants to pay for the services of an open access wholesale pass-through/inter-connectivity provider.

4.3 Pricing and competitive Analysis. The Contractor shall provide detailed analysis of competitive landscape for telecommunications in, from, and to the Host Country, including both direct and indirect competition, including:

- Quantitative comparison of the Grantee's proposed pricing vis-à-vis other competitors;
- Statistics on pricing, including identification of any regulated/tariff pricing, etc. and projections of pricing.
- Qualitative and quantitative analysis of the Grantee's product offer versus available and/or planned alternatives (e.g. satellite connections etc.);
- Likelihood of possible contracts for the Grantee.

Against an assessment of the overall market background, the Contractor shall pay particular attention to demand and pricing for the market segments intended to be addressed by the Grantee.

4.4 Composition of networks in the Host Country and connections to and from the Host Country. The Contractor shall evaluate the past ten year historical evolution and current size and composition of the Host Country telecommunications networks in terms of numbers and quality. The Contractor shall identify long term contracts or investments (e.g. for satellite services).

4.5 Political and economic factors influencing market size and growth: The Contractor shall consider political and economic factors that could have significant impact on future demand for telecommunications services in the Host Country. In this context the Contractor shall assess the programs and priorities of all existing parties in addition to the current ruling party.

4.6 Supply and Demand Balance: Bearing in mind the available and projected demand and supply the Contractor shall also assess the historical, current and projected future supply/demand balance in the market and likely utilization rates and price evolutions.

#### **General Factors to Be Taken into Account and Included in the Above Tasks:**

To avoid distortions due to exchange rate movements, whenever reporting monetary values the Contractor shall report data in both local currency (CFA Francs) and the United States Dollar, also indicating the exchange rate used.

Sources for statistical and other data shall always be clearly and precisely identified by the Contractor, to allow fact verification by the Grantee. Assumptions, assertions and inferences should be clearly distinguished and identified by the Contractor, and contrasted with facts.

Segment the market: The Contractor shall provide the size (by volume and monetary value) of the market for telecommunications services within the Host Country and to and from the Host Country (including internet and value added services such as VoIP, data, and video services at end user and carrier-to-carrier level). The Contractor shall also provide segmentation definitions.

#### Deliverables for Task 4:

- a) The Contractor shall provide a written report providing an overall market assessment, with focus on distinguishing between the carrier market and the end-user markets. The Contractor shall place emphasis on types of products or markets of relevance to the Grantee, and optimal roll-out scenarios, lucrative market centers, time to market, and price points for products and services. The Contractor shall recommend optimal business models that best fit and support the identified market demands. The Contractor's report shall follow the guidelines presented in all of Section 4, and include, but not be limited to the following:
  - i. Historical Market Analysis: A detailed analysis of the historical market statistics and estimates, with extensive discussion of key market drivers and assumptions made, to include:
    - o traffic segments: business vs. consumer,
    - o traffic segments: international inbound and outbound traffic, identify major origin and destination countries,
    - o products or services (e.g. voice traffic, internet traffic, etc.)
    - o communications modes or channels (landline, wireless, satellite, etc.),
    - o the traffic volume (and market share) per participating/competing telecommunications provider, and
    - o a geographical presentation of existing and pent-up demand within the Host Country, and possible neighboring markets, where applicable.
  - ii. An analysis of the current market structure, existing and potential competition, existing networks, and political inhibitors and enhancers.
  - iii. Recommendations for entry into existing market segments, and identification of the new market segments. This shall include recommended pricing models that would maximize the Grantee's market competitiveness in wholesale and segmented "end-user" markets, and other identified markets.

- b) Based on the market assessment, pricing and competitiveness analysis, as well as construction costs, the Contractor shall recommend routes that maximize the potential revenue to the Grantee. In addition, the Contractor shall develop the written business case, ownership structure, and supporting justification for the business model to be used for the Project based on the most likely route and pricing scenarios to be adopted.

The deliverables of Task 4 shall also be included in the Final Report.

#### **Task 5: Regulatory and Legal Framework**

Based on results and recommendations of Task 4, the Contractor shall analyze the impact of the current regulatory and legal framework upon the market assessment. Specifically:

- 5.1 Regulatory Framework and Licenses: Description and assessment of the regulatory framework. The Contractor shall assess whether the licenses obtained or to be obtained by the Grantee adequately cover its intended scope of operations. The Contractor shall assess what other permits the Grantee may require, e.g. interconnection rights and agreements, environmental assessments and/or permits, etc.
- 5.2 The Contractor shall assist the Grantee in reviewing the existing ICT regulatory framework and policies in the Host Country that impact build-out, management and operation of the recommended Project.
- 5.3 The Contractor shall review the Host Country's existing interconnection cost and pricing models, including cost-based, market-based and other models specifically related to interconnection of operators within the Host Country, as well as interconnection of neighboring countries to the Project.

#### Deliverable for Task 5:

- a) The Contractor shall prepare a written report that describes, analyzes and explains the regulatory framework, and its impact on the Project.

The deliverables of Task 5 shall also be included in the Final Report.

#### **Task 6: Preliminary Environmental Impact Assessment**

The Contractor shall perform a preliminary review of the Project's environmental impacts consistent with local requirements in the Host Country and those of the potential financiers. This review shall identify potential negative impacts, discuss the extent to which they can be mitigated, and develop plans for a full environmental impact assessment if and when the Project moves forward to implementation stage. Specifically, the Contractor shall focus on developing plans for a full environmental impact

assessment related to the buildings and sites for communications towers, their emissions, and power requirements, and their location in regards to schools, water sources, hospitals and other internationally recognized site location restrictions relative to human habitation.

Deliverable for Task 6:

The Contractor shall prepare a report on its preliminary review of the short and long term environmental impacts. Measures for environmental control and mitigation, and treatment facilities shall be proposed, including their costs.

The complete findings of Task 6 shall also be included in the Final Report.

**Task 7: Development Impact Assessment**

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

- (A) Infrastructure/Industry - The Contractor shall provide a statement on the infrastructure impact. The Contractor shall provide a high level estimate of the economic benefits to the communication industry in the Host Country, in terms of various measures such as the potential of service development and time to market.
- (b) Market-Oriented Reforms - The Contractor shall provide a description of any regulation, laws, or institutional changes that are recommended and the effect they would have if implemented.
- (c) Human Capacity Building - The Contractor shall address the number and type of positions that would be needed to construct and operate the proposed Project, as well as the number of people who will receive training and a brief description of the training program.
- (d) Technology Transfer and Productivity Enhancement - The Contractor shall provide a description of any advanced technologies that will be implemented as a result of the Project that includes a quantitative description of any efficiency that would be gained whenever possible.

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

Deliverables for Task 7:

The Contractor shall create a report on the developmental impact and the advantages of building a modernized, convergent and shared telecommunication infrastructure in the Host Country.

**Task 8: Final Report**

**The Contractor shall prepare and deliver to the Grantee and USTDA a substantive and comprehensive final report of all work performed under these Terms of Reference (“Final Report”). The Final Report shall be organized according to the above tasks, and shall include an Executive Summary and all deliverables and documents that have been provided to the Grantee.** The Contractor shall ensure that the Final Report is submitted in accordance with Clause I of Annex II of the Grant Agreement. Each task of the Terms of Reference shall form a separate chapter of the Final Report.

The Final Report shall be submitted to the Grantee in person, by the Telecommunications Market Analyst and the Project Manager, at a minimum.

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

The Contractor shall submit the Final Report in English and in French. The Contractor shall provide, in English and in French, 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.

**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 Sequest InfoTel Niger S.A. ("Client"), dated \_\_\_\_\_ ("Grant Agreement"). The Client has selected \_\_\_\_\_ ("Contractor") to perform the feasibility study ("Study") for the National ICT Backbone Network project ("Project") in Niger ("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 February 28, 2009, is the date by which the parties estimate that the Study will have been completed.

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

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

### **L. Business Practices**

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

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

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

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

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

#### Fiscal Data:

Appropriation No.:	11 8/9 1001
Activity No.:	2008-11024A
Reservation No.:	2008110043
Grant No.:	GH2008110011

### **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.

*(2/28/08 version)*

## ANNEX 5

## Annex I

### **Terms of Reference**

#### **Objective**

Seaquest InfoTel Niger S.A. has determined that there is a need to create a fiber optic backbone network that enables operators to effectively transport voice, data, and video to all of Niger's major population centers and other regions of Niger ("Host Country").

The tasks below describe the activities that will take place as part of the Feasibility Study ("Study") that will review the technical, economic, legal and institutional aspects associated with the successful deployment of a National ICT Backbone Network ("Project") in the Host Country. The Grantee for this Study is Seaquest InfoTel Niger S.A. ("Grantee").

#### **Task 1: Background Research**

The Contractor shall conduct background research to thoroughly familiarize itself with the Project and to review similar studies and relevant models for this type of development activity. Particularly:

- 1.1 The Contractor shall familiarize itself with the key stakeholders and ICT environment of the Host Country as it relates to the Project;
- 1.2 The Contractor shall gather reports or background documents, relevant to the Project, from the Grantee and from local network operators;
- 1.3 The Contractor shall review similar projects or models for ICT backbone networks in other countries in sub-Saharan Africa and the lessons learned; and
- 1.4 The Contractor shall host a kick-off meeting with the Grantee to review and agree on the method and approach for completing the Terms or Reference.

#### Deliverables for Task 1:

- a) The Contractor shall prepare a written report summarizing the kick-off meeting proceedings, including key comments and issues raised.
- b) The Contractor shall prepare a work plan for implementing the TOR of the Study, with timelines and major milestones to be achieved. The work plan shall be reviewed by the Grantee.

The deliverables of Task 1 shall be included in the Final Report.

## **Task 2: Requirements Analysis**

The Contractor shall work with the Grantee, and other stakeholders, such as the local network operators (fixed, mobile and Internet), to evaluate the existing infrastructure and to comprehensively define the scope of the Project.

- 2.1 The Contractor shall review and assess any existing studies identified by the Grantee or from private sector operators that examined technical requirements and options for development and construction of the Project, a fiber optic backbone, optimized for the mutual transport of voice, data and video.
- 2.2 The Contractor shall review existing telecom infrastructure within the Host Country and how existing components can be leveraged and integrated into the build-out of the Project. This shall include interviews and visual inspections of the various telecommunication operator networks and communication infrastructure in the Host Country, including:
  - SONITEL (fixed line service in the Host Country)
  - Saheltel (GSM network)
  - Celtel GSM Network
  - Telecel GSM Network
  - SONITEL Fiber optic ring in Niamey
  - SONITEL Fiber branches to border cities
  - Other Internet Service Providers
- 2.3 The Contractor shall explore and identify existing grids that can be used for laying fiber (i.e. existing microwave networks, power grids, rail lines, and roads) and identify any gaps in existing grids that will require new construction.
- 2.4 In consultation with the Grantee, the Contractor shall determine the targeted population centers, regions and locations for deploying the Project in the Host Country. Population centers likely to be included are: 36 districts in 8 regions of the Host Country. The need to provide drop/insert points at strategic locations, such as headquarters of communes on the way, shall be taken into account.
- 2.5 In consultation with the Grantee, the Contractor shall determine the most likely routes and trans-border linkage points for interconnection to three of the Host Country's neighboring countries (Burkina Faso, Benin and Nigeria). As part of this task, the Contractor shall:
  - Visit and assess the telecommunications readiness of the identified trans-border points (on the Host Country side of the border); and
  - Identify and define the requirements for building a terrestrial spur or other technologies to link the proposed Project to each identified trans-border linkage point.
- 2.6 In identifying possible trans-border linkage points, the Contractor shall obtain information and take into consideration the Project status, implementation timelines,

technical requirements, and planned physical locations of trans-border points for interconnecting to the following regional infrastructure build-out efforts:

- The Siemens Network and SONITEL project, which consists of building out a fiber optic loop in the Niamey area with links between the Host Country and Burkina Faso, Chad, Mali, Nigeria, and Benin, with a connection to the SAT-3 cable through Benin.

The Contractor shall also identify and assess any similar fiber optic loops or other regional efforts to connect the Host Country to neighboring countries or to undersea cables in West Africa.

2.7 The Contractor shall identify and define major issues and gaps in the current infrastructure, grids, equipment, technical operations, and network coverage necessary to support the build-out of the Project.

2.8 The Contractor shall, based on the information gathered, recommend the best choice of backbone technologies for construction of the Project, a fiber optic backbone, optimized for the mutual transport of voice, data and video.

2.9 The Contractor shall consolidate findings into a draft requirements assessment, which shall be provided to the Grantee for review. The Contractor shall convene a meeting with representatives of the Grantee and other stakeholders to discuss and refine the requirements assessment. The Contractor shall revise the requirements assessment based on the outcome of the stakeholders meeting.

#### Deliverables for Task 2:

- a) The Contractor shall develop a written technical assessment of the current technical capabilities such as infrastructure, grids, equipment, technical operations, and network coverage. The Contractor shall indicate what is in place today that can be used to support the Project.
- b) The Contractor shall develop a written technical assessment of the gaps in the existing technical capabilities and expansion plans with respect to infrastructure, grids, equipment, network coverage, and trans-border interconnection points for the Project.
- c) The Contractor shall develop and provide recommendations for infrastructure development, technology, equipment and materials needed to support build-out of the Project.

The deliverables of Task 2 shall also be included in the Final Report.

### **Task 3: Technical Network Design, Equipment Specifications, and Project Costs**

The Contractor shall use the input from Task 2 to develop a detailed network design and a list of the necessary products and services required for the implementation of the fiber optic backbone infrastructure, including, but not limited to:

- Ducts, fibers, and chambers;
- Trenching, communications towers or other civil works;
- SDH, microwave radio, and other equipment;
- Routers, gateways, and other active equipment; and
- Power and ancillary equipment.

The Contractor shall develop an implementation plan and project costs for deploying the Project in the Host Country. The Contractor shall take into consideration all options to maximize efficiencies for the Project in terms of time, resources, and costs, including, but not limited to, the integration of key fiber optic backbone components with legacy systems and equipment. While preparing the implementation plan, the Contractor shall take into consideration and make a specific recommendation as to whether the Project should be implemented as a single network deployment or implemented in a segmented or phased approach.

- 3.1 The Contractor shall create a high level network architecture schematic focusing on optimizing the use of the existing infrastructure while meeting the stated goals for coverage, capacity, and functionality of the Project. This schematic shall serve as a baseline reference and planning tool for the remainder of the Project efforts.
- 3.2 The Contractor shall develop a Project implementation plan for building the Project based on the recommended rollout schedule of individual network segments.
- 3.3 The Contractor shall develop a detailed budget estimate and major investment expenditures associated with the recommended network design and equipment specifications. These figures should take into account: equipment, survey, network design, transport and installation, network integration and commissioning, and documentation.
- 3.4 The Contractor shall develop a total cost for the Project as well as a breakdown of costs for each phase of the Project implementation plan.

#### Deliverables for Task 3:

- a) The Contractor shall identify the high level technology architecture, standards and network design for deploying the Project to targeted regions and locations throughout the Host Country.
- b) The Contractor shall prepare a detailed list of the specific products and services necessary for implementation and rollout of the Project.

- c) For each required product and service, the Contractor shall develop detailed specifications (e.g. functionality, capacity, quality guarantees, and compatibility requirements).
- d) The Contractor shall compile a list of potential U.S. suppliers for each major product and service area.
- e) The Contractor shall develop a detailed Project budget and major investment expenditures.
- f) The Contractor shall develop a schedule of Project costs and projected cash outflows based on the phased Project implementation plan.

The deliverables of Task 3 shall also be included in the Final Report.

#### **Task 4: Market Assessment**

##### **4.1 Overall Market Size, Market Demand and Pricing Analysis.**

The Project focuses on inter-carrier “wholesale” services, which also contains elements of “retail/end-user” services. To assess the realism of the business case for the Project, a thorough understanding of the overall and “end user markets” is necessary.

The Contractor shall assess the overall market information, including, but not limited to: historical and projected telecommunications traffic volume (inside the Host Country as well as from and to the Host Country) and pricing for the past 10 years and projected pricing for the next 10 years, broken down by type of traffic (with particular emphasis on the types of products and/or markets of relevance to the Grantee for the Host Country and, secondarily, for other sub-Saharan African markets, distinguishing between the end user and carrier-to-carrier/wholesale markets. The internal market and the market for traffic through and from the Host Country shall be broken down separately by the Contractor. The Contractor shall also provide a geographic view of demand, identifying areas of pent-up or un-served demand for services, which will impact the network design or, at a minimum, the priority of the routes built.

The Contractor shall deliver detailed historical market statistics and estimates, with extensive discussion of key market drivers and assumptions made. The Contractor shall segment traffic between specific products and/or services (e.g. voice traffic, internet traffic, etc.) and communications modes or channels (landline, wireless, satellite, etc.), as well as establish the traffic volume (and market share) per participating/competing telecommunications provider and distinguish the end-user and inter-carrier traffic markets. The Contractor shall also prepare information on the business versus private telecommunications traffic and international incoming traffic

versus outgoing traffic (with identification of origin and destination by country for major flows).

In assessing the overall end-user market and end-user market growth, the Contractor shall not only provide “off-the-shelf” comparative projections for sub-Saharan markets and the Host Country itself, but should also consider, describe, assess and project available local purchasing power, population growth (in terms of resulting potential use of telecommunications services), potential pent up but unmet demand for telecommunications services and the likely effect of pricing trends on increasing overall communications volume and revenues. The Contractor shall give consideration to the likely or observed price elasticity of demand in making alternative volume projections; in as far as it can reasonably be measured or estimated.

In assessing the carrier-to-carrier/inter-carrier market within the Host Country and to and from the Host Country, the Contractor shall establish historical and existing traffic patterns. In making projections, the Contractor shall consider market structures and deficiencies, if any.

4.2 Market Structure, Supply and Competition Analysis: The Contractor shall describe and assess the current telecommunications network(s) and services offered or planned for introduction in the Host Country and for communications from and to the Host Country, including available and projected bandwidth and other relevant capacity. The Contractor shall assess the market from both a technical “capacity installed, technology used and available functionality” point of view and from a “competitive environment and competitor analysis” point of view.

The Contractor shall assess available existing networks and in particular inter-network capabilities and systems in the Host Country and connections abroad both to neighboring countries and population centers, as well as to the SAT-3, satellite, and other communication links to global telecommunications systems.

The Contractor shall assess logical geographical, population, and other markets for telecommunications markets for viability (i.e. whether they should be addressed by the Grantee) and determine to what extent they are adequately or inadequately served. The Contractor shall assess if these markets could cost effectively be accessed and served, where not currently served by existing competitors in the market. Where a market is not served, the Contractor shall also assess the reasons why current competitors are not addressing this market.

The Contractor shall identify and assess, to the extent possible, incomplete (e.g. due to lack of funding) fiber optic cable projects potentially relevant to the Project.

The Contractor shall assess deficiencies in the network structure (e.g. is there a lack of local backbone capacity and is there a viable, profitable potential market for open access pass-through/inter-connectivity services or for opening over-land connections

to neighboring large population and commercial centers). The Contractor shall assess the likelihood of potential existing competitors accepting to pay for services for a new entrant, as well as potential reactions to a new entrant.

The Contractor shall assess the market position, market share and financial position as well as overall strength and weaknesses of the participants (and potential participants) in the market. The Contractor shall assess the willingness of market participants to pay for the services of an open access wholesale pass-through/inter-connectivity provider.

4.3 Pricing and competitive Analysis. The Contractor shall provide detailed analysis of competitive landscape for telecommunications in, from, and to the Host Country, including both direct and indirect competition, including:

- Quantitative comparison of the Grantee's proposed pricing vis-à-vis other competitors;
- Statistics on pricing, including identification of any regulated/tariff pricing, etc. and projections of pricing.
- Qualitative and quantitative analysis of the Grantee's product offer versus available and/or planned alternatives (e.g. satellite connections etc.);
- Likelihood of possible contracts for the Grantee.

Against an assessment of the overall market background, the Contractor shall pay particular attention to demand and pricing for the market segments intended to be addressed by the Grantee.

4.4 Composition of networks in the Host Country and connections to and from the Host Country. The Contractor shall evaluate the past ten year historical evolution and current size and composition of the Host Country telecommunications networks in terms of numbers and quality. The Contractor shall identify long term contracts or investments (e.g. for satellite services).

4.5 Political and economic factors influencing market size and growth: The Contractor shall consider political and economic factors that could have significant impact on future demand for telecommunications services in the Host Country. In this context the Contractor shall assess the programs and priorities of all existing parties in addition to the current ruling party.

4.6 Supply and Demand Balance: Bearing in mind the available and projected demand and supply the Contractor shall also assess the historical, current and projected future supply/demand balance in the market and likely utilization rates and price evolutions.

#### **General Factors to Be Taken into Account and Included in the Above Tasks:**

To avoid distortions due to exchange rate movements, whenever reporting monetary values the Contractor shall report data in both local currency (CFA Francs) and the United States Dollar, also indicating the exchange rate used.

Sources for statistical and other data shall always be clearly and precisely identified by the Contractor, to allow fact verification by the Grantee. Assumptions, assertions and inferences should be clearly distinguished and identified by the Contractor, and contrasted with facts.

Segment the market: The Contractor shall provide the size (by volume and monetary value) of the market for telecommunications services within the Host Country and to and from the Host Country (including internet and value added services such as VoIP, data, and video services at end user and carrier-to-carrier level). The Contractor shall also provide segmentation definitions.

Deliverables for Task 4:

- a) The Contractor shall provide a written report providing an overall market assessment, with focus on distinguishing between the carrier market and the end-user markets. The Contractor shall place emphasis on types of products or markets of relevance to the Grantee, and optimal roll-out scenarios, lucrative market centers, time to market, and price points for products and services. The Contractor shall recommend optimal business models that best fit and support the identified market demands. The Contractor's report shall follow the guidelines presented in all of Section 4, and include, but not be limited to the following:
  - i. Historical Market Analysis: A detailed analysis of the historical market statistics and estimates, with extensive discussion of key market drivers and assumptions made, to include:
    - traffic segments: business vs. consumer,
    - traffic segments: international inbound and outbound traffic, identify major origin and destination countries,
    - products or services (e.g. voice traffic, internet traffic, etc.)
    - communications modes or channels (landline, wireless, satellite, etc.),
    - the traffic volume (and market share) per participating/competing telecommunications provider, and
    - a geographical presentation of existing and pent-up demand within the Host Country, and possible neighboring markets, where applicable.
  - ii. An analysis of the current market structure, existing and potential competition, existing networks, and political inhibitors and enhancers.
  - iii. Recommendations for entry into existing market segments, and identification of the new market segments. This shall include recommended pricing models that would maximize the Grantee's market competitiveness in wholesale and segmented "end-user" markets, and other identified markets.

- b) Based on the market assessment, pricing and competitiveness analysis, as well as construction costs, the Contractor shall recommend routes that maximize the potential revenue to the Grantee. In addition, the Contractor shall develop the written business case, ownership structure, and supporting justification for the business model to be used for the Project based on the most likely route and pricing scenarios to be adopted.

The deliverables of Task 4 shall also be included in the Final Report.

### **Task 5: Regulatory and Legal Framework**

Based on results and recommendations of Task 4, the Contractor shall analyze the impact of the current regulatory and legal framework upon the market assessment. Specifically:

- 5.1 Regulatory Framework and Licenses: Description and assessment of the regulatory framework. The Contractor shall assess whether the licenses obtained or to be obtained by the Grantee adequately cover its intended scope of operations. The Contractor shall assess what other permits the Grantee may require, e.g. interconnection rights and agreements, environmental assessments and/or permits, etc.
- 5.2 The Contractor shall assist the Grantee in reviewing the existing ICT regulatory framework and policies in the Host Country that impact build-out, management and operation of the recommended Project.
- 5.3 The Contractor shall review the Host Country's existing interconnection cost and pricing models, including cost-based, market-based and other models specifically related to interconnection of operators within the Host Country, as well as interconnection of neighboring countries to the Project.

#### Deliverable for Task 5:

- a) The Contractor shall prepare a written report that describes, analyzes and explains the regulatory framework, and its impact on the Project.

The deliverables of Task 5 shall also be included in the Final Report.

### **Task 6: Preliminary Environmental Impact Assessment**

The Contractor shall perform a preliminary review of the Project's environmental impacts consistent with local requirements in the Host Country and those of the potential financiers. This review shall identify potential negative impacts, discuss the extent to which they can be mitigated, and develop plans for a full environmental impact assessment if and when the Project moves forward to implementation stage. Specifically, the Contractor shall focus on developing plans for a full environmental impact

assessment related to the buildings and sites for communications towers, their emissions, and power requirements, and their location in regards to schools, water sources, hospitals and other internationally recognized site location restrictions relative to human habitation.

Deliverable for Task 6:

The Contractor shall prepare a report on its preliminary review of the short and long term environmental impacts. Measures for environmental control and mitigation, and treatment facilities shall be proposed, including their costs.

The complete findings of Task 6 shall also be included in the Final Report.

**Task 7: Development Impact Assessment**

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

(A) Infrastructure/Industry - The Contractor shall provide a statement on the infrastructure impact. The Contractor shall provide a high level estimate of the economic benefits to the communication industry in the Host Country, in terms of various measures such as the potential of service development and time to market.

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

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

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

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

Deliverables for Task 7:

The Contractor shall create a report on the developmental impact and the advantages of building a modernized, convergent and shared telecommunication infrastructure in the Host Country.

**Task 8: Final Report**

**The Contractor shall prepare and deliver to the Grantee and USTDA a substantive and comprehensive final report of all work performed under these Terms of Reference (“Final Report”). The Final Report shall be organized according to the above tasks, and shall include an Executive Summary and all deliverables and documents that have been provided to the Grantee.** The Contractor shall ensure that the Final Report is submitted in accordance with Clause I of Annex II of the Grant Agreement. Each task of the Terms of Reference shall form a separate chapter of the Final Report.

The Final Report shall be submitted to the Grantee in person, by the Telecommunications Market Analyst and the Project Manager, at a minimum.

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

The Contractor shall submit the Final Report in English and in French. The Contractor shall provide, in English and in French, 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.

**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.**