

REQUEST FOR PROPOSALS

FEASIBILITY STUDY FOR THE

ACRE STATEWIDE BROADBAND PROJECT

Submission Deadline: 1:00 pm LOCAL TIME

FRIDAY, December 29, 2008

Submission Place: Sergio Francalino
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Secretaria de Estado da Gestão Administrativa, Governo do Estado
do Acre, Palácio das Secretarias
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SEALED PROPOSALS SHALL BE CLEARLY MARKED AND RECEIVED PRIOR TO THE TIME AND DATE SPECIFIED ABOVE. PROPOSALS RECEIVED AFTER SAID TIME AND DATE WILL NOT BE ACCEPTED OR CONSIDERED. IN ADDITION THE THE SUBMISSION OF HARD COPIES, PROPOSALS MAY ALSO BE EMAILED TO THE GRANTEE.

REQUEST FOR PROPOSALS

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Section 1: INTRODUCTION

The U.S. Trade and Development Agency (USTDA) has provided a grant to conduct the Acre Statewide Broadband project on behalf of the Secretariat of Administrative Management of the State of Acre. 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

The State of Acre has a population of 685,000 and is located in the northwest Amazon region of Brazil. The state is located in a remote corner of Brazil and is one of the country's least developed regions. More than half of Acre's population is concentrated in two cities, the capital Rio Branco and Cruzeiro do Sul. Most towns in Acre were built near riverbanks. Rivers are the main means of transportation and roads between smaller towns are limited. Building roads in the Amazon is extremely costly and the digital technological connections proposed in the Project are therefore a viable solution in the effort to reduce isolation.

Access to broadband Internet is essential for the development of science and technology, but also education, reducing transactions costs through various types of e-commerce, as well as for reducing corruption in government bidding by using transparent e-procurement procedures for government contracts. By providing the means for improving the quality of education, health, public safety and other government services, broadband internet access can contribute to the social and economic development of Acre. A background Definitional Mission report is provided for reference in Annex 2.

1.2 OBJECTIVE

The objective of the Feasibility Study is to assist the Grantee with assessing the technical and financial viability of a statewide broadband network in the State of Acre, Brazil. 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. \$573,853 dollars.

1.4 CONTRACT FUNDED BY USTDA

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

Section 2: INSTRUCTIONS TO PROPOSERS

2.1 PROJECT TITLE

The project is called the "Acre Statewide Broadband Project."

2.2 DEFINITIONS

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

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

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

2.3 DESK 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. \$573,853 dollars.

2.6 RESPONSIBILITY FOR COSTS

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

2.7 TAXES

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

2.8 CONFIDENTIALITY

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

2.9 ECONOMY OF PROPOSALS

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

2.10 SUBSTANTIVE PROPOSALS

The Offeror shall certify (a) that its proposal is genuine and is not made in the interest of, or on the behalf of, any undisclosed person, firm, or corporation, and is not submitted in conformity with, and agreement of, any undisclosed group, association, organization, or corporation; (b) that it has not directly or indirectly induced or solicited any other Offeror to put in a false proposal; (c) that it has not solicited or induced any other person, firm, or corporation to refrain from submitting a proposal; and (d) that it has not sought by collusion to obtain for himself any advantage over any other Offeror or over the Grantee or USTDA or any employee thereof.

2.11 CONDITIONS REQUIRED FOR PARTICIPATION

Only U.S. firms are eligible to participate in this tender. However, U.S. firms may utilize subcontractors from host country for up to 20 percent of the amount of the USTDA grant. USTDA nationality requirements are detailed in Annex 3.

2.12 LANGUAGE OF PROPOSAL

All proposal documents shall be prepared and submitted in English and Portuguese.

2.13 PROPOSAL SUBMISSION REQUIREMENTS

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

Sergio Francalino
Assessor Técnico da Diretoria de Modernização Administrativa
Secretaria de Estado da Gestão Administrativa
Governo do Estado do Acre
Palácio das Secretarias
Av. Getúlio Vargas, 232 – Centro
Rio Branco, Acre CEP 69900-160
Brazil
Phone: 011 55 68 3212-7600
sergio.francalino@ac.gov.br

An Original in English and Portuguese and one (1) copy in Portuguese must be received at the above address no later than 1:00 pm (local time), on December 29, 2008.

Proposals may be either sent by mail, overnight courier, or hand-delivered. Whether the proposal is sent by mail, courier, 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 to the submission of hard copies, the Offeror may also wish to email the proposal to the Grantee.

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 in English and Portuguese and one (1) copy in Portuguese 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. \$573,853 dollars.

Offerors shall submit one (1) original in English and Portuguese and one (1) copy in Portuguese of the proposal. In addition to the submission of hard copies, the Offeror may also wish to email the proposal to the Grantee. Proposals received by fax cannot be accepted.

The following sections and content are required for each proposal:

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

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

3.1 SECTION 1: INTRODUCTION AND EXECUTIVE SUMMARY

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

3.2 SECTION 2: COMPANY INFORMATION

3.2.1 Company Profile

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

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

3.2.2 Offeror's Authorized Negotiator

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

3.2.3 Negotiation Prerequisites

1. Discuss any impact of any current or anticipated commitments which may impact the ability of the Offeror or its subcontractors to complete the Feasibility Study as proposed and within the project schedule.
2. Identify any specific information which is needed from the Grantee before commencing contract negotiations.

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

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

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

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

3.4 SECTION 4: TECHNICAL APPROACH AND WORK PLAN

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

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

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

3.5 SECTION 5: EXPERIENCE AND QUALIFICATIONS

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

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

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

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

Section 4: AWARD CRITERIA

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

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

Technical Expertise (50 points)

Work Plan and Methodology (30 points): Adequacy of the proposed work plan and suggested overall approach in responding to the Terms of Reference. Soundness and thoroughness of the technical approach and work plan sections of the proposal, and overall quality of proposal presentation will be evaluated. The proposal should also provide an organization chart of key personnel with their qualifications, and a staffing schedule for each key activity.

Regional Experience (20 points): Firm and team's familiarity with the IT sector in Brazil and Latin America and experience working with local authorities, as well as familiarity with local regulations.

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

Price will not be a factor in contractor selection.

ANNEX 1

Sergio Francalino, Assessor Técnico da Diretoria de Modernização Administrativa Secretaria de Estado da Gestão Administrativa, Governo do Estado do Acre, Palácio das Secretarias, Av. Getúlio Vargas, 232 – Centro, Rio Branco, Acre CEP 69900-160, Brazil,
Phone: +55 68 3212-7600, Fax: +55 68 3213-2150, Email: sergio.francalino@ac.gov.br

B - Brazil: Acre Statewide Broadband Project

POC John Kusinerek, USTDA, 1000 Wilson Boulevard, Suite 1600, Arlington, VA 22209-3901, Tel: (703) 875-4357, Fax: (703) 875-4009. ACRE STATEWIDE BROADBAND PROJECT. 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 an Acre Statewide Broadband Project for the State of Acre's Secretariat of Administrative Management.

The Feasibility Study will evaluate a statewide broadband project that will provide broadband internet services to the Acre region of Brazil. The Study would assist the Acre Government in defining several aspects of the Project, such as optimal ownership structure, size, limitations, and security of the bandwidth. In addition, the Study would serve as a basis for developing bidding documents to select private sector partners for the construction and management of the Project.

The Project has four objectives. The foremost objective for the Grantee is to build a network linking all government offices via high-speed internet starting with the municipalities of Rio Branco and Cruzeiro do Sul. This would eliminate redundancies and reduce overall operating costs for government communications. The second objective is to provide high speed connections to public internet access points, such as schools and health posts. The third objective is to provide medium-band connections to the general public as a public service. An optional fourth objective is to provide commercial high-speed internet access for businesses and homes seeking higher bandwidth than that available for free access.

The U.S. firm selected will be paid in U.S. dollars from a \$573,853 grant to the Grantee from the U.S. Trade and Development Agency (USTDA).

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

before 4:00 PM will be mailed the same day. Requests received after 4:00 PM will be mailed the following day. Please check with your courier and/or mail room before calling USTDA.

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

Interested U.S. firms should submit their Proposal in English and Portuguese directly to the Grantee by 1:00pm (local time), December 29, 2008 at the above address. In addition to the submission of hard copies, the offeror may also wish to email the proposal to the Grantee. 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

ACRE'S DIGITAL FOREST PROJECT

INTRODUCTION

Developing competitiveness in today's ever more globalized and knowledge-based economy requires a new kind of infrastructure. While terrestrial highways, railways, rivers and airports are still important, information highways are critical to establish linkages with the world's knowledge base. This can be called infrastructure.

Access to the broadband Internet is essential for the development of science and technology, of course, but also for lifelong education of the labor force and for reducing transactions costs through various types of e-commerce as well as by reducing opportunities for corruption in government bidding in transparent e-procurement procedures for government contracts. Through providing the means for improving the quality of education, health, public safety and other government services as well as access to global and Brazilian markets for businesses located in Acre, broadband Internet access can also contribute to social and economic development.

Table 1: Internet Access in Brazil, Northern Region and Acre

Geographic Area/socio-economic group	% Homes with Internet Access 2006 (PNAD)	% Homes with Television set 2006 (PNAD)	% Homes with Telephone (fixed or mobile) 2006 (PNAD)	% Urban population that has never accessed Internet 2007 from any location (CETIC.br)
Brasil	16.8	93.0	74.5	59.0.
North	9.7	85.0	59.9	68.0
Acre	7.7	82.1	66.4	n.a.
Acre/Urban	n.a.	94.1	n.a.	n.a.
Acre/Rural	n.a.	36.4	n.a.	n.a.
Class A	n.a.	n.a.	n.a.	6.0
Class B	n.a.	n.a.	n.a.	27.0
Class C	n.a.	n.a.	n.a.	53.0
Classes DE	n.a.	n.a.	n.a.	83.0

Source: Annex A (PNAD and CETIC.br)

As of July 2008, the latest official statistics on homes with internet connections in Acre come from the 2006 National Household Sample Survey (*Pequisa Nacional por Amostra de Domicílios – PNAD*), but there are data for the Northern Region for the year 2007 from the Center for ICT Studies (*Centro de Estudos sobre as Tecnologias da Informação e da Comunicação - CETIC.br* www.cetic.br) (Table 1). The detailed data on which this table is based are included in Annex A to this paper. Later in 2008 the 2007 PNAD data should be released. It is highly likely that, in 2008, less than 10% of homes in Acre have a computer with access to the Internet. The penetration is certainly far lower for rural areas and socio-economic classes C, D, and E.

The government of the State of Acre recognizes that the right of citizens to information is fundamental for both social justice and competitiveness. In other Brazilian states there are municipalities that recognize this right or have already realized it. But it seems that Acre is the first state, other than the Federal District, that has decided to build wireless networks with free public access and covering the entire state. This objective is part of a project entitled Digital Forest (*Floresta Digital*). The goal is to reach 100 percent coverage of the population by the end of 2010. There are also various kinds of digital states projects in various stages of execution for example, in São Paulo, Rio de Janeiro, and Ceará, though as yet these other states have not made universal free internet service an integral part of their official objectives.

Table 2: Population by Município, Acre - 2007*

Acre	655 385
Acrelândia	11 520
Assis Brasil	5 351
Brasiléia	19 065
Bujari	6 543
Capixaba	8 446
Cruzeiro do Sul	73 948
Epitaciolândia	13 434
Feijó	31 288
Jordão	6 059
Mâncio Lima	13 785
Manoel Urbano	7 148
Marechal Thaumaturgo	13 061
Plácido de Castro	17 258
Porto Acre	13 716
Porto Walter	8 170
Rio Branco	290 639
Rodrigues Alves	12 428
Santa Rosa do Purus	3 948
Sena Madureira	34 230
Senador Guiomard	18 863
Tarauacá	32 171
Xapuri	14 314

Source: IBGE, Contagem da População 2007.

*Population including estimated population of closed homes
Available at ftp://ftp.ibge.gov.br/Contagem_da_Populacao_2007

The Digital Forest project seeks to bring broadband Internet services to all of Acre's 22 *municípios* (Table 2) as an integral part of the vision of sustainable development and of *florestania* that guides the socio-economic development policies of this state. The project is being developed by the Secretariat of Administrative Management (*Secretaria de Gestão Administrativa – SGA*). In December 2007, SGA contracted a consultancy firm to prepare studies on the network development strategy, potential partnerships (public, private, national and international) to implement the project and develop content for the network (including e-government, education, health, and community

3. Seats of municípios along BR-317 (Acrelândia, Assis Brasil, Brasiléia, Epitaciolândia, Xapuri), connection via fiber optic cable or microwave, distribution by WiMAX/Wi-Fi/Wi-Mesh/PLC – the technologies to be used should have the lowest costs for the desired service levels.
4. Seats of Municípios along BR-364 (Feijó, Manuel Urbano, Sena Madureira e Tarauacá), connection via fiber optic cable or microwave, distribution by WiMAX/Wi-Fi/Wi-Mesh/PLC – the technologies to be used should have the lowest costs for the desired service levels.
5. Seats of remaining municípios in Acre (Jordão, Marechal Thaumaturgo, Porto Walter, Santa Rosa do Purus), connection via satellite, distribution by WiMAX/Wi-Fi/Wi-Mesh/PLC – the technologies to be used should have the lowest costs for the desired service levels.
6. Rural áreas of all municípios in Acre, with priority to the áreas with the greatest population density. Connection via satellite, distribution by WiMAX/Wi-Fi/Wi-Mesh/PLC – the technologies to be used should have the lowest costs for the desired service levels. Assuming that the rural population of the state is roughly one third to the total population, the population to be covered in this last segment should be on about 281,000, but could be less if it is possible to reach part of the population in rural areas via wireless technologies from the seats of the municipalities, avoiding the need for more expensive satellite connections.

The greatest urgency for SGA is to build a network linking all government offices (including the OCAs and public telecenters) in Rio Branco its six neighboring *municípios* (Segment 1) and in Cruzeiro do Sul and its neighboring *municípios* (Segment 2) and giving them access to the Internet, taking advantage of existing fiber optic backbones of the incumbent telecommunications operator, Brasil Telecom (BrT) and the new Metropolitan Network for Science, Technology, Innovation and Development of Rio Branco – (*Rede Metropolitana para Ciência e Tecnologia, Inovação e Desenvolvimento de Rio Branco* – RBMetroNet) which is a fiber optic ring being built in Rio Branco that should become operational in early 2009.¹ Something like this has been done in the Pedreira and Campinas (SP), Belo Horizonte (MG), Fortaleza (CE), and Porto Alegre (RS). There are many other municipal networks already in place or being constructed, and the state of Santa Catarina has its own fiber network, while Ceará is constructing one.

The seats of the four most isolated *municípios* (Jordão, Marechal Thaumaturgo, Porto Walter, Santa Rosa do Purus) and the rural zones of all 22 *municípios* not reachable economically by fiber optic landlines, including indigenous and riverside communities, constitute the most difficult segment of the Digital Forest network. It will be necessary to use satellite connections to complement landlines, making use of wireless technologies (WiMAX, Wi-Fi and/or Wi-Mesh) for local distribution of the signal.

Building roads in the Amazon is an extremely costly and herculean task. The digital highways involved in the Digital Forest project are the most viable solution for shortening distances and reducing isolation.

The Digital Forest project is closely associated with parallel initiatives of SGA to develop more efficient government services, including increased use of e-government through a unified portal (see www.ac.gov.br) and integrated citizen service centers (called OCAs) in the two most important

¹ RBMetroNet is examined in some detail below.

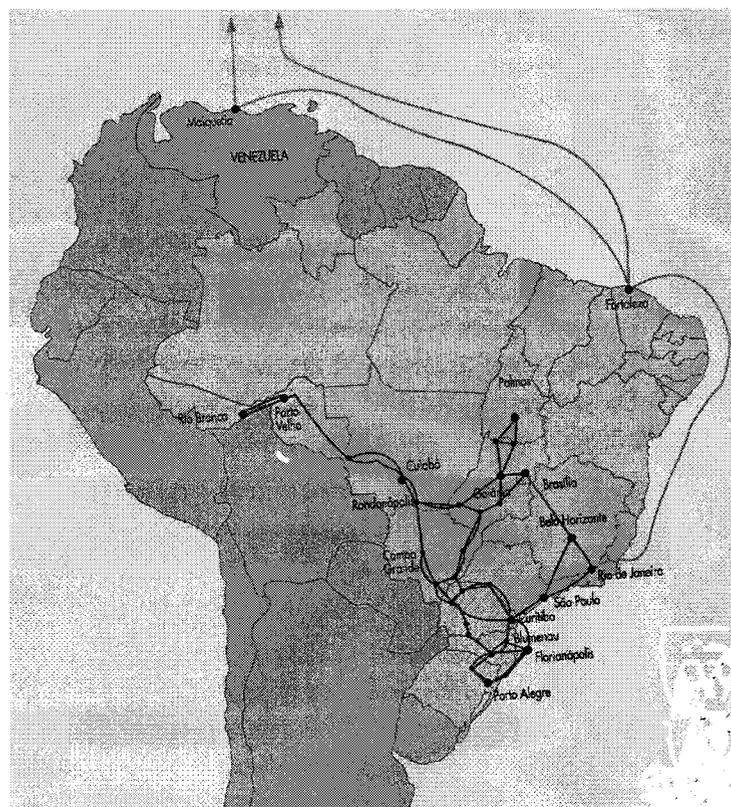
cities, Rio Branco and Cruzeiro do Sul. The OCAs are modeled on São Paulo's *Poupatempo* (Timesaver) centers (www.poupatempo.sp.gov.br) and are being prepared with the help of a Res Publica, a consultancy firm headed by the former head of the *Poupatempo* program. Both of these programs will make extensive use of the first "layer" in the Digital Forest network, that connecting all government offices, in the state with high-speed internet connections. The second layer will provide relatively high speed connections to public internet access points (community telecenters), schools, and health posts – that can also be used as telecenters when classes are not in session. The third layer will provide medium-band (256-512 kbps) connections to the general public, free of charge, as a public service, much as public lighting – in the digital cities movement, this is known as "illuminating" an area with wireless internet. An optional fourth layer would provide optional commercial high-speed internet access for businesses and homes seeking higher bandwidth than that available for free access and value-added services requiring such bandwidth.

Early implementation of the network involves VoIP telephony for government offices using existing internet connections. In order to conserve state budgetary resources, the development of the Digital Forest project is being closely coordinated with some key federal government programs and initiatives as described below.

The "exchange of obligations" to provide broadband backhaul to all municípios and urban schools. The "exchange of obligations" of telecommunications operators under their existing concessions involves bringing broadband internet backhaul to all Brazilian *municípios* currently lacking it and connecting 55,000 urban schools with a minimum of 1 Mbps by the end of 2010 free of charge through 2025 – substituting for previous commitments to the incumbent fixed line operators to put in place 8461 Telecommunication Services Posts – (*Postos de Serviços de Telecomunicações – PSTs*). The agreement was codified in a presidential decree published on 4 April 2008.² For Acre, the incumbent operator is Brasil Telecom (BrT). BrT's fiber optic backbone as of December 2007 is shown in Figure 2. It links the state capital of Rio Branco with Porto Velho in the neighboring state of Rondônia, and thence to Cuiabá (Mato Grosso), Goiânia (Goiás), Brasília, and thence to the global backbone of the Internet through a submarine cable. By October of 2008 BrT should have extended its fiber backbone along BR-364 to Cruzeiro do Sul, and along BR-317 to Assis Brasil (Figure 1), and this should provide the backhaul for the Digital Forest Project.

Figure 2: BrTelecom Long Distance Backbone as of December 2007

² Decreto Nº 6.424, de 4 de abril de 2008 available on the Internet at http://legislacao.planalto.gov.br/legisla/legislacao.nsf/fraWeb?OpenFrameSet&Frame=frmWeb2&Src=%2Flegisla%2Flegislacao.nsf%2FViu_Identificacao%2FDEC%25206.424-2008%3FOpenDocument%26AutoFramed.



Source: Atlas brasileiro de telecomunicações 2008 (São Paulo: Converge Comunicações, 2008), p. 66

Gesac. The second federal initiative is Electronic Government Service to Citizens (*Governo Eletrônico Serviço de Atendimento ao Cidadão – Gesac*), which is the largest federal government digital inclusion program. In April 2008 a consortium led by Embratel (and including BrT, Oi and Telefônica) won two separate auctions organized by the Ministry of Communications (MC) to provide 12,000 broadband connections to specific points in Brazil, many of them schools participating in the Ministry of Education's Proinfo (computer laboratories for schools) program. Of these 12,000 points, 114 are located in Acre, many of them in areas considered urban (see Annex 2 for a complete list of the points). *Gesac* already has 48 connections in Acre, several of them in Rio Branco.

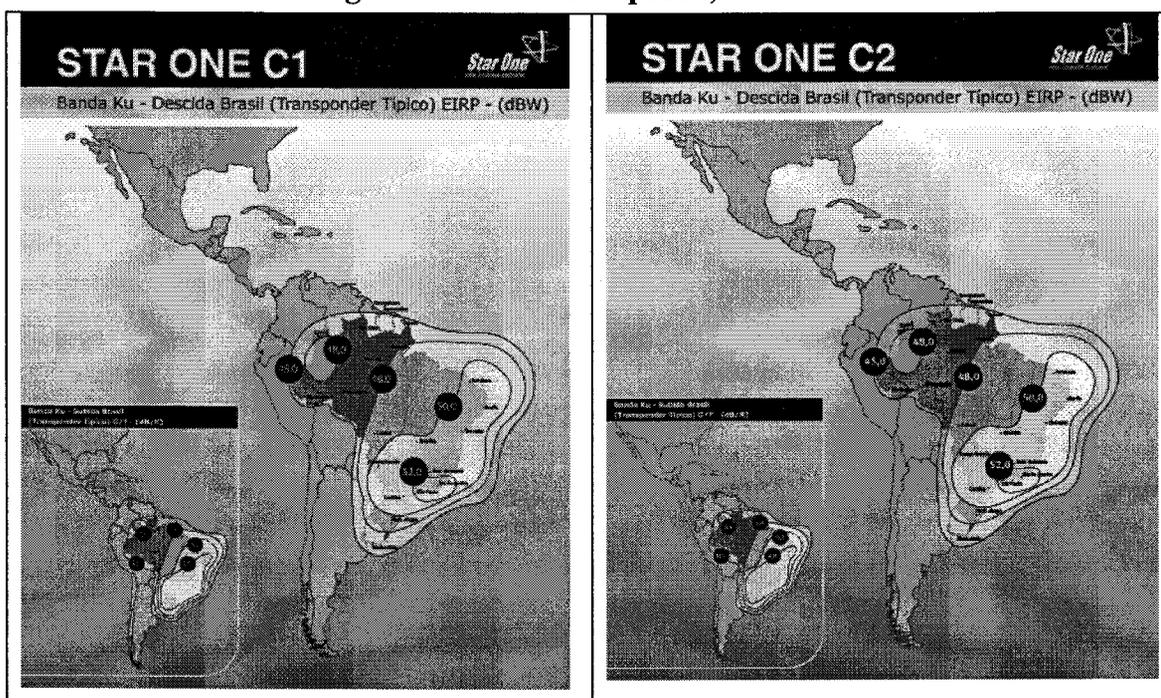
According to the terms of reference for the auction, the officials in charge of the *Gesac* program in the MC, state that it is possible to re-locate most of the 114 planned *Gesac* connections to rural areas not accessible by landlines. Under the new *Gesac* terms of reference, these points of presence can be used to extend broadband internet access via wireless technologies (e.g. Wi-Fi, Wi-Mesh) to areas, and not just to a specific installations (telecenters, schools, military posts, NGOs, etc.).³ The contract with the consortium was signed in late August 2008. Also MC plans to hold a third auction for an additional 8,000 rural mostly satellite broadband links. Acre should be able to get its share of these links, perhaps another 60 or so. These *Gesac* links should provide a starting point for the Digital Forest Project.

For the satellite connections Embratel is almost certain to use two advanced communications satellites, Star One C1 and Star One C2, launched respectively in November 2007 and April 2008.

³ The bidding documents for the competition won by Embratel are available at [http://www.mc.gov.br/Inclusão Digital/Gesac/Segunda Audiência Pública](http://www.mc.gov.br/InclusãoDigital/Gesac/SegundaAudiênciaPública).

They have advanced Ku Band transponders ideal for this purpose and footprints which include Acre (Figure 3). The 114 points plus an additional 60 or so to be awarded in the August auction will not be sufficient to cover the rural areas for the *Floresta Digital* project, but according to the Ministry of Communications official heading the Digital Inclusion program, it should be possible to contract additional points at the same low price of the Gesac contract.⁴

Figure 3: Satellite Footprints, Star One C1 and C2



Sources: http://www.starone.com.br/source/website/corporativo/segmentoespacial/starone_c1_ku_brasil.cfm
and

http://www.starone.com.br/source/website/corporativo/segmentoespacial/starone_c2_ku_descida_brasil.cfm

Urban connections in the *municípios* where BrT has or will soon have fiber would probably be provided by BrT, since they would be faster, cheaper, have less latency.⁵ But it is probably in the interest of Acre to have almost all of the Gesac connections in rural areas, since urban schools will be served by BrT under the “exchange of obligations” program and provided free service through 2025, which is much longer than the Gesac contract. Any other urban locations served now by Gesac can be served via terrestrial links which can be provided through the Digital Forest network as it is implanted.

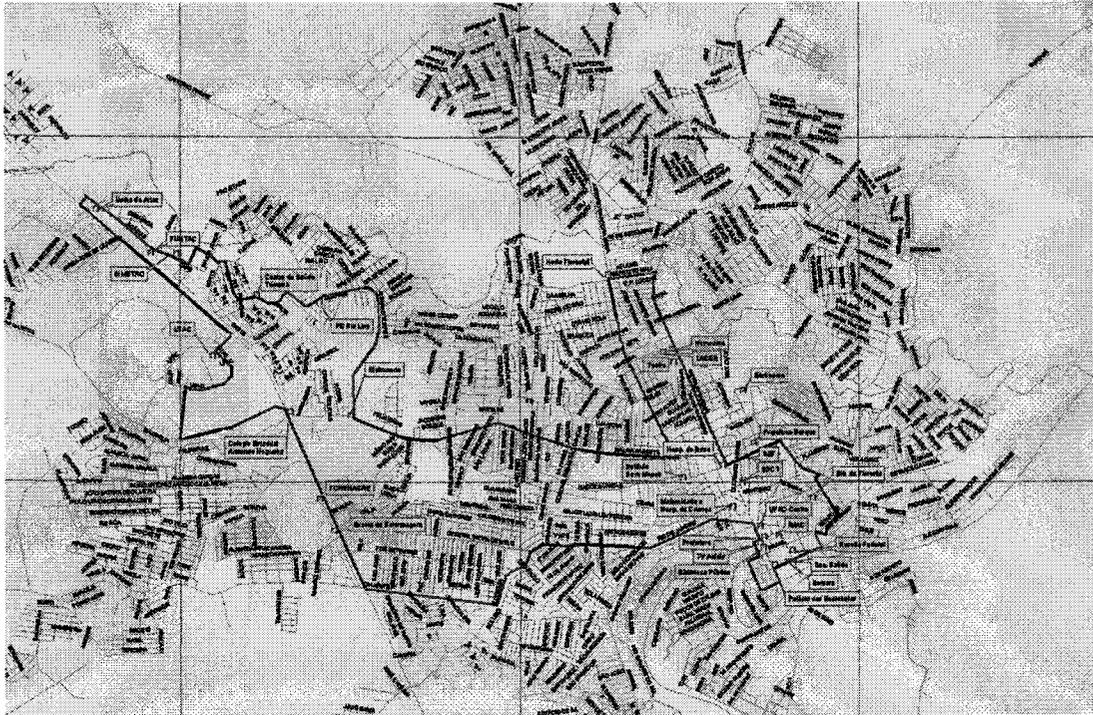
RBMetroNet and Rede Comep. With support of the Ministry of Science and Technology (MCT) and the National Research Network (*Rede Nacional de Pesquisas – RNP*) and the program for Metropolitan Community Education and Research Networks (*Redes Metropolitanas Comunitárias de Educação e Pesquisa – Redes Comep*), a fiber optic ring called RBMetroNet is being established in Rio Branco and the construction contract has been won by the Manaus firm Brastelecom.

⁴ Interview with Dr. Heliomar Medeiros de Lima, Brasília, 3 July 2008.

⁵ Latency is the delay, measured in milliseconds in two way communication – due to electronic processing and travel of the signal at the speed of light – which in a round trip to a geosynchronous satellite 22,500 miles above the earth takes longer than over terrestrial fiber optic cable.

RBMetronet will link research institutions, higher education institutions, and government offices. The plan is to share the fiber of RBMetroNet (and possible WiMax or other high-speed wireless extensions of it) with the Digital Forest network in Rio Branco. The map of this network is shown in Figure 4. RB

Figure 4: RBMetroNet – Metropolitan Network of Rio Branco Redecomep – Community Network for R&D



The topography of RBMetroNet is provided in Figures 5 and 6 – there may be minor changes in this topography before the network is implemented. Construction is scheduled to begin in October/November 2008 and it is expected that RB MetroNet will be in operation by February/March 2009. Note that wireless links are planned to the campus of Embrapa (the federal government agricultural research enterprise) and the UFAC agricultural research station at Catuaba, though a fiber link sharing the fiber of the Eletronorte (a subsidiary of Eletrobrás responsible for the power generation, transmission and distribution in the states of Amazonas, Pará, Acre, Rondônia, Roraima, Amapá, Tocantins and Mato Grosso) is also being studied for these connections. The Federal University of Acre (UFAC) and Embrapa are key institutions for developing more knowledge-intensive exploitation of Acre's natural and genetic resources.

Figure 5: Topography of RBMetroNet

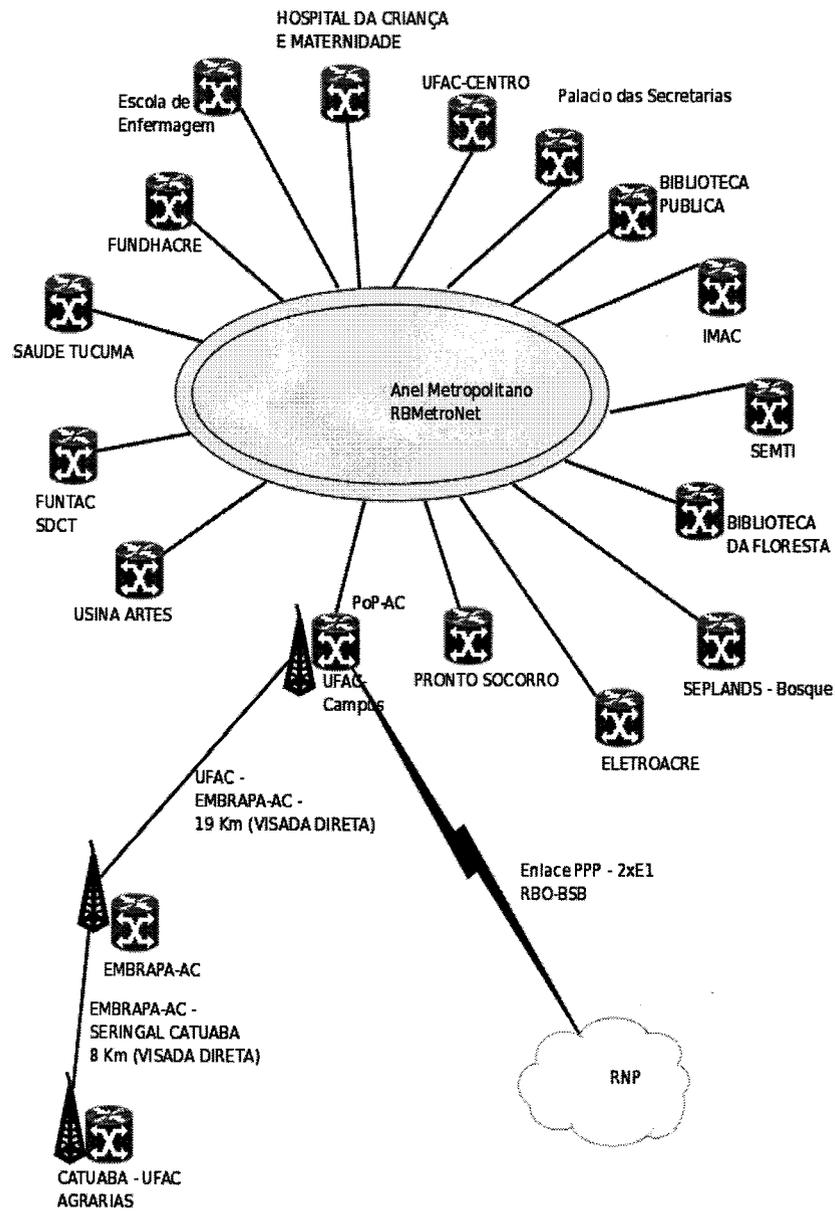
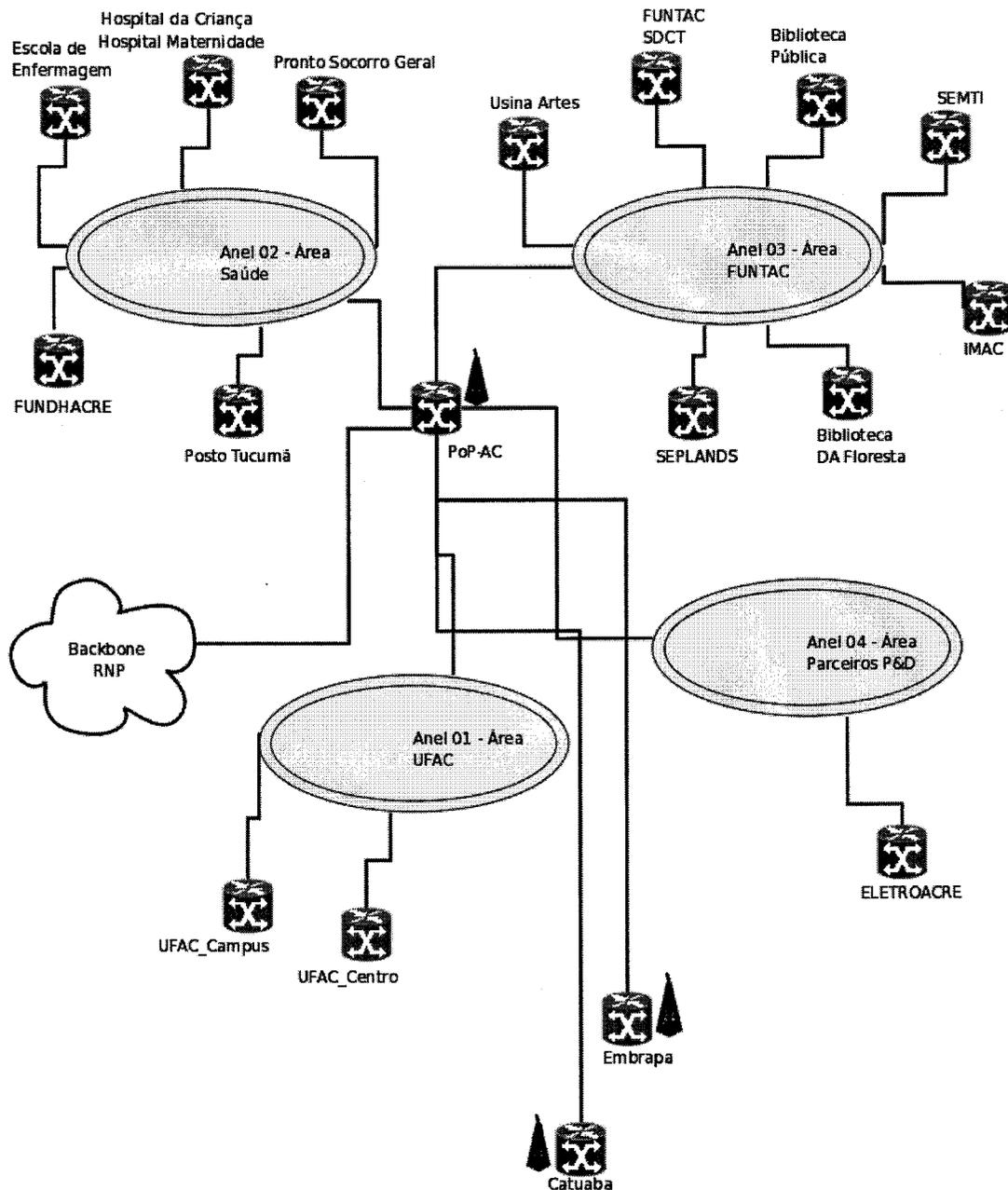


Figure 6: Logical Topography of RBMetroNet



Current planning calls for 18 fiber pairs in the fiber ring of RBMetroNet, of which at least two would be for the GOA. GOA would be responsible for lighting these fibers and preliminary estimates are that eight GOA points of presence on the ring would require equipment costing about R\$100,000 each, or a total of about US\$500,000.

Telcenter kits program, Ministry of Communications. This program provides, funded by the Federal Government, a standard set of equipment for community telecenters with broadband connections to the Internet, and has the objective of promoting social and economic development of the communities served, reducing social exclusion and providing opportunities for citizens. The telecenters provide free broadband access to citizens, access to e-government services, digital literacy training, and can also be used for various other kinds of training and community

development activities. To keep costs down, they make use of free software like the Linux operating system and the Open Office suite of office applications. The MC provides a kit consisting of the following equipment to *municípios* duly registered under the program.

- Computer equipment
 - 1 telecenter server
 - 10 workstations
 - 11 voltage stabilizer
 - 1 wireless router
 - 1 laser printer
 - 1 camera for remote control.
- Audiovisual equipment:
 - 1 multimedia projector
- Furniture
 - 21 chairs
 - 1 teacher's desk
 - 1 storage cabinet
 - 11 tables for computers
 - 1 table for printer

Mayors offices of registered *municípios* need to sign an agreement in which they agree to provide at least 48 square meters of space with adequate infrastructure (drinking water, lighting, bathrooms, accessibility for people with disabilities, a broadband internet connection (which can be a Gesac connection), a telephone line for contacting the MC and technical support, support for the telecenter operating costs, including at least one technical assistant, and setting up a Management Council.

In the Northern Region of the country, the MC has been more proactive, directly contacting every mayor's office. By the end of October 2008 the official in charge of this program in the MC says that every *município* in Acre will have a new telecenter with a Gesac connection, and in Rio Branco, the capital, there will be five (as in other state capitals), making a total of 26 new telecenters.⁶

Funding for the Digital Forest Project

In addition to resources to be provided by BrT, for which no estimates are available, and by Gesac and other federal government programs, resources for the digital forest project network as of July 2008 are expected to come from two main sources: The Proacre Project⁷ and GOA (Government of Acre) budget. These two sources of funds are discussed below.

Fundamental decisions that need to be taken before or after the feasibility study

⁶ Telephone interview with Carlos Roberto Paiva, in charge of this program in the MC, 15 July 2008.

⁷ Proacre is a \$150 million operation under development by the World Bank and a team led by Acre's Secretariat of Planning – SEPLAG.

It is important for the GOA to reach some basic definitions regarding the property and operation of the Digital Forest network. Probably the feasibility study would be cheaper were possible to resolve these issues prior to the conduct of the feasibility studies, however it is possible to include in the feasibility study a detailed examination of the options at an additional cost. That is what H&A recommends.

The basic decisions have to do with

1. The ownership of the physical network,
2. The bandwidth to be made available free of charge to the general public (outside of schools, community telecenters, etc.) and how to avoid abuses of free access that could affect the sustainability of the project, and
3. Whether the same physical network will be used to sell services to the public (including to businesses) above the bandwidth provided for free public Access.

The first and third issues are interlinked, because under current legislation the State cannot sell telecommunications services directly to the public (though it may create a company to do this or enter into an agreement with a private operator to do so, possibly through a PPP).

Property of the physical network

To build and operate networks of any kind (fiber optic cable, other kinds of cables, wireless) within Acre is an option for the GOA, but any state-owned network would have to contract with BrT and/or another operator to Access the fiber optic landlines connecting Acre to the backbone of the Brazilian and international Internet, and with satellite operators for satellite connections to these backbones. As explained above, in Rio Branco RBMetroNet is already under construction, and the GOA plans to share this fiber infrastructure.

To operate its own networks the GOA would have to assume all the risks and responsibilities that come with being the owner of a network, to maintain it in operation, keep it technologically up-to-date, employ the necessary specialized personnel, etc. This could be done by creating a state ICT company, obtaining the necessary licenses, or just operating the state network without creating a state company. But in this last case it would not be possible to sell telecommunications services (including Internet access, VoIP telephony, etc.) to the public, only to make these services available without charge, as is done in Sud Mennucci (SP) and Rio das Flores (RJ) for example. In the Federal District (DF), the Secretariat of Science and Technology is planning to build its own network, taking advantage of spare capacity in the existing fiber in the InfoVia Brasília. Santa Catarina has a fiber optic network of 200 kilometers, covering the capital, Florianópolis, and the Southern Region. In Pará the state will use 1,800 kilometers of fiber optic cables of the Eletronorte power company for voice and data and vídeo. In Ceará the state ICT company is sharing fiber with Chesp (another Power company) and investing in its own fiber cable to complete a ring in the state called the *Cinturão Digital* (Digital Belt).

Another option is to contract a private enterprise to operate the network, as is currently done in some other states like Rio de Janeiro and São Paulo, though so far these networks have been used mainly to link state government offices, not to offer free internet access to the general public except in public telecenters. In the case of São Paulo, the Government Program of Governor José Serra says the state will offer access to the state network (*Rede Intragov*) operated under a concession by the incumbent telco in that state, Telefônica, for *municípios* with up to 100,000 inhabitants. In Rio de Janeiro state something similar is being planned, and work is currently underway to provide

wireless internet connectivity to some 4 million people in the Baixada Fluminense (working class bedroom suburbs of the Rio de Janeiro city).

Yet another model being developed in São Paulo state involves a partnership to operate municipal networks in which the *município* operates a portal integrating various government and private sector services offered to citizens in partnership with private sector firms such as Banks, telecommunications companies, offering microcredit to micro, small and medium enterprises. A GIS-based set of software modules for municipal administration (Program) and a citizen card giving access to various services are integrated with the portal. This model seeks to make the provision of internet Access to citizens economically sustainable.

Another possibility would be to create a Public-Private Partnership (PPP) between the State of Acre or a state ICT company that would have to be created, and BrT and the consortium RBMetroNet, where management would be shared, but operation would be by BrT for segments 3, 4 and 5 and the state firm for segments 1 and 2, and the inter-state and international connections to the Internet by BrT.

It is a delicate matter to design a good contract with a private sector partner to prevail over a multi-year period (up to five years under federal law 8666), but it could be possible. The principal difficulty would be to design objective indicators that could be used to divide equitably between the partners the cost reductions derived from future technological change that cannot be estimated with any precision for such a long period. In such a contract it would be possible to include sale at commercial rates of bandwidth above the basic level envisioned for free public access, and to design the network capacity and architecture taking this option into account. This would allow developing a true partnership with BrT for segments 1-5, because that company should have fiber along BR-364 and BR-317 and will have to find a way to connect the four isolated *municípios* of segment 5 under the terms of Decree 6424 that made official the "exchange of obligations" described above.

It is unlikely though, not impossible, that any other telecommunications firm will want to invest in fiber connections which would run parallel to those of BrT within Acre and then back as far as the capital of Goiás, Goiania, (the furthest western extension of Embratel's fiber backbone) or even Brasília (where several other operators have fiber connections (Oi, Eletronet, Intelig, Global Crossing and GVT)).⁸ The GOA could offer a reduction in the state value added tax (ICMS) as part of the negotiations for this partnership, and possibly lose little or no revenue as demand should increase sharply (income and price elasticities for telecommunications services are likely quite high, especially at lower income levels. For segment 6, Gesac can be used and it should be possible to contract additional satellite connections at favorable prices from Embratel, as explained above. Embratel could participate in a consortium or separate contract for this purpose and also to provide a redundant link to the national and international Internet backbone via satellite should the terrestrial link of BrT be interrupted.

Bandwidth for free public access and avoiding abuses

Considering the first layer of the Digital Forest network to be links between government offices, a second layer being used to provide relatively high bandwidth to community telecenters, the third layer would be for providing free access to the general population in their homes or small businesses, probably using Wi-Fi and Wi-Mesh technologies to connect to WiMAX and/or fiber or

⁸ Maps of each of these companies' fiber backbones are available in the *Atlas Brasileiro de Telecomunicações* published annually by Teletime in São Paulo. The latest version (2008) was published in December 2007.

to VSAT connections. A decision needs to be taken on how much bandwidth to offer in this third layer, for example 256 kbps in areas where satellite connections are used and 512 kbps in areas where terrestrial fiber provides the backhaul, either directly, or through WiMAX. These speeds are sufficient for e-mail, web browsing, and use of free VoIP services like Skype, for carrying out e-government transactions, e-commerce, and to participate in distance education. Such speeds can also provide a return channel for interactive digital television using set-top boxes with small Linux-based Wi-Fi enabled computers included together with the Brazilian middleware software, Ginga,⁹. In principle the network can be designed to permit a fourth layer to offer commercial paid Internet Access and other value-added services beyond those available at the speeds contemplated for layer 3. The full feasibility study should estimate the costs of the different options.

There is, however, a very real possibility of abuses of free Access to the Internet, — individuals or businesses could leave their computers on all the time so as to be able to download videos, even at relatively low speeds, or to participate in complex multiplayer games, thus creating network congestion and raising the costs of providing such Access. There are means to limit this kind of abuse, interrupting the connection periodically, for example it is also possible to limit the number of daily hours of free access, the type of content that can be downloaded, etc. It is also possible to reduce the cost of accessing the national and international internet by caching on servers within Acre the most frequently downloaded content coming from other Brazilian states or other countries. Such content could be downloaded during the early morning hours when regular traffic is lowest,

But within the GOA intranet (layer 1), the velocity should be high, allowing the creation of knowledge bases and caches of government content, perfecting the use of the Internet that today wastes bandwidth.

Sale to the public of higher bandwidth Internet Access, including VoIP services using conventional telephones

As explained above, this option (layer 4 of a common physical network) would be ruled out if the Digital Forest network were owned directly by the GOA. In this case bandwidth above the maximum provided to the public in layer 3 would be sold by commercial operators using their own networks, and the Digital Forest network would have only three layers (government intranet, public telecenters, and free wireless service).

The detailed feasibility study should include an evaluation of the pros and cons of each of these three issues (the property of physical networks, the bandwidth to be provided free to the public, and the provision higher-bandwidth commercial services).

What should be included in the feasibility studies?

The possibility of consolidating segments 3 and 4 (municipal seats along the two principal highways crossing the state) should be considered, It should also be possible to cover part of the rural areas of the municípios in segments 1-4 from their seats, leaving a smaller area requiring inherently more expensive satellite connections in segments 5 and 6. The objective of the segmentation should be to reduce the area requiring exclusive satellite connections to the locations where satellite connections are the cheapest technology available.

⁹ Ginga is the Brazilian middleware, developed in two universities, and standard for use in set top boxes and new digital TVs.

For each segment of the network, the feasibility study should include activities to produce deliverables that will allow the preparation of bidding documents for implementing that segment of the Digital Forest network.¹⁰

Results expected from the study

1. Theoretical profile of the network, with survey of the probable strategic points of presence and criteria for selecting them
2. Structure of equipment posts and protection for the points of presence
3. Reference infrastructure for remote points
4. Basic design for civil construction for the points of presence
5. Report on the present situation of points of presence
6. Recommendations for locating and dimensioning towers for the points of presence
7. Graphs analyzing the local spectrum and analysis of the same
8. Specification of frequencies for the network connections
9. Specification of protocols for network connections
10. Calculation of the throughput of the network connections
11. Specifications for the radios and antennas to be used
12. Specification of the parameters for quality of service (QOS)
13. Identification of the characteristics of the most appropriate equipment for the projected network, so as to assure competition between suppliers
14. Evaluation of the number of users projected by point of presence (base station radios)
15. Specification of the capacity of the links for serving users
16. Maps of projected coverage, by point of presence and for each município
17. Options for sharing infrastructure with existing or projected networks (e.g. RBMetroNet, Eletronorte's network, municipal networks)
18. List equipment for the points of presence (BOM – build of materials)
19. List of materials for remote points (BOM)
20. Graphic diagram of the projected logical network
21. Specifications of the classes of addresses to be used
22. Analysis of the existing physical network of the SGA and specification of network protocols to be used, so as to assure the maintenance of compatibility and interoperability, including with existing or planned networks of municipal governments;
23. Analysis of the existing management system of the SGA
24. Recommendations for network management so as to complete the existing management system and assure that the new network will be well managed
25. Analysis of the existing logical security system in the SGA
26. Specification of security tools to be used in the wireless network, to preserve the integration with the existing system
27. Recommendations to complete the existing server structure with a view to security;

¹⁰ The proposed activities are adapted from those used in a study for the municipal network of Belo Horizonte contracted by the municipal ICT company, Prodabel.

28. Specification of the structures for login, passwords, and data protection
29. Recommendations for compatibility of equipment to be acquired, so as to assure capacity expansion and extend the live of the new network
30. Terms of reference for the bidding documents to be issued, taking into consideration the above design of the network
31. Cost estimates to implement each section of the network (new investment required) and annual operating costs for each segment of the network, always bearing in mind the obligations of BrT to provide the broadband backhaul to all 22 municípios in the state and to connect all urban public schools by 2010 as provided for in Decree 6424 and the regulations to be issued for it. The estimated costs of satellite connections should also consider the transferring of existing or currently planned Gesac points to segment 6.

F. VIABILITY OF THE PROJECTS

H&A ascertained that the proposed project fits well within a broader State of Acre strategy for consolidating the state government's physical and electronic infrastructure, with expected savings in both capital and current expenditures. The extent of the cost savings will have to be determined in the feasibility studies, but improved technology and the elimination of redundant functions and computing capacity should mean that these savings are significant.

On the organizational side, SGA together with the SF have the technical capacity to manage the public side of the proposed Digital Forest network, But they could clearly benefit from USTDA-financed international technical assistance to develop detailed feasibility study for this project. The study would serve as the basis for developing bidding documents (*editais*) to select private sector partners for the construction and/or management of the network.

The Digital Forest project has already got broad support across the government, since it will reduce overall operating costs for government communications, and supply the necessary information infrastructure for the Proacre project under preparation for World Bank funding. This project involves several different stakeholders (Figure 7, page 17), since the Digital Forest network, while coordinated from SGA, involves the Secretariat of Planning (which coordinates the Proacre project), various secretariats that will make use of it for improving services to citizens (especially Education and Health), the Federal University of Acre (UFAC), and Embrapa, as well as any private sector partners.

The feasibility study will have to explore all aspects of project feasibility and their interrelations in greater depth as shown schematically in Figure 8.

Figure 7: Stakeholders in the Digital Forest Project

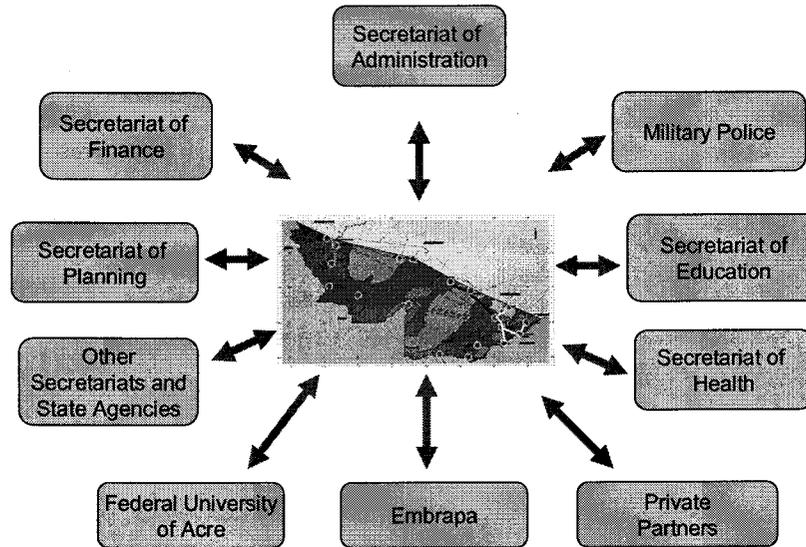
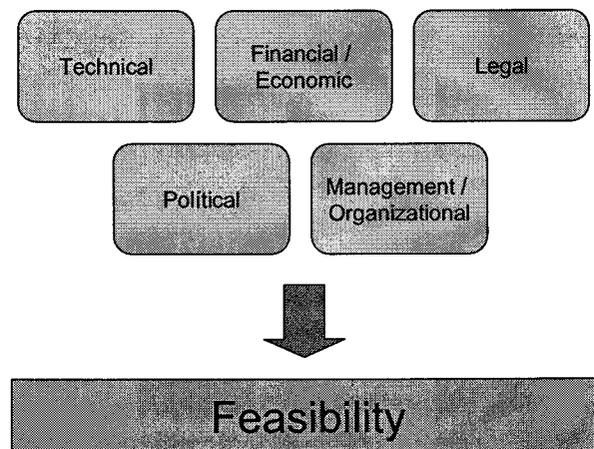


Figure 8: Elements of the Feasibility Study



G. CRITICAL SUCCESS FACTORS FOR PROJECT IMPLEMENTATION

Following the DM discussions H&A prepared a list of critical success factors applicable to the project.

- A successful change management process be conducted in the affected secretariats and government agencies
- The government shares with the private sector benefits of productivity increases arising from technological change, and not just the costs
- Continual monitoring of the contractual conditions in relation to the market is carried out – provisions for this need to be incorporated in the contracts themselves
- Training of state personnel in the management of outsourcing, SLA, SLM, etc.
- Clear definition of contract objectives (scope, service levels, metrics, requirements, etc.)
- Support from top government managers
- Priority for payments to private sector partner for strategic and critical activities outsourced
- Establishment and application of penalties for non compliance with contract conditions
- Definition of a clear process exiting from the contract and transition to another supplier
- The partnership between public and private sides becomes a conventional client and supplier relationship
- Other critical success factors inherent in outsourcing processes for ICT projects

H. PROJECT RISKS

In addition to the legal risks mentioned above, the following risks have been identified by H&A:

- A ten-year or more contract is very long given rapid technological change in the ICT and telecommunications industries and the possibility of paradigm changes, requiring design of rules governing the sharing of the benefits of technological change between the public and private partners
- Isolation from market forces over an extended contract period unless appropriate rules can be devised (see point above)
- The project budget estimates are still based on desk studies at this time
- The private sector partner could face financial and operational difficulties
- SGA's capability to manage a complex project of this nature will need to be increased through training and recruitment
- Political and economic instability could develop, though this does not seem at present to be a problem
- Poor implementation of the guarantee fund
- Other risks inherent in outsourcing contracts for ICT infrastructure

I. DEVELOPMENTAL IMPACT

Two somewhat differing developmental impacts of the project can be distinguished:

1. a *shorter-term impact* stemming from the results of the study itself; and
2. a *longer-term impact* as a result of the SGA succeeding in developing partnerships with private sector firms.

Both of these impacts are described more fully below.

Primary Developmental Benefits

Particular primary developmental benefits can be enumerated as follows:

- **Infrastructure:** In the short term, although it will be the responsibility of the private sector partners to put in place the basic electronic infrastructure (e.g. fiber, servers, routers, wireless distribution systems, VSAT equipment, storage capacity, support personnel,) SGA will have to provide overall guidance in the design of the Digital Forest network, information systems, web pages, and associated databases and conduct the organizational reforms that will enable the new network to function effectively, reaping economies of scale and eliminating excess personnel and equipment throughout the state government. The project will facilitate the process, on a general level by transfer of knowledge and experience, and more specifically, by providing guidance on the design of the Digital Forest network and its mode of operation. In the longer term, to the extent that the Digital Forest network enables reduced operating costs and improved service levels, the benefits should extend well beyond the state government to the citizens, enterprises, and municipalities it serves, and could be quite significant. Much of this infrastructure, moreover, could be supplied by US-based sources. (See also Section G.)
- **Human Capacity Building:** The proposed Terms of Reference for the feasibility studies include a task (Task 6) that involves reviewing the organizational preparedness of SGA to guide the development off the Digital Forest network and datacenter. A particular focus of this task is the attendant human-resource requirements (number of personnel, skill sets, etc.), together with the corresponding capacity-building activities. Indirectly and longer term, successful implementation of the project would free up resources within SGA and other secretariats and agencies of the government to plan and develop new e-Government services.
- **Technology Transfer:** In terms of technology transfer, the principal impact will be to familiarize SGA with the existing and emerging technology solutions and platforms in network project in both public and private sectors worldwide and with international and Brazilian experience with outsourcing contracts for network services. This knowledge and experience can then be shared with other states.
- **Market Oriented Reforms:** The project would contribute directly to market oriented reforms of public administration in Acre and Brazil by contemplating private sector responsibility for operating the network while leaving planning and strategic direction in the public sector. The Digital Forest network could take partnership with the private sector to a new level – the service is already outsourced to Brasil Telecom.

J. PROJECT SPONSOR'S COMMITMENT

This project has a separate line item in the Proacre Project being developed jointly with the World Bank, which is an indication of its priority. The basic framework for the proposed projects was developed by the Brazilian firm Telemática e Desenvolvimento Ltda. in discussions with Governor Binho Marques, Secretary of Finance and of Administration Mâncio Cordeiro Lima, and other GOA officials. H&A developed this framework into draft Terms of Reference (TOR), which were subsequently reviewed and discussed with José Alcimar da Silva-Costa, Deputy Secretary for Management Technologies in the SGA and Secretary Lima. They indicated that a USTDA-financed feasibility study for the Digital Forest network along the lines indicated is a major priority for the GOA and would receive full support and cooperation from the GOA. While the Digital Forest project is not explicitly mentioned in the Multi-Year Plan for 2008-2001 with this name, a number of its components, including the high-speed fiber network in Rio Branco, and applications are. Accordingly, the commitment of the proposed project sponsor (SGA) is high.

K. IMPLEMENTATION FINANCING

The state of Acre's contribution will be monthly payments for services rendered by the private partner(s). Current operating costs for government network and communications are R\$1.1 million (about US\$700,000) per month, and at least this much in real terms should be available for the project. Improvements in efficiency would be another source of "finance" – how much could be saved as digital forest network expands and after allowing for improved security and better quality of service in the datacenter would be established during the feasibility studies.

In addition to the state budget and the contribution of federal agencies, the World Bank is currently preparing a loan to the State of Acre for the Proacre project. Proacre is a \$150 million operation under development by a World Bank team and a team led by Acre's Secretariat of Planning – SEPLAG. Financing will be by a US\$120 million loan and US\$30 million in counterpart funding mobilized by the State of Acre. It is expected to be approved by the World Bank Board of Directors early in 2009. An agreement between SGA and SEPLAG provides for a line item for the Digital Forest network which should help link network development to the development of education, health, and community development services in the rural Priority Attention Zones (*Zonas de Atendimento Prioritário* – ZAPs) of Acre as well as to improved public sector management through implementation of e-government services.

The estimates as of late July 2008 are for a total expenditure of US\$9.5 million (World Bank and GOA resources over six years on the Digital Forest network (about 40 percent World Bank and 60 percent GOA funding), and another US\$3.5 million for SGA e-government projects like a citizen's card and a situation room. For the Digital Forest network the allocations for the first two years (2009 and 2010) are US\$3.8 million from the World Bank and \$.9 million from the GOA budget. But the bulk of Proacre funding is intended for education, health, and community development — and all of these components can make use of the infrastructure provided by the Digital Forest network which will itself draw on resources coming from the federal government initiatives and projects described above.

Estimates based on desk studies conducted by a Brazilian firm specialized in wireless networks suggest that the total cost of the Digital Forest network could be as high as R\$49 million (about US\$30.6 million) should the GOA assume all of the costs of creating the network. A Figure closer to the amount budgeted for the network in the Proacre project might be possible if full advantage is taken of the backhaul being built by BrT under the "exchange of obligations" established in Decree 6424 and of the Gesac points provided by the Ministry of Communication. In any case the feasibility study is intended to determine project costs more precisely, and would be carried out in early 2009, when the arrangements with BrT and the Gesac program should be clearer.

As for financing of the private partner(s), the International Finance Corporation (IFC) is already seeking to make pilot investments in firms providing outsourcing services for e-Government in Brazil, and has indicated an interest in principle in financing the private sector partner(s).

Any future e-Brazil or Brazil e-Government project that might be developed at the federal level with state participation and financed by the Inter-American Development Bank (IADB) or World Bank might also increase the availability of funds in Acre for e-Government work and thereby provide additional comfort to the private sector partner that the state government would have the resources necessary to meet its commitments under an outsourcing contract. H&A verified that both the IADB and the World Bank are interested in such projects should they be proposed by the State Governments and/or the Federal government and receive the Federal Government's priority for its international borrowing program (the Federal Government must give a guarantee for any IADB or World Bank operations, but not for IFC operations. The Brazilian National Economic and Social Development Bank (BNDES) is another potential source of financing.

Four private sector companies –, Avaya, Computer Associates, New Wave, and Cisco Systems expressed interest in the two projects. All companies have formally expressed interest in the Digital Forest project. Participation in the feasibility study is prohibited in the conventional contracting framework (Law 8666).

L. US EXPORT POTENTIAL

1. Estimation of Export Potential

To estimate the potential for US exports that could eventually be created by the Digital Forest project, it is necessary to resort to certain assumptions, namely:

- The feasibility study results in the successful implementation of the Digital Forest network.
- The Digital Forest network will require substantial new investments in fiber, routers, servers, wireless communications hardware, antennas and other equipment (however we have no idea at this time of the magnitude of the investment required, which will have to be estimated during the feasibility study).
- The feasibility study results in the successful implementation the Digital Forest network.

There are further uncertainties associated with the estimation of the resultant export potential. We were unable to obtain any cost estimate data on the Digital Forest project from the SGA. It is really too early in the project to be able to determine any type of figures for the potential of US exports to be gained.

Because the costs are so situation-specific, it is extremely difficult, if not impossible, to make more than order-of-magnitude estimates about the aggregate value of equipment and software for network implementation. Still, based on a preliminary estimate prepared for SGA by a Brazilian firm, R\$29,580,000 would be required for the needed hardware and software for the basic network, and that approximately 80% could be import content. Using an exchange rate of R\$1.6 per US\$, this would be US\$14.7 million, most of which would probably be purchased from US suppliers since the leaders in high-throughput networking equipment are mostly US-based. In addition some international consulting services might be provided by US companies depending on the specifications of the network. It should be noted that these estimates are based on desk studies and assume that the GOA would finance the entire network infrastructure. Depending on the extent to which the final configuration of the project relies upon infrastructure and equipment provided by BrT or the MC's Gesac program and already purchased outside the project, the amount in the final bidding document (*edital* in Portuguese) could be less.

2. Potential US Suppliers

The range of state-of-the-art technologies that may be engaged in Digital Forest network is not that large. At a minimum, it includes the following:

- Servers
- Chips
- Desktop PCs
- Storage area networks (SAN)
- Server switches, routers, HBA
- Wireless networking equipment (WiMAX, Wi-Fi, Wi-Mesh)
- Software, particularly security (anti virus/spam/hackers), database, server, e-mail, and datacenter management software

Identification of specific US suppliers is complicated by the fact that a considerable number of companies supply market for IP-based voice, data and video networks. For example in servers, IBM, HP, Dell, Sun, Silicon Graphics, Cubix, Aspen Systems, and Dell come to mind, but there are many more specialized producers. Table 7 presents a list of some potential suppliers in the categories mentioned above. Many if not most of these suppliers are active in Brazil and have networks partners for sales. Additionally many more US firms or European firms with US arms are members of the different networking technologies forums, such as the WiMax forum, the WiFi Forum.

Table 7: US-Based Suppliers of Hardware and Software

Category / Products	Potential Suppliers
Servers	IBM, HP, Dell, Sun, Silicon Graphics, Aspen Systems, StorageTek, Alcatel Lucent, Cisco Systems, and Dell, Sun Microsystems
Chips	Intel, AMD
Desktop PCs	Dell, IBM, HP
Storage	IBM, HP, EMC, Amdahl, Unisys
Networking Technologies	Avaya, Cisco Systems, Juniper Networks, Pulse Communications, 3-Com, Agilent, Sequans Communications
Transmission Distribution	Harris, Motorola, Alcatel-Lucent, Nortel, Comcast
Wireless Network technologies (WiMAX, Wi-Fi, Wi-Mesh)	Aperto Networks, Motorola, Intel, GigaBeam, Proxim, Wavesat Commscope, Cisco Systems, NextWave, 3Com, Sprint Nextel, AT&T, Airspan, Intel, Clearwire, Texas Instrument, XOHM, Qualcomm, Sequans Communications, Telsima
Switches & Routers	Qualcomm, Cisco, Alcatel-Lucent, Nortel, Buffalo, Mindspeed Technologies, Netgear, Linksys, Juniper Networks, Foundry Networks
VSAT equipment	Hughes, Starband, Wild Blue, Via Sat, Intelsat
"Content-Related" Hardware	Sun, Hewlett-Packard, IBM, Teradata, Cisco Systems, Google
Software	Sagem Communications, Oracle, Google, Microsoft, Acentis, Kronos, Broadcom, Symantic, McAfee, numerous other suppliers; however, Brazilian directives on the use of "open-source" software may be restrictive of US exports

M. FOREIGN COMPETITION

US companies are clearly dominant in the market for ICT and e-government hardware, software, and services (including outsourcing) as well as in telecommunications equipment, but these firms face increasing competition from European and Asian suppliers and manufacturers. A USTDA financed feasibility study for the State of Acre would help US suppliers get in at an early stage in the development of a new market for outsourcing of e-government infrastructure in Acre and potentially other states.

On the implementation side, it is most likely that a significant share of implementation services will be delivered by Brazilian subsidiaries of US firms. US systems integrators, such as IBM and UNISYS can expect competition from European and Asian firms, but above all from Brazilian firms, such as Itaútec and Lanlink. These firms and Brazilian datacenter operators like TIVIT,

however, tend to use predominantly hardware and software from US firms and their Brazilian affiliates.

Table 8 lists some foreign competitors in the same categories provided in Table 7.

Table 8: Non-US Suppliers of Hardware and Software

Category / Products	Potential Suppliers
Servers	NEC, Toshiba, Fujitsu
Storage	Fujitsu, NEC
Networking Technologies	Fujitsu, NEC, Nortel, Alcatel, Siemens, Acer, Hitachi, Huawei, ZTE, British Telecom, Bell Canada, Soma Networks, Comsys, Tata Communications
Wireless Networking (WiMAX, Wi-Fi, Wi-Mesh)	Alvarion, Fujitsu, Comsys, Nokia-Siemans, MTI Wireless Edge, Tranzeo Wireless Technologies Inc., ZTE, Huawei, WiNetworks, Cambridge Broadband, British Telecom, KDDI, KT, Nokia, Samsung, Nortel, SK Telecom, Redline Communications, Soma Networks, Tata Communications ¹¹
VSAT equipment	Gilat, iDirect, Bell Canada,
"Content-Related" Hardware	Fujitsu, NEC, Acer, Hitachi, Nortel
Software	SAS

N. IMPACT ON THE ENVIRONMENT

The proposed Acre Digital Forest network and datacenter are unlikely to have any significant negative impact on the environment, especially since they would merely consolidate and upgrade the existing server infrastructure and government networks, and provide public access to the IP network to the general population both through government installations and in homes and small businesses. As such, the project will have no discernable detrimental effect on waterways, vegetation, or ground cover. In fact, it should have a positive effect as it represents the consolidation of several different mini datacenters, and provides Internet access which should make sustainable development of Acre's forest resources more feasible, through upgrading the state's human capital base and enabling the development of new high-value products derived from the states genetic resources. The techniques for installing and maintaining communications networks and datacenter equipment are standard and are not expected to result in any environmental impact. In particular, the benefits of IT and the consolidation of the small and poorly structured datacenters within the state and the many different benefits that this consolidation generates should have a positive impact on the environment. Nevertheless, the two proposed feasibility study will include an environmental impact assessment.

¹¹ For a complete list of supplier's US and non-US suppliers see the following website for members of the WiMax forum, <http://www.wimaxforum.org/about/roster>

O. IMPACT ON US LABOR

Funding for the proposed Digital Forest project will result in the creation of US jobs as major software integrators, hardware, and equipment items are purchased from US manufacturers. This could be directly if a US firm or its Brazilian affiliate becomes the private sector partner (or member of a consortium), or indirectly if a Brazilian or even a European or Asian firm were to be the partner, since US suppliers are dominant in the market for datacenter hardware and software. If USTDA finances the initial feasibility study and the contractor works closely with the US firms that expressed interest in this project, the likelihood of an increase in US jobs is even greater.

Financing the two feasibility study and the actual execution of the Digital Forest network will not result in the transfer or displacement of US jobs. The feasibility study is designed to facilitate communication and cooperation between the Government and the private sector both within Acre and more broadly, in Brazil, as the definitional mission conducted for Acre state by H&A already have had this effect. Moreover, USTDA financing of this feasibility study will not be used to assist in the development of an export-processing zone or any other commercial zone that could have a negative impact, direct or indirect, on US jobs.

P. QUALIFICATIONS OF THE CONSULTANT TEAM

General Qualifications

As is evident from the accompanying Terms of Reference (Digital Forest TOR; see Annex I), the proposed TA is multidisciplinary in nature. Accordingly, the skill sets and expertise of the Consultant Team are expected to be diverse. The following general attributes on the part of the Consultant Team are considered critical to the successful outcome for a detailed feasibility study of the project:

Information technology specialists

- Experience in hybrid network development including fiber optic cable, all wireless technologies (especially WiMAX, Wi-Fi, Wi-Mesh, and VSATs)
- Experience in ITIL, COBIT, ISO and other methodologies and standards of governance for ICTs
- Experience with calculation of total cost of ownership (TCO) for ICTs (not just operating costs)
- Experience with outsourcing of ICTs, must include experience with outsourcing of datacenters
- Experience with management of complex information technology contracts
- Experience in defining and monitoring service level agreements (SLAs) for ICTs

Specialist in Brazilian public budget finance project analysis

- Knowledgeable in Brazilian public budget finance, competitive bidding and public contracts

Specialist in project analysis

- Expertise in the economic and financial analysis of projects and feasibility studies involving rapid technological change

Team Composition and Experience

In terms of the composition and particular credentials of the Consultant Team, it is judged that the team should consist of the following:

- One (1) Team Leader
- One (1) ICT specialist with telecom network and engineering expertise, including fiber optics, WiMAX, Wi-Fi, Wi-Mesh and VSAT systems
- One (1) ICT specialist with experience in management of complex information technology contracts, including total cost of operations (TCO) and return on investment (ROI) analysis
- One (1) Environmental Assessment Specialist
- One (1) Brazilian ICT specialist with telecom network and engineering expertise, including fiber optics, WiMAX, Wi-Fi, Wi-Mesh and VSAT systems
- One (1) Brazilian Government Budget analyst/local liaison
- One (1) Brazilian Project Analyst
- One (1) Procurement Specialist

More specific descriptions follow.

Team Leader:

- At least fifteen (15) years' experience in the ICT industry
- Strong background in one of major areas of the TA (Telecom Network/Engineering, Definition of SLAs, economic and financial project analysis)
- Both a US and an international perspective on the ICT industry, with the international perspective preferably gained through on-the-ground project work, ideally in the area of data centers
- Management, organizational and cross-cultural skills and perspective to structure, oversee and carry out the Feasibility Study effectively
- Ability to communicate findings effectively and to liaise appropriately within the SGA and more broadly the Acre government framework and with other stakeholders, including other Acre public sector entities, academic and research institutions, and potential private sector partners
- Fluency in Portuguese would be an advantage

Local Brazilian Lawyer Specializing in Brazilian concession law (Law 8666) and regulation (*regulamentação*)

- Familiarity with the federal, Acre, and other state legislation and regulations governing concessions and service contracts in Brazil
- Ability to conduct necessary research and legal/regulatory diligence
- High degree of fluency in English would be an advantage

ICT Specialist with Telecom Network and Wireless Engineering Experience

- At least ten (10) years' experience in the telecom/ICT industry, including hands-on experience with IP based networks, broadband wireless and Wimax solutions, Fiber-optic infrastructure, satellites, and networking
- Significant experience with detailed IT needs assessment, system specification and implementation planning
- Experience with IT project cost estimation and specification
- Ability to assess technical feasibility, price/performance, trade-offs, etc of a variety of possible network deployment alternatives
- At least five (5) years' experience in defining and monitoring (SLAs) for ICTs.
- Fluency in Portuguese would be an advantage

ICT Specialist with experience in ICT Governance issues

- At least ten (10) years' experience in the telecom/ICT industry, including hands-on experience with management of complex information technology contracts
- Experience in defining and monitoring service level agreements (SLAs) for ICTs
- Expertise in the economic and financial analysis of projects and feasibility studies involving rapid technological change, including total cost of operations (TCO) and return on investment (ROI) analysis
- Fluency in Portuguese would be an advantage

Environmental Specialist

- Experience in social and in environmental assessments of projects in developing countries
- Experience with donor-funded environmental and social performance standards and their interpretation, specifically those of the IDB and the World Bank.
- Ability to assess and guide the Government in developing environmental and social action plans and assessments that comply with all local and federal laws as well as World Bank and IDB rules.
- Fluency in Portuguese would be an advantage

Project Coordinator

The responsibilities of the Project coordinator include, but are not limited to, the following:

- Basic support logistics for everyone on team and their support people to ensure a smooth running of the project, such as deliverable coordination (formatting, timeliness, and other coordination),
- Travel coordination,
- Arranging workshops and conferences in person and by telephone.
- Managing and editing of deliverables, thereby ensuring that the deliverables closely follow the scope of work outlined. This way there are no surprises.
- Reviewing, coordinating and distributing presentation materials, both the electronic and paper versions of presentations.

- Developing and creating a library of resource material so that all consultants have easy access to any resource material, 24 x7, maintaining the library
- Arranging housing and payments for project related expenses,
- Coordinating with Project Manager on Project Finance issues such as expense payments, consultant time
- Arranging logistics for conferences and workshops
- Ability to speak and write Portuguese and English

Brazilian ICT Specialist with Telecom Network and Wireless Engineering Experience

- At least ten (10) years' experience in the telecom/ICT industry, including hands-on experience with IP based networks, broadband wireless and Wimax solutions, fiber-optic infrastructure, satellites, and networking
- Significant experience with detailed IT needs assessment, system specification and implementation planning, including for digital cities
- Experience with IT project cost estimation and specification
- Ability to assess technical feasibility, price/performance, trade-offs, etc of a variety of possible network deployment alternatives
- At least five (5) years' experience in defining and monitoring (SLAs) for ICTs.
- Fluency in English would be an advantage

Brazilian Public Budget Analyst:

- Duly qualified/accredited Brazilian expert with extensive knowledge of Brazilian government budgetary processes, competitive bidding and public contracts
- Familiarity with Brazilian federal, state and municipal public IT enterprises in Brazil
- Ability to serve as local liaison, set up meetings (secretarial service available)
- Fluency in English would be an advantage

Brazilian Project Analyst

- Expertise in the economic and financial analysis of projects and feasibility studies involving rapid technological change
- High degree of fluency in English would be an advantage

Procurement Specialist

- At least five (5) years expertise in Procurement processes, compiling and writing proposals and bidding documents (*editais*)
- Familiarity with IT, Telecom and datacenters
- Familiarity with the purchasing process
- Fluency in Portuguese would be an advantage

In practice, it is unlikely that the backgrounds of the team members will fit the above profiles exactly. However, the collective qualifications of the Consultant Team should correspond to those described. If a proposed Consultant Team offers a comparable skill set but with a different

distribution, or a basic arrangement different from the team specified above, it must be clearly demonstrated how such a team can efficiently carry out the full scope of the Feasibility Study.

3. Suggested Evaluation Criteria

It is suggested that the selection of the Contractor for both of the studies be based on the following criteria:

CRITERION	Max. Points
Expertise and skills of proposed personnel	50
Proposed approach to the TA and to the individual tasks	30
Pertinent international experience and cross-cultural skills	20
Total:	100

Q. JUSTIFICATION

As this report has documented, the Government of the State of Acre is heavily committed to development of the Digital Forest project, a hybrid voice, data and video IP based network. (the operation of which could be outsourced). It is also accelerating its development of e-government services (including one-stop-shops – OCAs, and including digital inclusion through community telecenters and allowing free access to medium-bandwidth Internet by individuals and small businesses). The US offers a rich repository of voice, data, and video network; datacenter; and e-government experience. US suppliers are strong in telecommunications equipment and dominant in data center hardware and software.

Moreover, the involvement of a US-based Consultant Team in carrying out the proposed feasibility studies should work to the advantage of US-based suppliers of telecommunications equipment and data center solutions. These suppliers are strong in the major technological areas but face growing competition from foreign suppliers. H&A believes that initiatives to develop outsourced voice, data, and video networks and government data center services in Brazil present a significant export opportunity for US suppliers (see Section G), and even more so if the Acre project generates an interest in similar projects in other Brazilian states and even the Federal Government.

Accordingly, H&A believes that funding of the feasibility study on behalf of SGA would represent a good use of USTDA resources.

R. TERMS OF REFERENCE

The proposed Terms of Reference for the proposed Digital Forest network Feasibility Study is attached as Annex I.

S. BUDGET

The suggested Budget for the proposed Feasibility Study is attached as Annex II

T. RECOMMENDATIONS

H&A recommends that USTDA fund the Digital Forest Feasibility Study project, under the conditions set forth in the TOR (Annex I), at a budget level of \$573,853.

U. CONTACTS

A complete list of persons and institutions contacted in the conduct of the DM is included in Annex 3.

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Annex IV: Internet Access and Related Statistics

C1 - PROPORÇÃO DE INDIVÍDUOS QUE JÁ ACESSARAM A INTERNET¹

Percentual sobre o total da população²

Percentual (%)		Sim	Não
TOTAL		41	59
REGIÕES DO PAÍS	SUDESTE	43	57
	NORDESTE	33	67
	SUL	46	54
	NORTE	32	68
	CENTRO-OESTE	45	55
SEXO	Masculino	42	58
	Feminino	39	61
GRAU DE INSTRUÇÃO	Analfabeto/ Educação infantil	9	91
	Fundamental	34	66
	Médio	64	36
	Superior	85	15
FAIXA ETÁRIA	De 10 a 15 anos	59	41
	De 16 a 24 anos	70	30
	De 25 a 34 anos	53	47
	De 35 a 44 anos	31	69
	De 45 a 59 anos	15	85
	De 60 anos ou mais	4	96
RENDA FAMILIAR	Até R\$380	16	84
	R\$381-R\$760	28	72
	R\$761-R\$1140	46	54
	R\$1141-R\$1900	57	43
	R\$1901-R\$3800	75	25
CLASSE SOCIAL ⁴	R\$3801 ou mais	77	23
	A	94	6
	B	73	27
	C	47	53
	DE	17	83
SITUAÇÃO DE EMPREGO	Trabalhador	43	57
	Desempregado	46	54
	Não integra a população ativa ³	35	65

¹ Indivíduos que informaram ter acessado a internet pelo menos uma vez na vida, de qualquer lugar.

² Base: 17.000 entrevistados. Entrevistas realizadas em área urbana.

³ Na categoria não integra população ativa estão contabilizados os estudantes, aposentados e as donas de casa.

⁴ O critério utilizado para classificação leva em consideração a educação do chefe de família e a posse de uma serie de utensílios domésticos, relacionando-os a um sistema de pontuação. A soma dos pontos alcançada por domicílio é associada a uma Classe Sócio-Econômica específica (A, B, C, D, E).

Veja a tabela de erros estatísticos aproximados para cada variável este indicador.

Números calculados sobre bases de entrevistas pequenas, e que possuem erro estatístico acima de 4%.

Fonte: NIC.br - set/nov 2007

TIC DOMICÍLIOS e USUÁRIOS 2007
setembro / novembro 2007

Acesso às Tecnologias da Informação e da Comunicação (TIC)

A4 - PROPORÇÃO DE DOMICÍLIOS COM ACESSO À INTERNET¹

Percentual sobre o total de domicílios²

Percentual (%)		Sim	Não
TOTAL		17	83
	SUDESTE	22	78
	NORDESTE	7	92
REGIÕES DO PAÍS	SUL	21	78
	NORTE	5	95
	CENTRO-OESTE	16	84
	Até R\$380	1	98
	R\$381-R\$760	4	95
RENDA FAMILIAR	R\$761-R\$1140	15	85
	R\$1141-R\$1900	28	72
	R\$1901-R\$3800	54	46
	R\$3801 ou mais	66	34
	A	82	18
CLASSE SOCIAL ³	B	50	50
	C	16	84
	DE	2	98

¹ Considerado somente o acesso à internet via computador de mesa (desktop) ou computador portátil (laptop e notebook).

² Base: 17.000 domicílios entrevistados em área urbana.

³ O critério utilizado para classificação leva em consideração a educação do chefe de família e a posse de uma série de utensílios domésticos, relacionando-os a um sistema de pontuação. A soma dos pontos alcançada por domicílio é associada a uma Classe Sócio-Econômica específica (A, B, C, D, E). Veja a tabela de erros estatísticos aproximados para cada variável este indicador.

Números calculados sobre bases de entrevistas pequenas, e que possuem erro estatístico acima de 4%.

Fonte: NIC.br - set/nov 2007

Tabela 2387 - Domicílios particulares permanentes e Moradores em domicílios particulares permanentes por classes de rendimento mensal domiciliar e existência de microcomputador, acesso à Internet e tipo de telefone

Ano = 2006					
Brasil, Região Geográfica e Unidade da Federação	Classes de rendimento mensal domiciliar	Existência de microcomputador, acesso à Internet e tipo de telefone	Variável		
			Domicílios particulares permanentes (Mil unidades)	Domicílios particulares permanentes (Percentual)	
Brasil	Total	Total	54.610	100,00	
		Microcomputador - tinham	12.072	22,11	
		Microcomputador - tinham - com acesso à Internet	9.204	16,85	
		Telefone - tinham	40.679	74,49	
	Até 10 salários mínimos	Total	47.749	87,44	
		Microcomputador - tinham	7.468	13,67	
		Microcomputador - tinham - com acesso à Internet	5.095	9,33	
		Telefone - tinham	34.216	62,65	
	Mais de 10 a 20 salários mínimos	Total	3.598	6,59	
		Microcomputador - tinham	2.656	4,86	
		Microcomputador - tinham - com acesso à Internet	2.311	4,23	
		Telefone - tinham	3.573	6,54	
	Mais de 20 salários mínimos	Total	1.616	2,96	
		Microcomputador - tinham	1.406	2,57	
		Microcomputador - tinham - com acesso à Internet	1.342	2,46	
		Telefone - tinham	1.610	2,95	
	Norte	Total	Total	3.777	100,00
			Microcomputador - tinham	372	9,84
			Microcomputador - tinham - com acesso à Internet	226	5,98
			Telefone - tinham	2.263	59,92
Até 10 salários mínimos		Total	3.486	92,29	
		Microcomputador - tinham	225	5,97	
		Microcomputador - tinham - com acesso à Internet	112	2,97	
		Telefone - tinham	2.011	53,24	
Mais de 10 a 20		Total	161	4,27	

	mínimos	Microcomputador - tinham - com acesso à Internet	67	1,79
		Telefone - tinham	158	4,17
	Mais de 20 salários mínimos	Total	60	1,59
		Microcomputador - tinham	47	1,24
		Microcomputador - tinham - com acesso à Internet	40	1,07
		Telefone - tinham	60	1,59
Acre	Total	Total	162	100,00
		Microcomputador - tinham	19	11,59
		Microcomputador - tinham - com acesso à Internet	13	8,29
		Telefone - tinham	108	66,35
	Até 10 salários mínimos	Total	143	88,39
		Microcomputador - tinham	8	5,00
		Microcomputador - tinham - com acesso à Internet	5	2,87
		Telefone - tinham	91	56,27
	Mais de 10 a 20 salários mínimos	Total	10	6,10
		Microcomputador - tinham	6	3,78
		Microcomputador - tinham - com acesso à Internet	4	2,71
		Telefone - tinham	10	6,01
	Mais de 20 salários mínimos	Total	5	3,07
		Microcomputador - tinham	4	2,61
		Microcomputador - tinham - com acesso à Internet	4	2,61
		Telefone - tinham	5	3,07

Nota:

1) Até 2003, exclusive a população da área rural de Rondônia, Acre, Amazonas, Roraima, Pará e Amapá.

Para a variável **Domicílios particulares permanentes:**

2) Inclusive os domicílios com moradores sem declaração de rendimento ou cujos moradores não tinham rendimento ou que receberam somente em benefícios.

3) Exclusive os rendimentos dos moradores cuja condição no domicílio era pensionista, empregado doméstico ou parente do empregado doméstico.

Para a variável **Moradores em Domicílios particulares permanentes:**

4) Inclusive os moradores em domicílios sem declaração de rendimento, sem rendimento ou que receberam somente

5) Exclui os moradores cuja condição no domicílio era pensionista, empregado doméstico ou parente do empregado doméstico.

Fonte: IBGE - Pesquisa Nacional por Amostra de Domicílios

Tabela 1954 - Domicílios particulares permanentes e Moradores em domicílios particulares permanentes por classes de rendimento mensal domiciliar, situação do domicílio e alguns bens duráveis existentes no domicílio

Ano = 2006					
Brasil, Região Geográfica e Unidade da Federação	Classes de rendimento mensal domiciliar	Situação do domicílio	Alguns bens duráveis existentes no domicílio	Variável	
				Domicílios particulares permanentes (Mil unidades)	Domicílios particulares permanentes (Percentual)
Brasil	Total	Total	Total	54.610	100,00
			Rádio - não tinham	6.623	12,13
			Televisão - tinham	50.800	93,02
		Urbana	Total	46.327	84,83
			Rádio - não tinham	5.144	9,42
			Televisão - tinham	44.521	81,53
		Rural	Total	8.284	15,17
			Rádio - não tinham	1.479	2,71
			Televisão - tinham	6.279	11,50
	Até 1 salário mínimo	Total	Total	6.943	12,71
			Rádio - não tinham	1.771	3,24
			Televisão - tinham	5.359	9,81
		Urbana	Total	4.792	8,78
			Rádio - não tinham	1.180	2,16
			Televisão - tinham	4.084	7,48
		Rural	Total	2.151	3,94
			Rádio - não tinham	591	1,08
			Televisão - tinham	1.275	2,33
	Mais de 1 a 2 salários mínimos	Total	Total	12.223	22,38
			Rádio - não tinham	2.055	3,76
			Televisão - tinham	11.014	20,17
		Urbana	Total	9.559	17,50
			Rádio - não tinham	1.578	2,89
			Televisão - tinham	9.005	16,49
		Rural	Total	2.664	4,88
			Rádio - não tinham	478	0,87

			Televisão - tinham	2.009	3,68
		Total	Total	9.469	17,34
			Rádio - não tinham	1.135	2,08
			Televisão - tinham	8.966	16,42
	Mais de 2 a 3 salários mínimos	Urbana	Total	7.973	14,60
			Rádio - não tinham	917	1,68
			Televisão - tinham	7.734	14,16
		Rural	Total	1.496	2,74
			Rádio - não tinham	218	0,40
			Televisão - tinham	1.232	2,26
	Mais de 3 a 5 salários mínimos	Total	Total	10.383	19,01
			Rádio - não tinham	853	1,56
			Televisão - tinham	10.109	18,51
		Urbana	Total	9.260	16,96
			Rádio - não tinham	742	1,36
			Televisão - tinham	9.105	16,67
		Rural	Total	1.123	2,06
			Rádio - não tinham	110	0,20
			Televisão - tinham	1.004	1,84
	Mais de 5 a 10 salários mínimos	Total	Total	8.732	15,99
			Rádio - não tinham	472	0,86
			Televisão - tinham	8.637	15,82
		Urbana	Total	8.220	15,05
			Rádio - não tinham	432	0,79
			Televisão - tinham	8.157	14,94
		Rural	Total	511	0,94
			Rádio - não tinham	40	0,07
			Televisão - tinham	481	0,88
	Mais de 10 a 20 salários mínimos	Total	Total	3.598	6,59
			Rádio - não tinham	126	0,23
			Televisão - tinham	3.590	6,57
		Urbana	Total	3.484	6,38
			Rádio - não tinham	122	0,22
			Televisão - tinham	3.478	6,37
		Rural	Total	113	0,21
			Rádio - não tinham	4	0,01
			Televisão - tinham	112	0,20
	Mais de 20 salários mínimos	Total	Total	1.616	2,96
			Rádio - não tinham	23	0,04
			Televisão - tinham	1.614	2,96
		Urbana	Total	1.586	2,90

			Rádio - não tinham	23	0,04	
			Televisão - tinham	1.585	2,90	
			Total	30	0,05	
		Rural	Rádio - não tinham	1	0,00	
			Televisão - tinham	29	0,05	
			Total	492	0,90	
		Sem rendimento	Total	Rádio - não tinham	123	0,22
				Televisão - tinham	392	0,72
				Total	423	0,77
			Urbana	Rádio - não tinham	96	0,18
				Televisão - tinham	356	0,65
				Total	69	0,13
			Rural	Rádio - não tinham	27	0,05
				Televisão - tinham	36	0,07
				Total	3.777	100,00
Norte	Total	Rádio - não tinham	959	25,39		
		Televisão - tinham	3.210	84,99		
		Total	2.879	76,22		
		Urbana	Rádio - não tinham	687	18,19	
			Televisão - tinham	2.683	71,04	
			Total	898	23,78	
		Rural	Rádio - não tinham	272	7,20	
			Televisão - tinham	527	13,95	
			Total	549	14,52	
	Até 1 salário mínimo	Total	Rádio - não tinham	214	5,66	
			Televisão - tinham	366	9,68	
			Total	346	9,16	
		Urbana	Rádio - não tinham	135	3,58	
			Televisão - tinham	275	7,28	
			Total	203	5,36	
Rural	Rádio - não tinham	79	2,08			
	Televisão - tinham	91	2,40			
	Total	1.064	28,17			
Mais de 1 a 2 salários mínimos	Total	Rádio - não tinham	336	8,88		
		Televisão - tinham	850	22,49		
		Total	760	20,11		
	Urbana	Rádio - não tinham	234	6,19		
		Televisão - tinham	687	18,20		
		Total	304	8,06		
Rural	Rádio - não tinham	102	2,70			
	Televisão - tinham	162	4,29			
	Total					

	Mais de 2 a 3 salários mínimos	Total	Total	743	19,68
			Rádio - não tinham	181	4,80
			Televisão - tinham	658	17,43
		Urbana	Total	562	14,88
			Rádio - não tinham	137	3,63
			Televisão - tinham	538	14,24
		Rural	Total	181	4,80
			Rádio - não tinham	44	1,17
			Televisão - tinham	121	3,19
	Mais de 3 a 5 salários mínimos	Total	Total	685	18,13
			Rádio - não tinham	132	3,49
			Televisão - tinham	636	16,85
		Urbana	Total	563	14,92
			Rádio - não tinham	105	2,78
			Televisão - tinham	546	14,45
		Rural	Total	121	3,21
			Rádio - não tinham	27	0,71
			Televisão - tinham	91	2,40
	Mais de 5 a 10 salários mínimos	Total	Total	445	11,78
			Rádio - não tinham	58	1,53
			Televisão - tinham	429	11,37
		Urbana	Total	388	10,28
			Rádio - não tinham	48	1,27
			Televisão - tinham	385	10,19
Rural		Total	57	1,50	
		Rádio - não tinham	10	0,26	
		Televisão - tinham	45	1,18	
Mais de 10 a 20 salários mínimos	Total	Total	161	4,27	
		Rádio - não tinham	15	0,39	
		Televisão - tinham	160	4,23	
	Urbana	Total	151	4,00	
		Rádio - não tinham	13	0,33	
		Televisão - tinham	151	3,99	
	Rural	Total	10	0,26	
		Rádio - não tinham	2	0,05	
		Televisão - tinham	9	0,24	
Mais de 20 salários mínimos	Total	Total	60	1,59	
		Rádio - não tinham	2	0,06	
		Televisão - tinham	60	1,59	
	Urbana	Total	58	1,54	
		Rádio - não tinham	2	0,06	

		Rural	Televisão - tinham	58	1,54	
			Total	2	0,05	
			Rádio - não tinham	0	0,00	
	Sem rendimento	Total		Televisão - tinham	2	0,05
				Total	34	0,91
				Rádio - não tinham	13	0,34
		Urbana		Televisão - tinham	23	0,62
				Total	27	0,73
				Rádio - não tinham	8	0,22
		Rural		Televisão - tinham	22	0,58
				Total	7	0,19
				Rádio - não tinham	4	0,12
	Acre	Total		Televisão - tinham	2	0,04
				Total	162	100,00
				Rádio - não tinham	47	29,05
Urbana				Televisão - tinham	133	81,80
				Total	119	73,38
				Rádio - não tinham	35	21,39
Rural				Televisão - tinham	112	69,22
				Total	43	26,62
				Rádio - não tinham	12	7,66
Até 1 salário mínimo		Total		Televisão - tinham	20	12,59
				Total	27	16,70
				Rádio - não tinham	10	6,41
		Urbana		Televisão - tinham	17	10,18
				Total	16	9,78
				Rádio - não tinham	6	3,87
	Rural		Televisão - tinham	13	7,84	
			Total	11	6,92	
			Rádio - não tinham	4	2,54	
Mais de 1 a 2 salários mínimos	Total		Televisão - tinham	4	2,34	
			Total	46	28,23	
			Rádio - não tinham	16	9,99	
	Urbana		Televisão - tinham	35	21,81	
			Total	30	18,69	
			Rádio - não tinham	11	6,97	
	Rural		Televisão - tinham	28	17,14	
			Total	15	9,54	
			Rádio - não tinham	5	3,02	
Mais de 2 a 3	Total	Total	8	4,67		
			28	17,54		

	salários mínimos		Rádio - não tinham	9	5,35
			Televisão - tinham	24	14,89
			Total	20	12,49
		Urbana	Rádio - não tinham	7	4,45
			Televisão - tinham	19	12,00
			Total	8	5,06
		Rural	Rádio - não tinham	1	0,90
			Televisão - tinham	5	2,89
			Total	24	14,81
	Mais de 3 a 5 salários mínimos	Total	Rádio - não tinham	5	3,37
			Televisão - tinham	22	13,42
			Total	19	12,00
		Urbana	Rádio - não tinham	4	2,71
			Televisão - tinham	19	12,00
			Total	5	2,81
		Rural	Rádio - não tinham	1	0,66
			Televisão - tinham	2	1,42
			Total	18	11,11
	Mais de 5 a 10 salários mínimos	Total	Rádio - não tinham	3	1,91
			Televisão - tinham	18	10,81
			Total	17	10,36
		Urbana	Rádio - não tinham	3	1,84
			Televisão - tinham	17	10,26
			Total	1	0,75
Rural		Rádio - não tinham	0	0,07	
		Televisão - tinham	1	0,55	
		Total	10	6,10	
Mais de 10 a 20 salários mínimos	Total	Rádio - não tinham	2	1,03	
		Televisão - tinham	10	6,10	
		Total	10	5,91	
	Urbana	Rádio - não tinham	2	0,97	
		Televisão - tinham	10	5,91	
		Total	0	0,20	
	Rural	Rádio - não tinham	0	0,07	
		Televisão - tinham	0	0,20	
		Total	5	3,07	
Mais de 20 salários mínimos	Total	Rádio - não tinham	0	0,19	
		Televisão - tinham	5	3,07	
		Total	5	3,00	
	Urbana	Rádio - não tinham	0	0,19	
		Televisão - tinham	5	3,00	
		Total	5	3,00	

	Rural	Total	0	0,07	
		Rádio - não tinham	-	-	
		Televisão - tinham	0	0,07	
	Sem rendimento	Total	Total	1	0,65
			Rádio - não tinham	1	0,33
			Televisão - tinham	1	0,45
		Urbana	Total	1	0,39
			Rádio - não tinham	0	0,19
			Televisão - tinham	1	0,39
		Rural	Total	0	0,27
			Rádio - não tinham	0	0,13
			Televisão - tinham	0	0,07

Nota:

- 1) Até 2003, exclusive a população da área rural de Rondônia, Acre, Amazonas, Roraima, Pará e Amapá.
- 2) A categoria **Sem rendimento** inclui as pessoas de referência que receberam somente em benefícios.
- 3) Exclusive os rendimentos dos moradores cuja condição no domicílio era pensionista, empregado doméstico ou parente de empregado doméstico.

Fonte: IBGE - Pesquisa Nacional por Amostra de Domicílios

Annex V: Points in Acre included in the new GESAC bidding document

Lot S (Mainly by Satellite) e Lot TB (Mainly by landlines)

Institution	Address	Neighborhood	CEP	Município	C.N.L	State	Latitude	Longitude	COD INEP correto ¹²	Speed (Kbps)	Fonte
From Annex XIII, Lote S, p1											
Escola Rural Santa Lúcia III	Rodovia BR 364, Km 90	Centro	69945-000	Acrelândia	ACLD	AC	9° 48m 44,5s	67° 5m 38,8s	1201842 2	256	
Secretaria de Estado de Desenvolvimento - Centro de Múltiplo Uso	Rua Rafael martins, s/n	Centro	69935-000	Assis Brasil	ABL	AC	10° 56m 17,5s	69° 33m 52,1s		256	
Prof Iris Célia Cabanelas Zanine	Rua Rneida Batista, 525	Centro	69935-000	Assis Brasil	ABL	AC	10° 56m 22,8s	69° 33m 38,4s	1201594 6	256	NULL
Núcleo de Educação de Bujari	Rua Geraldo Mesquita, 184	Centro	69923-000	Bujari	BJRI	AC	9° 49m 49,6s	67° 57m 10,5s		256	
Secretaria de Estado de Desenvolvimento - Telecentro	Rua Francisco Cordeiro de Andrade, s/n° Rodovia BR 364 - Terra Indígena Catuquira/Caupina - Aldeia dos Catuquinas, Km 100	Conquista	69922-000	Capixaba	CPXB	AC	10° 34m 23,4s	67° 40m 37,2s		256	
Saúde Indígena - Aldeia Catuquina	Avenida Rodrigues Alves, 443	Zona Rural	69980-000	Cruzeiro do Sul	CZU	AC	7° 37m 56,4s	72° 39m 53,1s		256	
Biblioteca Pública Estadual - C. Sul	Estrada do Aeroporto, s/n	Centro	69980-000	Cruzeiro do Sul	CZU	AC				512	
Destacamento de Telecomunicações de Controle do Espaço Aéreo- Cruzeiro do Sul	Avenida 25 de Agosto, 3224	Igarapé Preto	06998-000	Cruzeiro do Sul	CZU	AC	7° 35m 44,4s	72° 46m 8,3s		512	
61° Batalhão de Infantaria de Selva	Travessa Presidente Kennedy, s/n	Vila Militar	69980-000	Cruzeiro do Sul	CZU	AC	7° 36m 31,2s	72° 40m 45,1s		1024	
Prefeitura Municipal de Feijó - Telecentro Comunitário Digital	Praça dos Três Poderes, 13	Centro	69960-000	Feijó	FJO	AC	8° 9m 54,4s	70° 21m 15,5s		512	
Escola Raimundo Augusto de Araújo	Avenida Francisco Dias, s/n°	Centro	69960-000	Feijó	FJO	AC	8° 9m 57,1s	70° 21m 19,8s	1200417 0	512	
Secretaria de Estado de Desenvolvimento - Escritório Administrativo		Centro	69975-000	Jordão	JOAO	AC	9° 11m 22,7s	71° 51m 6,7s		256	

¹² National Institute for Educational Studies and Research (Instituto Nacional de Estudos e Pesquisas Educacionais – INEP) code

Escola Manoel Rodrigues de Farias	Avenida Francisco Dias, s/n	centro	69975-000	Jordão	JOAO	AC	9° 11m 22,1s	71° 51m 6,3s	12005240	256
Núcleo de Educação - M. Lima	Rua Joaquim Generoso de Oliveira, 202	Centro	69990-000	Mâncio Lima	MLI	AC	7° 36m 45,6s	72° 53m 55,5s		256
Núcleo da Educação de Manoel Urbano	Rua Francisco Freitas, s/n°	São José	69950-000	Manoel Urbano	MLU	AC	8° 50m 19,9s	69° 15m 47,6s		256
Esc Dom Prospero Bernardi	Rua Paulo VI	Centro	69950-000	Manoel Urbano	MLU	AC	8° 50m 19s	69° 15m 35,9s	12006688	256
Secretaria de Estado de Desenvolvimento - Centro Administrativo - Mai. T.	Rua Mário Lobão, s/n°	Centro	69983-000	Marechal Thaumaturgo	MLTO	AC	8° 56m 46s	72° 47m 1,8s		256
Esc Elvira Ferreira Gomes	Rua Mário Lobão, s/n	Centro	69983-000	Marechal Thaumaturgo	MLTO	AC	8° 56m 46,5s	72° 47m 3,7s	12026328	512
Núcleo do Adjunto da Solidariedade	Rua Das Margaridas, 28	Vila do INCRA	69921-000	Porto Acre	POAC	AC	9° 43m 43s	67° 41m 57,6s		256
Esc Jader Saraiva de Machado	Avenida Rui Coelho, s/n	Centro	69921-000	Porto Acre	POAC	AC	9° 35m 18,4s	67° 31m 57,1s	12015342	256
Secretaria de Estado de Desenvolvimento - P. Walter	Rua Marmed Cameli, s/n°	Centro	69982-000	Porto Walter	PWTR	AC	8° 16m 2,5s	72° 44m 41,2s		256
Esc Borges de Aquino	Rua Beira Rio, S/N	Centro	69982-000	Porto Walter	PWTR	AC	8° 15m 58s	72° 44m 22,3s	12003050	256
Escola Francisco Braga Souza - R. Alves	Avenida Presidente Vargas, 172	Centro	69985-000	Rodrigues Alves	RGAS	AC	7° 44m 15,2s	72° 39m 8,8s	12022004	512
Secretaria de Estado de Desenvolvimento - Fórum de Desenvolvimento Local	Rua Porfirio de Moura, s/n°	Centro	69995-000	Santa Rosa do Purus	SRSA	AC	9° 26m 23,3s	70° 29m 17,2s		256
4° Pelotão Especial de Fronteira - 4° BIS	Rua Coronel José Ferreira, 1180	Cidade Nova	69955-000	Santa Rosa do Purus	SRSA	AC	9° 26m 21,6s	70° 29m 32,5s		1024
Centro da Juventude de Sena Madureira	Rua Maranhão, 1947	CSU	69940-000	Sena Madureira	SMD	AC				512
Biblioteca Pública - Tarauacá	Avenida Cel. Juvêncio de Menezes, 301	Centro	69970-000	Tarauacá	TAU	AC	8° 9m 38,8s	70° 45m 50s		512
Video nas Adegas	Rua Simão leite damasceno, 387	Adeia Mucuripi	69970-000	Tarauacá	TAU	AC	8° 26m 27,4s	71° 21m 12,5s		512
From, Annex XIII, Lot S, p2										
ESC SAO JOAO BATISTA	RUA JOSE PEREIRA GURGEL, 835	CENTRO	69923000	BUJARI	BUJRI	AC			12009369	256
ESC ARGENTINA PEREIRA FEITOSA	AV FRANCISCO CORDEIRO DE ANDRADE, NULL	CENTRO	69922000	CAPIXABA	CPXB	AC			12009725	256
ESC MANOEL BRAZ DE MELO	VILA ASSIS BRASIL, NULL	DERACRE	69980000	CRUZEIRO DO SUL	CZU	AC			12000930	256
ESC MADRE ADELGUNDES BECKER	RUA SANTO ANTONIO, 118	MIRITIZAL	69980000	CRUZEIRO DO SUL	CZU	AC			12000914	512

ESC CRAVEIRO COSTA	RUA DJALMA DUTRA, 114	NULL	6998000 0	CRUZEIRO DO SUL	CZU	AC	1200045 0	512	NULL
ESC MACHADO DE ASSIS	PA SANTA LUZIA BR 364, NULL	NULL	6998000 0	CRUZEIRO DO SUL	CZU	AC	1200090 6	256	NULL
ESC INDIGENA IXUBAY RABUI PUYANAWA	RESERVA INDIGENA POYANAWA BARAO IPIRANGA, NULL	NULL	6999000 0	MANCIO LIMA	MLI	AC	1200182 1	256	NULL
ESC INDIGENA PEDRO ANTONIO DE OLIVEIRA	T.I NUKINI ALDEIA REPUBLICA, NULL	NULL	6999000 0	MANCIO LIMA	MLI	AC	1200227 5	256	NULL
ESC ANTONIO OLIVEIRA DANTAS	RUA DOM JOSE HASCHER, NULL	SAO VIDAL	6999000 0	MANCIO LIMA	MLI	AC	1200194 5	512	NULL
ESC NAZIRA ANUTE DE LIMA	RUA FRANCISCO FREITAS, NULL	SAO JOSE	6995000 0	MANOEL URBANO	MLU	AC	1200692 0	256	NULL
ESC CEL JOSE PLACIDO DE CASTRO	TRAVESSA RAIMUNDO H DE MELO, NULL	NOVA PORTO ACRE	6992100 0	PORTO ACRE	POAC	AC	1201532 6	512	NULL
ESC EDMUNDO PINTO DE ALMEIDA NETO	ROD AC 10 KM 29 L 01 INCR. KM 01, NULL BR 317 KM 35	VILA DO INCRA	6992100 0	PORTO ACRE	POAC	AC	1201533 4	256	NULL
ESC CAPITAO EDGAR CERQUEIRA FILHO	COLONIA VENCEDORA, NULL	NULL	6990005 0	RIO BRANCO	RBO	AC	1201132 0	256	NULL
ESC DR AUGUSTO MONTEIRO	BR-364 KM 07 RAMAL BELO JARDIM KM 14, NULL	NULL	6990005 0	RIO BRANCO	RBO	AC	1201229 7	256	NULL
ESC DR SANTIAGO DANTAS	RODOVIA AC 90 KM 15, NULL	NULL	6990005 0	RIO BRANCO	RBO	AC	1201236 0	256	NULL
ESC SANTO ANTONIO II ESC DE ENSINO MEDIO DE SANTA ROSA DO PURUS	BR 364 KM 07 RAMAL BELO JARDIM I, NULL SANTA ROSA DO PURUS, NULL	NULL	6990005 0	RIO BRANCO	RBO	AC	1201400 1	256	NULL
ESC MARIA JOSE BEZERRA DOS REIS	BR 364 KM 39, NULL	NULL	6995500 0	SANTA ROSA DO PURUS	SRSA	AC	1202885 1	256	NULL
ESC PROF MARIA AUXILIADORA CUNHA QUEIROZ	BR 364 KM 80 RAMAL NABOR JUNIOR, NULL	NULL	6992500 0	SENADOR GUIOMARD	SWD	AC	1201477 0	256	NULL
Escola Técnica Floreado Cabral/ Secretaria de Estado de Educação - Regional do Juruá	Av. 28 de Setembro	Técnica	69980- 000	SENADOR GUIOMARD	SWD	AC	1201491 5	256	NULL
Escola: São Luis Gonzaga	RUA UAQUIRI, 650	CAMPINAS	69928- 000	CRUZEIRO DO SUL	CZU	AC	1200041 8	512	NULL
Escola Santa Lucia	AC 10 KM 14 RAMAL SANTA CLARA LIMUEIRO, KM 12	PROJETO COLIBRI	69900- 050	PLACIDO DE CASTRO	PCY	AC	1201073 1	256	NULL
		Rio Branco			RBO	AC	1201555 5	256	NULL

Escola Cristo Rei	Estrada de Boca do Acre, KM 72	69900-050	Rio Branco	RBO	AC	12011460	256	NULL
Escola Maria C. Ramos	ESTR DE SENA KM 52 RAMAL 20	69923-000	Bujari	BJRI	AC	12009679	256	NULL
Prefeitura Municipal de Mâncio Lima	Av. Japlim, s/n - centro / Rua Mimosá Sá, 21,	69990-000	Mâncio Lima	MLI	AC		512	
Prefeitura Municipal de Marechal Thaumaturgo	Praça Odon do Vale, s/n	69980-000	Marechal Thaumaturgo	MLTO	AC		512	
Prefeitura Municipal de Rodrigues Alves	Av. São Jose, 780	69985-000	Rodrigues Alves	RGAS	AC		512	
Prefeitura Municipal de Tarauacá	Rua Cel. Juvêncio de Menezes, 267	69970-000	Tarauacá	TAU	AC		512	
Colônia de Pescadores Z-3	Rua Sargento Souza s/n,	69940-000	Sena Madureira	SMD	AC		512	
Escola de Ensino Médio Dom Júlio Matifoff	Av. Brasil, 322	69940000	Sena Madureira	SMD	AC	12007617	2048	
Escola de Ensino Médio Dr. Dielma da Cunha Batista	Av. Epaminondas Jácome, s/n	69970000	Tarauacá	TAU	AC	12005711	2048	
Escola Municipal Nair Sombra	RUA BENEVENUTO, 100	69922-000	Capixaba	CPXB	AC	12009881	256	
Escola Municipal José Augusto de Araújo	Av. Antônia Frota s/n	69970-000	Tarauacá	TAU	AC	12005657	512	
Escola Municipal Mesias Rodrigues	Travessa Guilherme	69940-000	Sena Madureira	SMD	AC	12029408	512	
Escola de Ensino Fundamental Dr. Celso Cosme Saigado	Rua Francisco de Queiroz	69955-000	Santa Rosa do Purus	SRSA	AC	12029009	256	NULL
CENTRO DE MÚLTIPLO USO	RUA RAFAEL MARTINS LEÃO S/N	69935-000	Assis Brasil	ABL	AC		256	
Prefeitura Municipal de Feijó	Avenida Plácido de Castro, nº 672	69960000	Feijó	FJO	AC		512	
Biblioteca Pública Municipal	Rua Valério Caldas Magalhães	69950000	Manoel Urbano	MLU	AC		256	
From Annex XIII, Lot S, p3								
ASKARJ/ Terra Indígena do Seringal Independência	A definir	69975-000	JORDAO	JOAO	AC		256	
ASKARJ/ Terra Indígena Kaxinawá do Jordão	A definir	69975-000	JORDAO	JOAO	AC		256	
Prefeitura Municipal de Manoel Urbano	A definir	69950-000	MANOEL URBANO	MLU	AC		256	
MMA/ Comunidades Guardiãs do Alto do Rio Jurua/ T.I. Araras	A definir	69983-000	MARECHAL THAUMATURGO	MLTO	AC		512	

Escola da Floresta/ CEFLORA	A definir				69983-000	MARECHAL THAUMATURGO	MLTO	AC				512
Escola da Floresta/ Sede	A definir				69983-000	MARECHAL THAUMATURGO	MLTO	AC				512
Prefeitura Municipal de Porto Acre	A definir				69921-000	PORTO ACRE	POAC	AC				512
MMA/ Resex em criação - Rio Crôa/ Alagoinha	A definir				69980-000	CRUZEIRO DO SUL	CZU	AC				512
NTE Cruzeiro/ Secretaria de Estado de Educação - Regional do Juruá	A definir				69980-000	CRUZEIRO DO SUL	CZU	AC				512
MMA/ Reserva Extrativista do Riozinho da Liberdade	A definir				69980-000	CRUZEIRO DO SUL	CZU	AC				512
Base do Ibama do Parque Nacional da Serra do Divisor	A definir				69980-000	Cruzeiro do Sul	CZU	AC				512
Prefeitura Municipal de Sena Madureira	A definir				69940-000	SENA MADUREIRA	SMD	AC				512
Do lote TB, p 1												
Escola Prof. Pedro de Castro Meireles - (Fase 3)	Avenida Paraná, s/n			Centro	69945-000	Acrelândia	ACLD	AC	10° 4m 43,2s	67° 3m 22,3s	1200922 9	512
Centro Cultural Sebastião Dantas	Rua Vitória Salvatierra, 190			Ferreira da Silva	69932-000	Brasileia	BLI	AC	10° 59m 55,9s	68° 45m 2,1s		256
Secretaria de Estado de Desenvolvimento Humano e Inclusão Social	Rua Capitão Pedro Vasconcelos, 179			Aeroporto	69934-000	Epitaciolândia	EPT	AC	11° 1m 47,1s	68° 44m 21,2s		512
Secretaria de Estado de Desenvolvimento - Centro da Juventude	Rua Dilmo Martins, s/n			Manchete	69928-000	Plácido de Castro	PCY	AC	10° 19m 31s	67° 11m 6,7s		512
Secretaria Estadual de Educação - Governo do estado do Acre	Rua Riachuelo, 138			José Augusto	69909-020	Rio Branco	RBO	AC	9° 57m 57,5s	67° 48m 30,3s		1024
Destacamento de Telecomunicações de Controle do Espaço Aéreo- Rio Branco	Outros Aeroporto Internacional de Rio Branco, s/n			Custódio	69908-970	Rio Branco	RBO	AC	9° 51m 26,9s	67° 53m 46,6s		512
3º Pelotão Especial de Fronteira - 4º BIS	Rua Colômbia, s/n			Bosques	69909-700	Rio Branco	RBO	AC	10° 19m 29,5s	67° 11m 19,4s		512
2º Pelotão Especial de Fronteira - 4º BIS	Rua Colômbia, s/n			Bosque	69909-700	Rio Branco	RBO	AC	10° 35m 46,5s	69° 33m 45,6s		512

1º Pelotão Especial de Fronteira - 4º BIS	Rua Colômbia, s/n	Bosque	69909-700	Rio Branco	RBO	AC	11° 1m 27,8s	68° 44m 5,4s	512
5ª Delegacia do Serviço Militar da 31ª CSM	Avenida Nações Unidas, 1072	Bosque	69900-901	Rio Branco	RBO	AC	9° 57m 58,9s	67° 49m 3,5s	512
Comando de Fronteira - Acre E 4º Batalhão de Infantaria de Selva	Rua Colômbia, s/n	Bosque	69909-700	Rio Branco	RBO	AC	9° 57m 24,9s	67° 48m 39,8s	512
7º Batalhão de Engenharia de Construção	Avenida Nações Unidas, 2100	Estação Experimental	69912-600	Rio Branco	RBO	AC	9° 57m 56,8s	67° 49m 26,9s	512
Biblioteca Pública Estadual Adonay Barbosa dos Santos Prefeitura Municipal de Senador Guilomard - Secretaria Municipal de Assistência Social	Avenida Getúlio Vargas, 389	Centro	69900-660	Rio Branco	RBO	AC	9° 58m 19,2s	67° 17,48m 42,8s	512
Fundação Memória Chico Mendes	Avenida Castelo Branco, 1159	Centro	69925-000	Senador Guilomard	SWD	AC	10° 9m 8,5s	67° 44m 21,3s	512
Colégio Municipal Novo Horizonte	Rua Rio Nazario, 292	Centro	69930-000	Xapuri	XPI	AC	10° 39m 7,1s	68° 30m 7,7s	256
ESC JOSE RUY DA SILVEIRA LINO	RUA KESSIA LOPES CARNEIRO	Centro	69945-000	Acrelândia	ACLD	AC		1202353 1	512
Escola Municipal Raimunda da Cunha Aires	Rua Olegario Franca s/n	Leonardo Barbosa	69932-000	Brasília	BLI	AC		1201653 5	512
From Lot TB, p. 2	Rua São Sebastião s/n	Jose Assem	69934-000	Epitaciolândia	EPT	AC		1201882 1	512
ESC JOANA RIBEIRO AMED	AV SANTOS DUMONT, 1236	CENTRO	69934000	EPITACIOLANDIA A	EPT	AC		1201710 8	512
ESC JOAO RICARDO DE FREITAS	AC 40 KM 03, NULL	NULL	69928000	PLACIDO DE CASTRO	PCY	AC		1202377 9	512
ESC JOSE RIBAMAR BATISTA	RUA RIO GRANDE DO SUL, 2570	AEROPORTO VELHO	69903420	RIO BRANCO	RBO	AC		1202886 0	512
ESC LEONCIO DE CARVALHO	ROD AC 40 KM 08 RAMAL BENFICA, NULL	BENFICA	699000050	RIO BRANCO	RBO	AC		1201275 0	512
ESC COLEGIO ESTADUAL BARAO DO RIO BRANCO	AV GETULIO VARGAS, 443	CENTRO	69909650	RIO BRANCO	RBO	AC		1201144 4	512

ESC PROF JOSE RODRIGUES LEITE	RUA BENJAMIM CONSTANT, 493	CENTRO	69900050	RIO BRANCO	RBO	AC	12012181	512
ESC LUIZA CARNEIRO DANTAS	RUA SERTANEJA, 1777	CIDADE NOVA	69900050	RIO BRANCO	RBO	AC	12013021	512
ESC ALCIMAR NUNES LEITAO	CONJ UNIVERSITARIO II AV. PASTOR MUNIZ, 1072	DISTRITO INDUSTRIAL	69915300	RIO BRANCO	RBO	AC	12011584	512
ESC LOURIVAL SOMBRA PEREIRA LIMA	CONJUNTO TANGARA, NULL	EXTACAO EXPERIMENTAL	69912000	RIO BRANCO	RBO	AC	12013013	512
ESC HUMBERTO SOARES DA COSTA	TV RIACHUELO, NULL	JOSE AUGUSTO	69909020	RIO BRANCO	RBO	AC	12012017	512
ESC GLORIA PEREZ	AV. BRASIL CONJ XAVIER MAIA, 85 RUA GUILHERMINO BASTO 2º DISTRITO, NULL	PLACAS	69918430	RIO BRANCO	RBO	AC	12027758	512
ESC LOURIVAL PINHO	AV. GETULIO VARGAS, 2855	TRIANGULO VELHO	69900970	RIO BRANCO	RBO	AC	12027340	512
ESC INSTITUTO DE EDUCACAO LOURENÇO FILHO	RUA BENJAMIM CONSTANT, 118	VILA IVONETE	69908650	RIO BRANCO	RBO	AC	12012580	512
ESC DIVINA PROVIDENCIA		CENTRO	69930000	XAPURI	XPI	AC	12017540	512

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 Technical Assistance 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 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

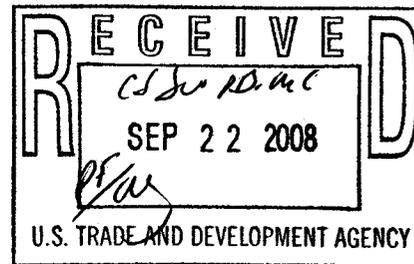
“Source” means the country from which shipment is made.

“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

USD 08-51024B



GRANT AGREEMENT

This Grant Agreement is entered into between the Government of the United States of America, acting through the U.S. Trade and Development Agency ("USTDA") and the State Government of Acre Administrative Management Secretariat ("Grantee"). USTDA agrees to provide the Grantee under the terms of this Agreement US\$573,853 ("USTDA Grant") to fund the cost of goods and services required for a feasibility study ("Study") on the proposed Acre Statewide Broadband Project named the Floresta Digital® Network Project ("Project") in Brazil ("Host Country").

*J. English, Special
Text*

1. USTDA Funding

The funding to be provided under this Grant Agreement shall be used to fund the costs of an Agreement of Understanding to Perform the Feasibility Study ("Agreement of Understanding") between the Grantee and the U.S. firm selected by the Grantee ("U.S. Firm") under which the U.S. Firm will perform the Study. Payment to the U.S. Firm 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 Agreement of Understanding.

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 U.S. Firm 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 U.S. Firm, 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. Firm shall be carried out by the Grantee according to its established procedures for the competitive selection of contractors with advance notice of the procurement published online through *Federal Business Opportunities* (www.fedbizopps.gov). Upon request, the Grantee will submit these contracting procedures and related documents to USTDA for information and/or approval.

(B) USTDA Approval of U.S. Firm Selection

The Grantee shall notify USTDA at the address of record set forth in Article 17 below upon selection of the U.S. Firm to perform the Study. Upon approval of this selection by USTDA, the Grantee and the U.S. Firm shall then enter into an Agreement of Understanding. 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 Agreement of Understanding Between Grantee and U.S. Firm

The Grantee and the U.S. Firm shall enter into an Agreement of Understanding. This Agreement of Understanding, 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 U.S. Firm 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 Agreement of Understanding or a final negotiated draft version of the Agreement of Understanding.

(D) USTDA Not a Party to the Agreement of Understanding

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 Agreement of Understanding and any amendments thereto, including assignments, the selection of all U.S. Firms, the Terms of Reference, the Final Report, and any and all documents related to any Agreement of Understanding 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 Agreement of Understanding. 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 Agreement of Understanding or any sub-agreement, 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 U.S. Firm, or

relieve the U.S. Firm of any liability which the U.S. Firm 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 Agreement of Understanding or any sub-agreement thereunder must be consistent with this Grant Agreement. In the event of any inconsistency between the Grant Agreement and any Agreement of Understanding or sub-agreement funded by the Grant Agreement, the Grant Agreement shall be controlling.

6. Disbursement Procedures

(A) USTDA Approval of Agreement of Understanding Required

USTDA will make disbursements of Grant funds directly to the U.S. Firm only after USTDA approves the Grantee's Agreement of Understanding with the U.S. Firm.

(B) U.S. Firm Invoice Requirements

The Grantee should request disbursement of funds by USTDA to the U.S. Firm 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 November 30, 2009, is the date by which the parties estimate that the Study will have been completed.

(B) Time Limitation on Disbursement of USTDA Grant Funds

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

9. USTDA Mandatory Clauses

All Agreements of Understanding funded under this Grant Agreement shall include the USTDA mandatory clauses set forth in Annex II to this Grant Agreement. All sub-agreements 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 U.S. Firm must be either a U.S. firm or U.S. individual; (b) the U.S. Firm 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 sub-agreement; (c) employees of the U.S. Firm or U.S. subcontractors 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 U.S. Firm 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 U.S. Firms, receipt and approval of Agreement of Understanding deliverables, and approval or disapproval of U.S. firm 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 Secretary. 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: Secretaria de Estado da Gestão Administrativa
Governo do Estado do Acre
Palácio das Secretarias

Av. Getúlio Vargas, 232 – Centro

Rio Branco, Acre CEP 69900-160
Brazil

Phone: 011 55 68 3212-7600
Fax: 011 55 68 3213-2150

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

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

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

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

Appropriation No.: 118/91001 & 117/81001
Activity No.: 2008-51024B
Reservation No.: 2008510061
Grant No.: GH2008510020

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 the State Government of Acre Administrative Management Secretariat, each acting through its duly authorized representative, have caused this Agreement to be signed in the English language in their names and delivered as of the day and year written below. In the event that this Grant Agreement is signed in more than one language, the English language version shall govern.

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

By: 
Larry Walther
Director
U.S. Trade and Development Agency

Date: 9/18/08

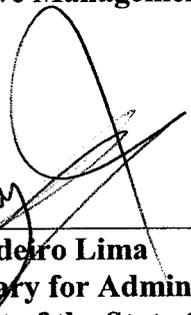
Witnessed:

By: 
Clifford M. Sobel
Ambassador
United States Embassy of Brazil

Annex I -- Terms of Reference

Annex II -- USTDA Mandatory Clauses

**For the State Government of Acre
Administrative Management Secretariat**

By: 
Mâncio Cordeiro Lima
**State Secretary for Administrative
Management of the State Government
of Acre - Brazil**

Date: 18/09/2008

Witnessed:

By: 
Sérgio A. Francalino Rocha
**Technical Advisor of the State Secretariat
for Administrative Management
of the State Government of Acre**

Annex I

Terms of Reference

Objective

The objective of the Acre Statewide Broadband Project named the Floresta Digital® Network Project ("Project") is to provide broadband internet services to the Acre region of Brazil. The State of Acre has a population of 685,000 and is located in the northwest Amazon region of Brazil. The state is located in a remote corner of Brazil and is one of the country's least developed regions. More than half of Acre's population is concentrated in two cities, the capital Rio Branco and Cruzeiro do Sul. Most towns in Acre were built near riverbanks. Rivers are the main means of transportation and roads between smaller towns are limited. Building roads in the Amazon is extremely costly and the digital technological connections proposed in the Project are therefore a viable solution in the effort to reduce isolation.

It is estimated that less than 10 percent of homes in Acre have a computer with access to the Internet. Due to Acre's unique geography, the Project will provide a virtual infrastructure connecting rural and urban communities to both Brazilian and global markets. The Project seeks to bring broadband Internet services to all of Acre's 22 municipalities by 2010. Both the State of Acre and the Federal District are the first to have initiated free public access networks for their populations. The Project is closely associated with parallel initiatives of the Grantee to develop more efficient government services such as e-government networks.

The Project has four objectives. The foremost objective for the Grantee is to build a network linking all government offices via high-speed internet starting with the municipalities of Rio Branco and Cruzeiro do Sul. This would eliminate redundancies and reduce overall operating costs for government communications. The second objective is to provide high speed connections to public internet access points, such as schools and health posts. The third objective is to provide medium-band connections to the general public as a public service. An optional fourth objective is to provide commercial high-speed internet access for businesses and homes seeking higher bandwidth than that available for free access.

The Study would assist the Acre Government in defining several aspects of the Project, such as optimal ownership structure, size, limitations, and security of the bandwidth. In addition, the Study would serve as a basis for developing bidding documents to select private sector partners for the construction and management of the Project.

The U.S. Firm that performs the Study, and that U.S. Firm's parent, subsidiaries, and affiliates, are prohibited from providing any goods or services covered by any bidding document developed in whole or in part during the performance of the Study.

The Study tasks are as follows:

TASK 1: PREPARATION AND BACKGROUND RESEARCH

The U.S. Firm shall research the Brazil ICT and e-government sectors. This would include background information on various e-Government programs. The review should also include a review of communications networks used by other cities, states, or countries.

TASK 2: INITIAL VISIT AND ASSESSMENT OF CURRENT SITUATION

The U.S. Firm shall travel to Acre to familiarize itself with the current situation and to meet with the Grantee.

The U.S. Firm should already be very familiar with e-government initiatives, digital inclusion programs, governmental public budget finance, and project analysis.

TASK 3: CONDUCT A NEEDS/REQUIREMENT ANALYSIS FOR THE PROJECT

In this task, the U.S. Firm shall create a needs analysis and requirement document that will be used in Task 4 to create the network's framework. This task will involve significant travel to all 22 municipalities in the State. Some travel will be in very remote and rural areas.

Deliverable: Needs analysis and requirement assessment document.

TASK 4: DEVELOP FUNCTIONAL SPECIFICATIONS, ARCHITECTURE, AND BUSINESS MODEL

The U.S. Firm shall:

- Analyze the findings from Task 3 and develop specifications regarding the architecture and design of the Project.
- Develop more precision in the estimates of network designs, equipment needs and capacity, and resulting capital expenditure and operating costs.
- Conduct a spectrum management study.
- Create a detailed operational model of the Project that will
 - Detail the present use of broadband internet and telephony services by the Government of Acre,
 - Address the administrative environment,
 - Analyze management and security of the Project,
 - Analyze Project services to be contracted and levels of services needed, and
 - Provide a description of the needs and justifications for new network resources, a new operational model, new services to be contracted and

updating of current resources, and essential conditions and recommendations.

- Provide technological definition through:
 - Analysis of the technological environment available and of related trends,
 - Definition of the transfer of knowledge for the Grantee implementation team,
 - Definition of essential technical conditions and options for the Project,
 - Definition of Project metrics, performance, and other benchmarks to be used, and
 - Definition of technological standards to be followed.
- Provide a list of potential U.S. suppliers interested in participating in the Project.

The Grantee wishes to develop a high-speed hybrid network at the lowest cost possible while maintaining high quality of service and taking advantage of modern wireless technologies to reach final users (government offices and citizens). The U.S. Firm shall evaluate options for the ownership, management, and operation of the Project. These options may include (i) the State of Acre owning, managing, and operating the Project; (ii) a private sector partner owning, managing, and operating the Project; (iii) the State of Acre and a private sector partner both being involved in the ownership, management, and/or operation of the Project; and/or (iv) universities, research institutions, or other organizations being involved in the ownership, management, and/or operation of the Project. It will be important to take into account the way Brazil Telecom (BrT), the incumbent operator, is fulfilling its obligations of bringing broadband backhaul to all of Acre's 22 municipalities, and to consider how to make best use of the Electronic Government Service to Citizens federal initiative (Gesac) points allocated to Acre by the Ministry of Communications in reaching a least-cost solution compatible with required service levels and quality. The U.S. Firm shall illustrate and describe how these objectives can best be accomplished, and describe the type of pricing formula that will be used to cost out these new products and lower the cost of old products and services in order to enable equitable sharing of technological progress and the introduction of new products.

The U.S. Firm shall design and develop a business model that takes into consideration the rapid and continuing technological evolution and convergence in the communications sector and its impact on the costs, pricing, and development of services. This model shall include a mechanism that makes it possible to plan for future technological change, enabling any private sector partner(s) to make the necessary investments and earn a reasonable return on these investments, while ensuring that the Project benefits the government and people of Acre. The U.S. Firm also shall recommend sustainable models of financing.

Deliverable: Network architecture, design, technology definitions, and business model.

TASK 5: REVIEW OF LEGAL/REGULATORY ISSUES RELATED TO THE PROJECT

The U.S. Firm shall:

- Review all telecom, ICT, and other regulations to ensure that the correct licenses can be issued and to resolve any regulatory or legal issues.
- Identify and determine any contractual obligations of entities involved in Project implementation.
- Determine and assess whether all the necessary regulations have been issued or, if not, what is their status.

Deliverable: Legal/regulatory status and review report.

TASK 6: ECONOMIC AND FINANCIAL ANALYSIS OF THE PROJECT

The U.S. Firm shall:

- Quantify the benefits in expected unit cost reduction and improved quality for the Project.
- Quantify estimates for rates of return for the Project, scenario analysis of trends, project risks, and total cost.
- Quantify the estimate for the amount of counterpart funds needed.
- Assess all aspects of project feasibility (technical, economic, financial, political, legal, and organizational) and their interrelations.
- Prepare economic scenarios, risk analysis, rate return analysis, and analysis of total cost of operation.
- Recommend how the State Government of Acre can share in productivity improvements arising from the use of more efficient technologies and increased returns to scale over the life of any outsourcing contract.

Deliverable: Report on economic and financial analysis and interrelationships

TASK 7: ORGANIZATIONAL ISSUES

The U.S. Firm shall support the development of a professional human resource function designed to be an effective source of capacity building. Since the Grantee is the sponsor of the Project, the U.S. Firm in this task shall help design the organizational structure and requirements that would meet the needs of the Project.

The U.S. Firm shall:

- Identify and prioritize corporate governance issues that are necessary and critical to support the business plan.

- Define the qualifications of the staff needed to carry out the Project.
- Define the respective roles and relationships of the staff.
- Identify the necessary support resources needed for work plan implementation in Task 10.
- Create a mechanism for the Grantee to make use of these available resources or personnel.
- Evaluate the need for organizational or structural changes needed to oversee a wireless network.
- Establish metrics and benchmarks.
- Review current human capital deployment.
- Foster knowledge transfer and capacity building
 - Help prioritize training professional development needs and implement a regular training schedule,
 - Help create communities of practice, by encouraging the sharing of knowledge and information with staff members doing the same type of job, or staff members on different technical committees, as well as staff that previously worked in their areas, to share information, failures, and successes.

Deliverable: Human resources, knowledge transfer, and capacity building plan.

TASK 8: CONDUCT A PRELIMINARY ENVIRONMENTAL IMPACT ASSESSMENT

- Conduct a preliminary review and evaluation of the expected environmental impacts and their compatibility with both local regulations and the requirements of potential lending agencies, especially the World Bank, the IFC, and the IDB.
- Discuss how any potentially significant negative impacts can be minimized.
- Identify agency/department expectations, priorities, opportunities, and trends.
- Develop plans for full environmental impact assessment in anticipation of the Project moving forward to the implementation stage.

Deliverable: Preliminary environmental impact assessment report.

TASK 9: DEVELOPMENTAL IMPACT ANALYSIS

The U.S. Firm shall identify and assess the developmental outcomes that would be expected if the Project is implemented in accordance with the recommendations of the Study. The U.S. Firm shall focus on estimating the Project's potential benefits in any or all of four areas: additions to infrastructure or industrial capacity; nature and effects of any legal/regulatory changes resulting from the Project; expected human capacity building; technology transfer and its effects. The analysis of potential developmental benefits should be as concrete and detailed as possible and include at least one specific

example of developmental impact for each area that is relevant for the Project. Any significant developmental impacts outside the four areas listed above should also be included.

Deliverable: A report setting forth the findings and opinions as specified above.

TASK 10: PROJECT PLANNING AND IMPLEMENTATION

The U.S. Firm shall assess and determine whether the critical success factors for Project implementation have been met and the project risks identified have been accounted for and mitigated to the extent possible. The U.S. Firm shall also review the Human Resources, Knowledge Transfer, and Capacity Building Plan proposed in Task 7 and incorporate these recommendations into the Project implementation plan.

The critical success factors shall include the following:

- A successful change management process in the affected secretariats and government agencies.
- Government shares with the private sector the benefits of productivity increases arising from technological change, and not just the costs.
- Continual monitoring of any outsourcing contractual conditions for the operation and management of the network is carried out – provisions for this need to be incorporated in any such contract itself.
- Training of state personnel in the management of any outsourcing, service level agreement, service level management, etc.
- Clear definition of any outsourcing contract objectives (scope, service levels, metrics, requirements, etc.).
- Support from top government managers.
- Priority for payments to any private sector partner for strategic and critical activities outsourced.
- Establishment and application of penalties for non-compliance with any outsourcing contract conditions.
- Definition of a clear process for exiting from any outsourcing contract and transitioning to another supplier.
- Other critical success factors inherent in outsourcing processes for IT.

The Project implementation report shall recommend the most appropriate structure for the Project, summarize the steps that need to be undertaken by the State Government to implement the Project according to the recommended structure, and analyze any regulatory or other steps involved with the creation of any new legal entity that may be required.

TASK 11: PREPARATION OF BIDDING DOCUMENTS

The U.S. Firm shall prepare one or more bidding documents (*Editals*) that cover all of the goods and services needed for Project implementation. The U.S. Firm shall prepare the *Edital(s)* in consultation with the Grantee. The U.S. Firm also shall develop a timetable for publicizing the *Edital(s)*, and for awarding the contract(s) for the goods and services covered by the *Edital(s)*. Every *Edital* must be fully consistent with the legal requirements of Brazil and the State of Acre.

Deliverable: Complete draft of the *Edital(s)*, ready for publication. The U.S. Firm shall provide copies of the *Edital(s)* in both English and Portuguese.

TASK 12: PRESENTATION AND FINAL REPORT

Upon concluding the tasks listed above, the U.S. Firm shall travel to Acre to formally present to the Grantee the findings and recommendations and a draft version of the Final Report. The Grantee will be able to use this opportunity to ask questions or provide further comments and suggestions based on the presentation and the draft of the Final Report.

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

The U.S. Firm shall provide to the Grantee three (3) hard copies and one (1) electronic version of both the confidential and public versions of the Final Report in Portuguese and one (1) hard copy of both the confidential and public versions of the Final Report in English. The Grantee also shall provide copies to USTDA and the U.S. Embassy in Brazil in accordance with Clause I of Annex II of the Grant Agreement.

Notes:

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

- 4) **All deliverables shall be supplied in the English language. Additionally, the Final Report and presentation shall be translated into Portuguese. The U.S. Firm shall ensure the quality and accuracy of the translation.**

Annex II

USTDA Mandatory Agreement of Understanding to Perform the Feasibility Study Clauses

A. USTDA Mandatory Clauses Controlling

The parties to this Agreement of Understanding to Perform the Feasibility Study ("Agreement of Understanding") acknowledge that this Agreement of Understanding is funded in whole or in part by the U.S. Trade and Development Agency ("USTDA") under the Grant Agreement between the Government of the United States of America acting through USTDA and the State Government of Acre Administrative Management Secretariat ("Client"), dated _____ ("Grant Agreement"). The Client has selected _____ ("U.S. Firm") to perform the feasibility study ("Study") for the Acre Statewide Broadband Project named the Floresta Digital® Network Project ("Project") in Brazil ("Host Country"). Notwithstanding any other provisions of this Agreement of Understanding, the following USTDA mandatory Agreement of Understanding clauses shall govern. All sub-agreements entered into by the U.S. Firm funded or partially funded with USTDA Grant funds shall include these USTDA mandatory Agreement of Understanding 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 Agreement of Understanding or sub-agreement thereunder, the Grant Agreement shall be controlling.

B. USTDA as Financier

(1) USTDA Approval of Agreement of Understanding

All agreements of understanding 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 Agreement of Understanding has been formally approved by USTDA or until the Agreement of Understanding conforms to modifications required by USTDA during the Agreement of Understanding review process.

(2) USTDA Not a Party to the Agreement of Understanding

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 Agreement of Understanding and amendments thereto, including assignments, the selection of all U.S. Firms, the Terms of Reference, the Final Report, and any and all documents related to any Agreement of Understanding 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 Agreement of Understanding. 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 Agreement of Understanding or any sub-agreement, 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 U.S. Firm, or relieve the U.S. Firm of any liability which the U.S. Firm 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 U.S. Firm must be either a U.S. firm or U.S. individual; (b) the U.S. Firm 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. Firm or U.S. subcontractors 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 U.S. Firm 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 Agreement of Understanding. 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 Agreement of Understanding term and for a period of three (3) years after final disbursement by USTDA. The U.S. Firm 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 U.S. Firm shall provide adequate Workman's Compensation Insurance coverage for work performed under this Agreement of Understanding.

G. Reporting Requirements

The U.S. Firm 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 U.S. Firm receives follow-on work from the Client, the U.S. Firm shall so notify USTDA and designate the U.S. Firm'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 U.S. Firm 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 Agreement of Understanding

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

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

(a) U.S. Firm's Invoice

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

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

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

(ii) For Agreement of Understanding performance milestone payments:

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

(iii) For final payment:

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

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

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

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

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

(d) The U.S. Firm 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 U.S. Firm 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 Agreement of Understanding, 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 November 30, 2009, is the date by which the parties estimate that the Study will have been completed.

(2) Time Limitation on Disbursement of USTDA Grant Funds

Except as USTDA may otherwise agree, (a) no USTDA funds may be disbursed under this Agreement of Understanding 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 U.S. Firm 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 U.S. Firm 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 Agreement of Understanding, 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 Agreement of Understanding shall be sent to the following address and include the fiscal data listed below:

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

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

Fiscal Data:

Appropriation No.:	118/91001 & 117/81001
Activity No.:	2008-51024B
Reservation No.:	2008510061
Grant No.:	GH2008510020

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 U.S. Firm will seek reimbursement from USTDA for such taxes, tariffs, duties, fees or other levies.

ANNEX 5

Annex I

Terms of Reference

Objective

The objective of the Acre Statewide Broadband Project named the Floresta Digital® Network Project ("Project") is to provide broadband internet services to the Acre region of Brazil. The State of Acre has a population of 685,000 and is located in the northwest Amazon region of Brazil. The state is located in a remote corner of Brazil and is one of the country's least developed regions. More than half of Acre's population is concentrated in two cities, the capital Rio Branco and Cruzeiro do Sul. Most towns in Acre were built near riverbanks. Rivers are the main means of transportation and roads between smaller towns are limited. Building roads in the Amazon is extremely costly and the digital technological connections proposed in the Project are therefore a viable solution in the effort to reduce isolation.

It is estimated that less than 10 percent of homes in Acre have a computer with access to the Internet. Due to Acre's unique geography, the Project will provide a virtual infrastructure connecting rural and urban communities to both Brazilian and global markets. The Project seeks to bring broadband Internet services to all of Acre's 22 municipalities by 2010. Both the State of Acre and the Federal District are the first to have initiated free public access networks for their populations. The Project is closely associated with parallel initiatives of the Grantee to develop more efficient government services such as e-government networks.

The Project has four objectives. The foremost objective for the Grantee is to build a network linking all government offices via high-speed internet starting with the municipalities of Rio Branco and Cruzeiro do Sul. This would eliminate redundancies and reduce overall operating costs for government communications. The second objective is to provide high speed connections to public internet access points, such as schools and health posts. The third objective is to provide medium-band connections to the general public as a public service. An optional fourth objective is to provide commercial high-speed internet access for businesses and homes seeking higher bandwidth than that available for free access.

The Study would assist the Acre Government in defining several aspects of the Project, such as optimal ownership structure, size, limitations, and security of the bandwidth. In addition, the Study would serve as a basis for developing bidding documents to select private sector partners for the construction and management of the Project.

The U.S. Firm that performs the Study, and that U.S. Firm's parent, subsidiaries, and affiliates, are prohibited from providing any goods or services covered by any bidding document developed in whole or in part during the performance of the Study.

The Study tasks are as follows:

TASK 1: PREPARATION AND BACKGROUND RESEARCH

The U.S. Firm shall research the Brazil ICT and e-government sectors. This would include background information on various e-Government programs. The review should also include a review of communications networks used by other cities, states, or countries.

TASK 2: INITIAL VISIT AND ASSESSMENT OF CURRENT SITUATION

The U.S. Firm shall travel to Acre to familiarize itself with the current situation and to meet with the Grantee.

The U.S. Firm should already be very familiar with e-government initiatives, digital inclusion programs, governmental public budget finance, and project analysis.

TASK 3: CONDUCT A NEEDS/REQUIREMENT ANALYSIS FOR THE PROJECT

In this task, the U.S. Firm shall create a needs analysis and requirement document that will be used in Task 4 to create the network's framework. This task will involve significant travel to all 22 municipalities in the State. Some travel will be in very remote and rural areas.

Deliverable: Needs analysis and requirement assessment document.

TASK 4: DEVELOP FUNCTIONAL SPECIFICATIONS, ARCHITECTURE, AND BUSINESS MODEL

The U.S. Firm shall:

- Analyze the findings from Task 3 and develop specifications regarding the architecture and design of the Project.
- Develop more precision in the estimates of network designs, equipment needs and capacity, and resulting capital expenditure and operating costs.
- Conduct a spectrum management study.
- Create a detailed operational model of the Project that will
 - Detail the present use of broadband internet and telephony services by the Government of Acre,
 - Address the administrative environment,
 - Analyze management and security of the Project,
 - Analyze Project services to be contracted and levels of services needed, and
 - Provide a description of the needs and justifications for new network resources, a new operational model, new services to be contracted and

updating of current resources, and essential conditions and recommendations.

- Provide technological definition through:
 - Analysis of the technological environment available and of related trends,
 - Definition of the transfer of knowledge for the Grantee implementation team,
 - Definition of essential technical conditions and options for the Project,
 - Definition of Project metrics, performance, and other benchmarks to be used, and
 - Definition of technological standards to be followed.
- Provide a list of potential U.S. suppliers interested in participating in the Project.

The Grantee wishes to develop a high-speed hybrid network at the lowest cost possible while maintaining high quality of service and taking advantage of modern wireless technologies to reach final users (government offices and citizens). The U.S. Firm shall evaluate options for the ownership, management, and operation of the Project. These options may include (i) the State of Acre owning, managing, and operating the Project; (ii) a private sector partner owning, managing, and operating the Project; (iii) the State of Acre and a private sector partner both being involved in the ownership, management, and/or operation of the Project; and/or (iv) universities, research institutions, or other organizations being involved in the ownership, management, and/or operation of the Project. It will be important to take into account the way Brazil Telecom (BrT), the incumbent operator, is fulfilling its obligations of bringing broadband backhaul to all of Acre's 22 municipalities, and to consider how to make best use of the Electronic Government Service to Citizens federal initiative (Gesac) points allocated to Acre by the Ministry of Communications in reaching a least-cost solution compatible with required service levels and quality. The U.S. Firm shall illustrate and describe how these objectives can best be accomplished, and describe the type of pricing formula that will be used to cost out these new products and lower the cost of old products and services in order to enable equitable sharing of technological progress and the introduction of new products.

The U.S. Firm shall design and develop a business model that takes into consideration the rapid and continuing technological evolution and convergence in the communications sector and its impact on the costs, pricing, and development of services. This model shall include a mechanism that makes it possible to plan for future technological change, enabling any private sector partner(s) to make the necessary investments and earn a reasonable return on these investments, while ensuring that the Project benefits the government and people of Acre. The U.S. Firm also shall recommend sustainable models of financing.

Deliverable: Network architecture, design, technology definitions, and business model.

TASK 5: REVIEW OF LEGAL/REGULATORY ISSUES RELATED TO THE PROJECT

The U.S. Firm shall:

- Review all telecom, ICT, and other regulations to ensure that the correct licenses can be issued and to resolve any regulatory or legal issues.
- Identify and determine any contractual obligations of entities involved in Project implementation.
- Determine and assess whether all the necessary regulations have been issued or, if not, what is their status.

Deliverable: Legal/regulatory status and review report.

TASK 6: ECONOMIC AND FINANCIAL ANALYSIS OF THE PROJECT

The U.S. Firm shall:

- Quantify the benefits in expected unit cost reduction and improved quality for the Project.
- Quantify estimates for rates of return for the Project, scenario analysis of trends, project risks, and total cost.
- Quantify the estimate for the amount of counterpart funds needed.
- Assess all aspects of project feasibility (technical, economic, financial, political, legal, and organizational) and their interrelations.
- Prepare economic scenarios, risk analysis, rate return analysis, and analysis of total cost of operation.
- Recommend how the State Government of Acre can share in productivity improvements arising from the use of more efficient technologies and increased returns to scale over the life of any outsourcing contract.

Deliverable: Report on economic and financial analysis and interrelationships

TASK 7: ORGANIZATIONAL ISSUES

The U.S. Firm shall support the development of a professional human resource function designed to be an effective source of capacity building. Since the Grantee is the sponsor of the Project, the U.S. Firm in this task shall help design the organizational structure and requirements that would meet the needs of the Project.

The U.S. Firm shall:

- Identify and prioritize corporate governance issues that are necessary and critical to support the business plan.

- Define the qualifications of the staff needed to carry out the Project.
- Define the respective roles and relationships of the staff.
- Identify the necessary support resources needed for work plan implementation in Task 10.
- Create a mechanism for the Grantee to make use of these available resources or personnel.
- Evaluate the need for organizational or structural changes needed to oversee a wireless network.
- Establish metrics and benchmarks.
- Review current human capital deployment.
- Foster knowledge transfer and capacity building
 - Help prioritize training professional development needs and implement a regular training schedule,
 - Help create communities of practice, by encouraging the sharing of knowledge and information with staff members doing the same type of job, or staff members on different technical committees, as well as staff that previously worked in their areas, to share information, failures, and successes.

Deliverable: Human resources, knowledge transfer, and capacity building plan.

TASK 8: CONDUCT A PRELIMINARY ENVIRONMENTAL IMPACT ASSESSMENT

- Conduct a preliminary review and evaluation of the expected environmental impacts and their compatibility with both local regulations and the requirements of potential lending agencies, especially the World Bank, the IFC, and the IDB.
- Discuss how any potentially significant negative impacts can be minimized.
- Identify agency/department expectations, priorities, opportunities, and trends.
- Develop plans for full environmental impact assessment in anticipation of the Project moving forward to the implementation stage.

Deliverable: Preliminary environmental impact assessment report.

TASK 9: DEVELOPMENTAL IMPACT ANALYSIS

The U.S. Firm shall identify and assess the developmental outcomes that would be expected if the Project is implemented in accordance with the recommendations of the Study. The U.S. Firm shall focus on estimating the Project's potential benefits in any or all of four areas: additions to infrastructure or industrial capacity; nature and effects of any legal/regulatory changes resulting from the Project; expected human capacity building; technology transfer and its effects. The analysis of potential developmental benefits should be as concrete and detailed as possible and include at least one specific

example of developmental impact for each area that is relevant for the Project. Any significant developmental impacts outside the four areas listed above should also be included.

Deliverable: A report setting forth the findings and opinions as specified above.

TASK 10: PROJECT PLANNING AND IMPLEMENTATION

The U.S. Firm shall assess and determine whether the critical success factors for Project implementation have been met and the project risks identified have been accounted for and mitigated to the extent possible. The U.S. Firm shall also review the Human Resources, Knowledge Transfer, and Capacity Building Plan proposed in Task 7 and incorporate these recommendations into the Project implementation plan.

The critical success factors shall include the following:

- A successful change management process in the affected secretariats and government agencies.
- Government shares with the private sector the benefits of productivity increases arising from technological change, and not just the costs.
- Continual monitoring of any outsourcing contractual conditions for the operation and management of the network is carried out – provisions for this need to be incorporated in any such contract itself.
- Training of state personnel in the management of any outsourcing, service level agreement, service level management, etc.
- Clear definition of any outsourcing contract objectives (scope, service levels, metrics, requirements, etc.).
- Support from top government managers.
- Priority for payments to any private sector partner for strategic and critical activities outsourced.
- Establishment and application of penalties for non-compliance with any outsourcing contract conditions.
- Definition of a clear process for exiting from any outsourcing contract and transitioning to another supplier.
- Other critical success factors inherent in outsourcing processes for IT.

The Project implementation report shall recommend the most appropriate structure for the Project, summarize the steps that need to be undertaken by the State Government to implement the Project according to the recommended structure, and analyze any regulatory or other steps involved with the creation of any new legal entity that may be required.

TASK 11: PREPARATION OF BIDDING DOCUMENTS

The U.S. Firm shall prepare one or more bidding documents (*Editals*) that cover all of the goods and services needed for Project implementation. The U.S. Firm shall prepare the *Edital(s)* in consultation with the Grantee. The U.S. Firm also shall develop a timetable for publicizing the *Edital(s)*, and for awarding the contract(s) for the goods and services covered by the *Edital(s)*. Every *Edital* must be fully consistent with the legal requirements of Brazil and the State of Acre.

Deliverable: Complete draft of the *Edital(s)*, ready for publication. The U.S. Firm shall provide copies of the *Edital(s)* in both English and Portuguese.

TASK 12: PRESENTATION AND FINAL REPORT

Upon concluding the tasks listed above, the U.S. Firm shall travel to Acre to formally present to the Grantee the findings and recommendations and a draft version of the Final Report. The Grantee will be able to use this opportunity to ask questions or provide further comments and suggestions based on the presentation and the draft of the Final Report.

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

The U.S. Firm shall provide to the Grantee three (3) hard copies and one (1) electronic version of both the confidential and public versions of the Final Report in Portuguese and one (1) hard copy of both the confidential and public versions of the Final Report in English. The Grantee also shall provide copies to USTDA and the U.S. Embassy in Brazil in accordance with Clause I of Annex II of the Grant Agreement.

Notes:

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

- 4) All deliverables shall be supplied in the English language. Additionally, the Final Report and presentation shall be translated into Portuguese. The U.S. Firm shall ensure the quality and accuracy of the translation.**