

Document of
The World Bank

Report No: ICR00003141

IMPLEMENTATION COMPLETION AND RESULTS REPORT
(IDA-H6420)

ON A

GRANT

IN THE AMOUNT OF SDR 9.8 MILLION
(US\$ 14.9 MILLION EQUIVALENT)

TO THE

DEMOCRATIC REPUBLIC OF SAO TOME AND PRINCIPE

FOR A

CENTRAL AFRICAN BACKBONE PROGRAM (APL2)

June 17, 2015

Transport and ICT Global Practice
Africa Regional Integration
Africa Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective December 12, 2014)

| | | |
|---------------|---|------------------------------------|
| Currency Unit | = | São Tomé and Príncipe Dobras (STD) |
| US\$ 1.00 | = | 19,669.55 STD |
| US\$ 0.69022 | = | SDR 1 |

FISCAL YEAR

January 1 – December 31

ABBREVIATIONS AND ACRONYMS

| | |
|--------|---|
| ACE | Africa Coast to Europe Optical Fiber Submarine Cable |
| AFAP | Agência Fiduciária de Administração de Projecto (Fiduciary Agency for Project Administration) |
| AfDB | African Development Bank |
| AGER | General Regulation Agency |
| APL | Adaptable Program Loan |
| ARAP | Abbreviated Action Plan |
| AU | African Union |
| CAB | Central Africa Backbone |
| CAS | Country Assistance Strategy |
| CEMAC | Declaration of the Economic and Monetary Community of Central Africa |
| CST | Companhia São Tomense de Telecomunicações |
| DFI | Development Financial Institutions |
| DO | Development Objective |
| ESMF | Environment and Social Management Framework |
| EQG | Equatorial Guinea |
| FM | Financial Management |
| FY | Fiscal Year |
| GDP | Gross Domestic Product |
| GEEDR | Energy & Extractives Global Practice |
| GTIDR | Transport and ICT Global Practice |
| GoSTP | Government of São Tomé and Príncipe |
| ICR | Implementation Completion and Results Report |
| ICT | Information and Communication Technology |
| IDA | International Development Association |
| INIC | National Institute of Innovation and Knowledge |
| IRR | Internal Return Rate |
| ISR | Implementation Status and Results |
| IXP | Internet Exchange Points |
| Mbps | Megabits per second |
| M&E | Monitoring and Evaluation |
| MIGOP | Guarantees Group |
| MoPWNR | Minister of Public Works and Natural Resource |
| MTR | Mid-term Review |
| NGOs | Non-Governmental Organizations |

| | |
|--------|--|
| NPRS | National Poverty Reduction Strategy |
| PAD | Project Appraisal Document |
| PDO | Project Development Objectives |
| PCU | Project Coordination Unit |
| PPA | Project Preparation Advance |
| PPP | Public Private Partnership |
| QAG | Quality Assessment Group |
| QEA | Quality at Entry |
| QSA | Quality of Supervision |
| RFP | Request for Proposals |
| RIAS | Regional Integration Assistance Strategy for Africa |
| SARL | Sociedade Anónima de Responsabilidade Limitada |
| SDR | Special Drawing Rights |
| SPV | Special Purpose Vehicle |
| STP | São Tomé and Príncipe |
| TA | Technical Assistance |
| USD | United States Dollar |
| USF | Universal Service Fund |
| XDR | Special Drawing Rights |
| WAs | Withdrawal Applications |
| WARCIP | West Africa Regional Connectivity Infrastructure Program |
| WB | World Bank |
| WBG | World Bank Group |

| |
|---|
| <p style="text-align: center;"> Vice President: Makhtar Diop Regional Integration Director: Colin Bruce Country Director: Gregor Binkert Senior Director Pierre Guislain Practice Manager: Randeep Sudan Project Team Leader: Isabel Neto ICR Primary Author: Eva Clemente Miranda </p> |
|---|

COUNTRY
São Tomé and Príncipe

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| A. Basic Information | | | |
|---|------------|-------------------|---------------------------------|
| Country: | Africa | Project Name: | Central African Backbone - APL2 |
| Project ID: | P117652 | L/C/TF Number(s): | IDA-H6420 |
| ICR Date: | 06/10/2015 | ICR Type: | Core ICR |
| Lending Instrument: | APL | Borrower: | GOVERNMENT OF STP |
| Original Total Commitment: | XDR 0.00M | Disbursed Amount: | XDR 9.80M |
| Revised Amount: | XDR 9.80M | | |
| Environmental Category: B | | | |
| Implementing Agencies: Agência Fiduciária de Administração de Projecto (AFAP) | | | |
| Cofinanciers and Other External Partners: | | | |

| B. Key Dates | | | | |
|-----------------|------------|-------------------|---------------|--------------------------|
| Process | Date | Process | Original Date | Revised / Actual Date(s) |
| Concept Review: | 01/21/2010 | Effectiveness: | 04/22/2011 | 07/06/2011 |
| Appraisal: | 10/15/2010 | Restructuring(s): | | 02/04/2014 |
| Approval: | 01/20/2011 | Mid-term Review: | 02/28/2013 | 06/14/2013 |
| | | Closing: | | 12/31/2014 |

| C. Ratings Summary | |
|-------------------------------|---------------------|
| C.1 Performance Rating by ICR | |
| Outcomes: | Highly Satisfactory |
| Risk to Development Outcome: | Low or Negligible |
| Bank Performance: | Satisfactory |
| Borrower Performance: | Satisfactory |

| C.2 Detailed Ratings of Bank and Borrower Performance (by ICR) | | | |
|--|--------------|--------------------------------------|--------------|
| Bank | Ratings | Borrower | Ratings |
| Quality at Entry: | Satisfactory | Government: | Satisfactory |
| Quality of Supervision: | Satisfactory | Implementing Agency/Agencies: | Satisfactory |
| Overall Bank Performance: | Satisfactory | Overall Borrower Performance: | Satisfactory |

C.3 Quality at Entry and Implementation Performance Indicators

| Implementation Performance | Indicators | QAG Assessments (if any) | Rating |
|---|---------------------|-------------------------------|--------|
| Potential Problem Project at any time (Yes/No): | No | Quality at Entry (QEA): | None |
| Problem Project at any time (Yes/No): | No | Quality of Supervision (QSA): | None |
| DO rating before Closing/Inactive status: | Highly Satisfactory | | |

D. Sector and Theme Codes

| | Original | Actual |
|--|----------|--------|
| Sector Code (as % of total Bank financing) | | |
| General industry and trade sector | 20 | 20 |
| General information and communications sector | 20 | 20 |
| Telecommunications | 60 | 60 |
| | | |
| Theme Code (as % of total Bank financing) | | |
| Infrastructure services for private sector development | 40 | 40 |
| Regional integration | 50 | 50 |
| Regulation and competition policy | 10 | 10 |

E. Bank Staff

| Positions | At ICR | At Approval |
|---------------------------|-------------------------|----------------------------|
| Vice President: | Makhtar Diop | Obiageli Katryn Ezekwesili |
| Country Director: | Colin Bruce | Yusupha B. Crookes |
| Practice Manager/Manager: | Randeep Sudan | Philippe Dongier |
| Project Team Leader: | Maria Isabel A. S. Neto | Maria Isabel A. S. Neto |
| ICR Team Leader: | Maria Isabel A. S. Neto | |
| ICR Primary Author: | Eva Clemente Miranda | |

F. Results Framework Analysis**Project Development Objectives (from Project Appraisal Document)**

The development objective of the proposed project is consistent with the PDO for the CAB Program: To contribute to increase geographical reach and usage of regional broadband network services and reduce their prices in the territory of São Tomé and Príncipe.

Revised Project Development Objectives (as approved by original approving authority)

(a) PDO Indicator(s)

| Indicator | Baseline Value | Original Target Values (from approval documents) | Formally Revised Target Values | Actual Value Achieved at Completion or Target Years |
|------------------------------------|--|--|--------------------------------|---|
| Indicator 1 : | International internet bandwidth: This indicator measures the volume of international traffic. Measured in Bits per second per person (bits/sec/person). | | | |
| Value quantitative or Qualitative) | 51 Bits per second per person (bits/sec/person) | 500 | | 4624 |
| Date achieved | 12/31/2007 | 01/21/2011 | | 12/31/2014 |
| Comments (incl. % achievement) | % achievement: 1,018% Tot. use of International Internet bandwidth grew from 50MBS before cable to over 4,500MBS. As of Nov 14, the allocated capacity within international STP cable is 4,500Mbs, and installed 775Mbs. | | | |
| Indicator 2 : | Access to internet services (number of subscribers per 100 people): This indicator measures the volume of national traffic. Measured in percentage (%). | | | |
| Value quantitative or Qualitative) | 0.7 | 1.8 | | 17.9 |
| Date achieved | 01/01/2010 | 01/21/2011 | | 12/31/2014 |
| Comments (incl. % achievement) | % achievement: 1,564% A review of this indicator conducted at project closing showed that, along the course of the project, rates collected only include fixed connections (DSL) and omitted mobile broadband (3G and 4G). This indicator was underestimated. | | | |
| Indicator 3 : | Access to telephone services (fixed mainlines plus cellular phones per 100 people). Measured in percentage (%). | | | |
| Value quantitative or Qualitative) | 67% | 78% | | 87% |
| Date achieved | 01/01/2010 | 01/21/2011 | | 12/31/2014 |
| Comments (incl. % achievement) | % achieved:182% Arrival of the sub cable and telecom competitor in market boosted telecom sector by lowering prices and increasing network coverage. Fixed mainlines plus cellular phones per 100 people increased beyond appraisal target- growth expected. | | | |
| Indicator 4 : | Access to telephone services (cellular phones per 100 people). Measured in percentage (%). | | | |
| Value quantitative or Qualitative) | 63 % | 77% | | 83% |
| Date achieved | 01/01/2010 | 01/21/2011 | | 12/31/2014 |
| Comments (incl. % achievement) | %achievement: 143% | | | |

| | | | | |
|------------------------------------|--|-----------------|--|-----------------|
| achievement) | Access to mobile services has met target penetration rates: 75% of STP pop has mobile phone. Again, the arrival of the sub cable and the entrance of a telecom competitor boosted telecom sector by lowering prices and increasing coverage | | | |
| Indicator 5 : | % achievement: 143% Access to mobile services has met target penetration rates: 75% of STP pop has mobile phone. Again, the arrival of the sub cable and the entrance of a telecom competitor boosted telecom sector by lowering prices and increasing coverage | | | |
| Value quantitative or Qualitative) | US\$9,000 | US\$4,500 | | US\$2,500 |
| Date achieved | 01/01/2010 | 01/21/2011 | | 12/31/2014 |
| Comments (incl. % achievement) | % achievement: 144% Cost of international connectivity dropped, allowing STP access. Average monthly price of wholesale international E1 capacity link from capital city to Europe, measured in monthly US\$ dropped far below appraisal target of \$4500 | | | |
| Indicator 6 : | Number of project direct beneficiaries (percentage of female). No#. of active fixed mobile subscribers (internet subscribers not included). Assumes total constant pop at 170000 (% female on proratabasis using current figure: 50.5%) | | | |
| Value quantitative or Qualitative) | 113,900 (50.5%) | 134,300 (50.5%) | | 138,098 (50.5%) |
| Date achieved | 01/01/2010 | 01/21/2011 | | 12/31/2014 |
| Comments (incl. % achievement) | % achievement: 119% Female beneficiaries have been calculated on a pro-rata basis using the figure: 50.5%. | | | |

(b) Intermediate Outcome Indicator(s)

| Indicator | Baseline Value | Original Target Values (from approval documents) | Formally Revised Target Values | Actual Value Achieved at Completion or Target Years |
|-------------------------------------|---|--|--------------------------------|---|
| Indicator 1 : | Impact on telecom sector of World Bank technical assistance. Rate competitiveness of the telecom sector as a result of the project technical assistance. Composite score: 1-low impact to 5 – high impact) | | | |
| Value (quantitative or Qualitative) | 0 (zero) | 4 | | 5 |
| Date achieved | 01/01/2010 | 01/21/2011 | | 12/31/2014 |
| Comments (incl. % achievement) | % achievement: 125% 1st time STP connected to reliable affordable international connectivity, bringing competition and private sector participation in the telecom sector, plus legal framework updates and stronger regulator, has shown highly relevant impact | | | |
| Indicator 2 : | Mobile cellular price of a 3 minute local call (peak): This indicator measures the cost of a three minute peak time local call in the same mobile network. This indicator measures the cost of a three minute peak time local call in the same mobile network. | | | |
| Value (quantitative) | US\$ 0.42 | US\$ 0.20 | | US\$ 0.28 |

| | | | | |
|-------------------------------------|---|-------------------------|--|--------------------------|
| or Qualitative) | | | | |
| Date achieved | 01/01/2010 | 01/21/2011 | | 12/31/2014 |
| Comments (incl. % achievement) | % achievement: 64% This indicator was reviewed at project closing. | | | |
| Indicator 3 : | Number of operators and service providers with access to the Regional infrastructure deployed (ACE cable). (% of total # of active operators and ISPs buying capacity). | | | |
| Value (quantitative or Qualitative) | 0% | 100% (Cable has landed) | | 100% (Cable has landed) |
| Date achieved | 01/01/2010 | 01/21/2011 | | 12/31/2014 |
| Comments (incl. % achievement) | % achieved:100% Unfettered access for operators to regional infra. Project's technical assistance ensured open access to cable for future operators & affordable access to citizens. 2nd Global License GoSTP to UNITEL satisfactory access to regional infra. | | | |
| Indicator 4 : | Retail price of internet services (per Mbps monthly (US\$)). This indicator measures the progress of unfettered access for all operators to regional infrastructure. | | | |
| Value (quantitative or Qualitative) | US\$852/ month (640 euros/month) | US\$340/ month | | US\$ 52 (40 euros/month) |
| Date achieved | 01/01/2010 | 01/21/2011 | | 12/31/2014 |
| Comments (incl. % achievement) | % achievement: 156% Internet access prices fell drastically until reaching US\$52 monthly subscription per Mbit per second. This price highly surpassed target price reduction at appraisal. Competition in the telecom market (2nd op) showed price impact. | | | |
| Indicator 5 : | Increased access to ICT services: Percentage of localities with broadband Internet access (256Kbps) | | | |
| Value (quantitative or Qualitative) | 56% | 100% | | 100% |
| Date achieved | 01/01/2010 | 01/21/2011 | | 12/31/2013 |
| Comments (incl. % achievement) | % achievement: 100% This indicator was revised at project closing. | | | |

G. Ratings of Project Performance in ISRs

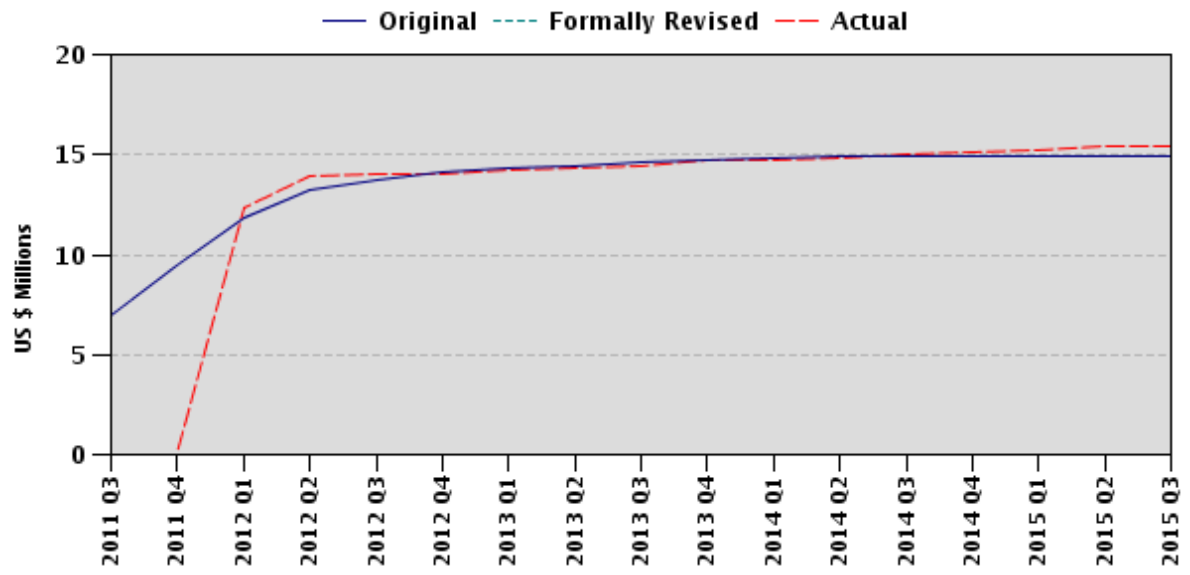
| No. | Date ISR Archived | DO | IP | Actual Disbursements (USD millions) |
|-----|-------------------|---------------------|-------------------------|-------------------------------------|
| 1 | 08/27/2011 | Satisfactory | Satisfactory | 9.61 |
| 2 | 04/07/2012 | Satisfactory | Satisfactory | 14.07 |
| 3 | 12/01/2012 | Satisfactory | Moderately Satisfactory | 14.35 |
| 4 | 05/23/2013 | Satisfactory | Satisfactory | 14.57 |
| 5 | 01/19/2014 | Highly Satisfactory | Satisfactory | 14.88 |
| 6 | 06/27/2014 | Highly Satisfactory | Satisfactory | 15.12 |

| | | | | |
|---|------------|---------------------|--------------|-------|
| 7 | 12/12/2014 | Highly Satisfactory | Satisfactory | 15.24 |
|---|------------|---------------------|--------------|-------|

H. Restructuring (if any)

| Restructuring Date(s) | Board Approved PDO Change | ISR Ratings at Restructuring | | Amount Disbursed at Restructuring in USD millions | Reason for Restructuring & Key Changes Made |
|-----------------------|---------------------------|------------------------------|----|---|---|
| | | DO | IP | | |
| 02/04/2014 | | HS | S | 14.99 | Level two restructuring package related to reallocation of funds within categories was approved. There were two project categories containing the funds for paying the ACE consortium: payments to the ACE consortium (Category 2) and refund of Preparation Advance (Category 3). After all these payments had been done, no additional disbursements were needed in these two categories, yet some funds remained in them. The Borrower requested that those funds be transferred to Category 1 of the project, pertaining to 'Goods, works, consultants' services and Operational Costs for the Project. These funds were used for implementation of the activities already planned under that category. |

I. Disbursement Profile



1. Project Context, Development Objectives and Design

1.1 Context at Appraisal

1. São Tomé and Príncipe (STP) with just over 190,000 inhabitants, is one of the smallest economies in Africa. In 2010, income per capita was US\$1,140 (GNI, Atlas method, current US\$), below the Sub-Saharan Africa average. While economic performance had improved and the real GDP growth had increased to an average 5% over the period 2001-2007, approximately 62%¹ of its population of 166,000 was poor and 15% lived in extreme poverty². The country ranked 131 out of 182 countries in the 2009 UNDP Human Development Index. The small archipelago had consolidated democracy since 1990 but was still characterized by frequent turnover of governments.

2. In 2010, poor access to international telecommunications capacity, and over-dependence on costly satellite technologies were important constraints for STP, limiting growth opportunities. Moreover, the lack of access to low price and high quality telecommunications services was identified as a factor hindering STP's attractiveness for international investors and as an obstacle to creating jobs, expand production of goods, services, and trade competitively with the rest of the world. As a country dependent on satellite communications with average satellite prices between US\$4,000-5,000/Mbps/month STP was ill-placed to compete in the global economy. This situation added to STP's insularity and remoteness from international markets. The country's small size and systematic constraints in human and institutional capacity made it even more difficult for STP to achieve sustainable growth and poverty reduction.

3. In 2010, STP had some of the highest prices in the world for international calls and Internet costs. Fixed line teledensity was about 5%, mobile telephone penetration stood at about 62%, and Internet penetration was about 0.7%. Mobile coverage reached 70% of the population but less than 30% of the territory. Another sector issue identified at appraisal was the lack of competition, given that the country had a single Telecom operator: CST (Companhia São Tomense de Telecomunicações). The Government of São Tomé and Príncipe (GoSTP) had attempted to introduce competition in the mobile telecommunications market in 2007, but had not been successful.

4. STP was among a handful of countries in the region which was not connected to the global network of broadband optical fiber infrastructure. Small states in the region were often by-passed by submarine cable consortia, because their markets were not attractive enough for investment. For purposes of international connectivity a viable option for West African countries was to connect to Africa Coast to Europe (ACE) optical fiber cable, a submarine cable system anticipated to be approximately 17,000 km long. ACE aimed to connect South Africa to Europe, potentially connecting up to 23 countries (see figure 1), either directly for coastal countries or indirectly through terrestrial links. Other submarine cables existed at the time (e.g. SAT3, SAFE, WACS), but with closed consortia or monopolistic models, and none of them connected STP.

¹ Poverty headcount ratio at national poverty lines (% of population), 2009. World Development Indicators.

² Poverty gap at \$1.25 a day (PPP) (%), 2010. World Development Indicators.

5. In a context of no other opportunities available for STP to connect to another submarine for many years to come, in February 2010 the requested the World Bank Group (WBG) financial to participate in ACE, after the Governments of Leone first, and then Liberia had sent similar for WB support to join ACE. The Bank performed due diligence on this possible investment upfront, comparing it with other options that might have available for accessing high speed international connectivity in these three countries, and confirmed ACE was the most favorable option (see Annex



cable
GoSTP
support
Sierra
requests
detailed

become

that
3.1).

6. Africa’s regional program was well-positioned to assist these three countries make feasible this unique opportunity to connect ACE. It would not have been possible to provide support for STP to participate in the ACE cable outside the framework of Regional Integration projects. A response to STP request was conceived within the Central African Backbone (CAB) Program. Support for other countries was provided under other regional programs: West Africa Regional Connectivity Infrastructure Program (WARCIP) was prepared at that time and approved in January 2011 to support Sierra Leone and Liberia participation on ACE consortium. Additional countries later asked for support to join ACE consortium, namely Guinea Conakry, Burkina Faso, and Gambia (approved in June 2011).

Figure 1 Africa Coast to Europe (ACE) Optical Fiber Submarine Cable Map

7. CAB is a WBG regional instrument aimed at catalyzing private sector investment to improve connectivity in Central Africa. The CAB program was the best suited instrument to support STP’s need to join ACE. To maximize flexibility, client-responsiveness in a multi-country environment and the specific context of each country (existing infrastructure or policy environment), CAB’s design comprised a menu of options which individual Governments were to choose from. For the purpose of using the Regional IDA envelope, regional connectivity under CAB financing was deemed regional in nature and, thus qualified for Regional IDA envelope.

8. The CAB Program fitted well with WBG’s 2004 Regional Integration Assistance Strategy for Africa (RIAS). The Bank’s RIAS identified advances in ICT as one of the three emerging positive trends in the 21st Century for Africa, and highlighted CAB’s role for the regional connectivity objective. The WB had been involved in the CAB Program design since 2005 in the context of a multiple development partners’ effort³, and was well placed to contribute to the development of regional connectivity in Africa.

9. The São Tomé e Príncipe project (CAB2 STP) was also consistent with the government strategy, particularly with the goals of accessing regional and global markets to unlock additional growth opportunities. Improved communications capacity, and the ability to access information and affordability of international communications was deemed to be fundamental for the development of STP and for reducing isolation and insularity.

1.2 Original Project Development Objectives (PDO) and Key Indicators

³ The Declaration of the CEMAC heads of state adopted in May 2007 called explicitly for WBG financial support for the implementation of the CAB program –the overall program formulated with other key stakeholders, DFIs, and the African Union (AU).

10. The project objective, as spelled out in the Project Appraisal Document (PAD) and the Financial Agreement, was to contribute to increase geographical reach and usage of regional broadband network services and reduce their prices in São Tomé and Príncipe. To achieve this objective the project focused on investments linked to fostering open and cost-effective access to communications infrastructure. The main development outcomes included: (i) the development of infrastructure with a secondary impact on the market through reducing the cost of broadband services and making them more accessible; and (ii) opening up the telecommunications market to competition, improving policies and regulatory framework. These objectives were aligned with both the CAB Program overall objectives as well as the country strategy's objectives.

11. The CAB2 STP project followed the same outcome indicators as the overall CAB program. Result indicators were also defined consistently with the ICT Core Sector Indicators as of December 2009. Based on the project's framework, key outcome indicators included:

- a) Volume of international traffic
 - i. International Communications (Internet, Telecoms, and Data) bandwidth per person
- b) Volume of national traffic using 2 proxies:
 - i. Internet subscribers per 100 inhabitants
 - ii. Total teledensity (active fixed and mobile subscribers per 100 inhabitants)
- c) Average price of international communications using the proxy:
 - i. Average monthly price of international capacity link (E1 or 2Mbts) to Europe
- d) Project Beneficiaries
 - i. Number of project direct beneficiaries (% female)

1.3 Revised PDO (as approved by original approving authority) and Key Indicators, and reasons/justification

12. PDO and Key indicators remained valid and relevant throughout the entire project implementation span.

1.4 Main Beneficiaries,

13. The project was designed to target the population as a whole in STP by increasing the availability and affordability of telecommunications services. Project direct beneficiaries included people who may be connected to the internet or more generally to communications network in STP (including telecommunication services and internet users, schools, hospitals, banks, corporations, government and public administrations). Whereas indirect beneficiaries were defined as all of the country's population, since increased communications capabilities at affordable rates for some of the population may eventually have externalities for all.

1.5 Original Components

14. The project had three main components, as follows:

- a) Component 1 – Enabling environment (\$0.9 million IDA financing): technical assistance for legal and regulatory reform, to develop public private partnership (PPP) arrangements for the infrastructure to be developed and to launch a second mobile telecommunications operator, environmental studies and M&E support.
- b) Component 2 – Connectivity (\$13.3 million IDA financing, with additional \$11.9 million financed by the private sector): Financing for STP's contribution for participating in the ACE cable on an open

access⁴ basis and on the basis of PPPs, leveraging private sector investment and associated investments such as the setup of an Internet Exchange Point (IXP).

- c) Component 3 – Project Management (\$0.5million IDA financing) – This component consisted of support to project finance management, such as human resources, procurement, financial management, M&E, internal and external audit, and communications expertise, operating expenses and equipment.

15. While the generic CAB Program included the possibility of eGovernment related components, given the scarce IDA resources for STP, the Bank and Government team decided that the project would focus on connectivity elements only, which were the key priority at the time⁵.

1.6 Revised Components

16. The components as designed at appraisal remained unchanged until project closing date. There were however some adaptations at the margin: the project did not support the setup of an IXP⁶ as originally foreseen. During the Midterm Review (MTR) it was decided that the implementation of the IXP was no longer a priority: the number of websites hosted in STP was low, and IXP would have had a limited impact⁷. Other initiatives became more relevant towards achieving the PDO along project implementation and were scaled up. This included a study for options for Príncipe island connectivity, and support to connect all secondary schools to Internet, activities which were supported through the project. Given the full alignment with project objectives, the limited budget (less than 2% of project funds), and the straightforward nature of this activity, it was judged no formal restructuring was needed in order to make these changes, and the decision was recorded and approved through the ISRs and briefings to management.

1.7 Other significant changes

17. On February 4th 2012, a level two restructuring package related to reallocation of funds within categories was approved. There were two project categories containing the funds for paying the ACE consortium: payments to the ACE consortium (Category 2) and refund of Preparation Advance (Category 3). After all these payments had been done, no additional disbursements were needed in these two categories, yet some funds remained in them. The Borrower requested that those funds be transferred to Category 1 of the project, pertaining to ‘Goods, works, consultants’ services and Operational Costs for the Project. These funds were used for implementation of the activities already planned under that category. The details of project proceeds reallocated can be found in Annex 1 section c.

2. Key Factors Affecting Implementation and Outcomes

2.1 Project Preparation, Design and Quality at Entry

⁴ The concept of ‘Open Access’ is broadly defined as an equal opportunity for operators to have unfettered access to given infrastructures or services, under similar terms and conditions.

⁵ The initial IDA envelope for the project at PCN stage was US\$10 million, and it had to be increased to US\$15 million as the costs escalated when Baharicom, who had indicated its willingness to provide a philanthropic investment of US\$ 5 million, stepped out. This meant that there was limited room, at preparation, to include any additional activities.

⁶ IXP enable Internet Service Providers to keep locally-generated and received Internet traffic within its country or region of origin, as opposed to carrying this traffic on international routes. IXP are thus usually implemented as complement of improved Internet connectivity.

⁷ IXPs are most useful when there are local servers, localized Internet Service Providers, and traffic to be routed locally, which is not yet the case for STP

18. Project preparation was characterized by its extraordinarily accelerated pace. In less than four months, the team provided an extremely fast response to country request to prepare the project. This was due to the need to meet ACE's own calendar, and thus, to avoid STP losing the opportunity to join the ACE and gaining access to international connectivity. For STP to become a consortium member of the cable agreement, it was imperative that CST⁸ signed a Construction and Maintenance Agreement (C&MA) by June 5, 2010. This required highly complex negotiations between the Government and CST and Portugal Telecom (PT) that had to be concluded by that date. The team assisted GoSTP on those negotiations that resulted in STP's successful participation in the ACE consortium, while ensuring the principles of open access to cable capacity for future operators.

19. WB mobilized rapidly two Project Preparation Advances (PPAs), one of which larger than standard at the time of preparation, which was necessary to meet very tight deadlines. Through its signature of the CM&A, CST and the government were committing to comply with a very concrete payment schedule defined in advance and with high late fees. Instalment payments for the ACE membership fee were due before project approval with a first installment payment on July 23, 2010. In order to meet these initial payments, the GoSTP had requested the WB for a PPA advance of \$5million, which needed to be approved by the CM&A signature date⁹. This larger-than-usual PPA was approved after a waiver to go beyond the PPA ceiling at the time of \$3 million was obtained from the Bank's Managing Director¹⁰. (An initial US\$0.7 million PPA for normal preparation activities had already been obtained in March 2010). Without Regional IDA support mobilized in less than four months Sierra Leone, Liberia and STP would have missed the opportunity to connect to ACE network. This required close collaboration between WB staff to ensure consistency with the Bank's investment lending policies, while finding solutions to participation in the ACE PPP consortium. The Bank's decision to ascertain funds for STP's participation in ACE as non-procurable activities made possible to accelerate payments (more information in section 2.4).

20. Project appraisal took place in October 2010 and WBG Board approved it in January, 2011. During this time, negotiations focused on defining the specific PPP arrangements. GoSTP and CST were negotiating the specific format and terms around STP-Cabo SARL, a Special Purpose Vehicle (SPV) designed to hold STP's participation in ACE, channeling the different parties' contributions into the consortium, and enabling access to ACE capacity at national level. Structuring the country's participation as an open SPV ensured that future operators in STP would be able to access cable capacity with similar conditions. A full-fledge technical assistance was provided to the GoSTP along a second round of intensive negotiations with the private sector partner (CST/Portugal Telecom) that ended with: (i) incorporation of STP-Cabo SARL; (ii) full substitution of CST by STP-Cabo SARL (see footnote 7); and (iii) the transfer CST's signatory rights to the SPV (see final structure of STP's participation in ACE consortium in figure 2).

⁸ C&MA was initially signed by CST on behalf of STP, as only entities with a Telecom license, such as operators, had the capacity to subscribe to the C&MA. In parallel CST committed to be later substituted by SPV to be structured following open access principles (see below).

⁹ The PPAs had covered the two initial payments to the consortium, due on July 23, 2010 (\$3.75m) and on September 23rd, 2010 (\$1.25m), and they were in consistent with OP. 8.10 which allowed for financing limited initial implementation activities.

¹⁰ Similar waivers were obtained for Liberia and Sierra Leone under the proposed WARCIP.

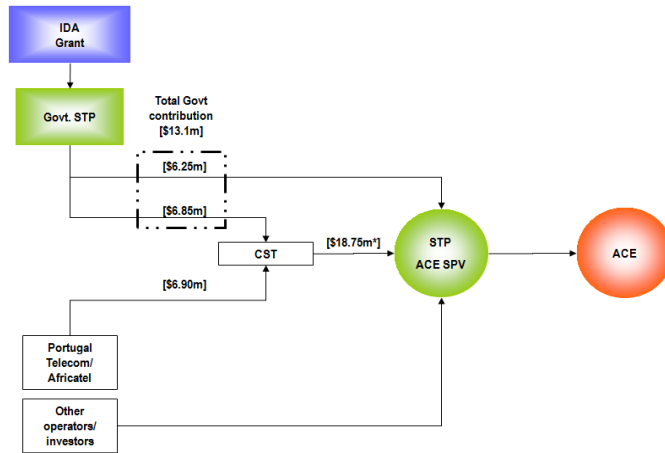


Figure 2 Structure of STP's participation in ACE consortium¹¹

21. These complex negotiations took longer than initially expected. The transfer of the corresponding rights to STP-Cabo was an effectiveness condition for the grant. Since the available funds for ACE under the PPA had been fully utilized by September 2010, the challenge for GoSTP and the team was to ensure project effectiveness in time for the payment of an ACE installment due in March 2011. After one extension the project became effective on July 6, 2011, and STP-Cabo SARL was able to honor its obligations towards ACE, without major delay penalties.

22. The accelerated preparation of the project did not compromise quality. The background analysis carried out to prepare the project was sound and helped the GoSTP identify the ACE as the best option for low cost international connectivity. STP's decision to join ACE resulted from an analytical process comparing available and potential connectivity options (see analysis at Annex 3). The economic and financial analysis confirmed that full membership in ACE (if accompanied by the right access and market structure to ensure competitive pricing), held the potential to provide the lowest cost international access to a broad range of citizens in STP over time. The due diligence further confirmed that the decision process was in line with the principles of efficiency, transparency and adherence to good practice in the industry. Analysis of other possible options for improving international connectivity clearly showed that connecting to other cables would ultimately result in a less compelling business case than connection through ACE ¹² (see also Annex 3).

¹¹ The figure does not represent flow of funds, but rather the financing structure. All financing contributions from the government and CST into the STP ACE SPV (called STP-Cabo, SARL) are made in the form of a long-term shareholder loan. WB funding flow was channeled through a direct payment to the ACE consortium on behalf of STP-Cabo. CST secured the remaining funds needed (i.e. approximately \$5million in additions to funds provided by the two main shareholders) to complete the \$18.75million using other complementary instruments, notably debt and own funds/cash flow.

¹² The option of expanding STP's existing limited international connectivity by increased use of satellites was also analyzed, but the significantly lower bandwidth costs that will be obtained over time through ACE compensated for the higher investment and maintenance cost.

23. Project design reflected lessons learnt and built upon previous similar projects implemented within the region:

- a) Experience had shown that infrastructure built without a suitable enabling environment can limit impact on prices and access.
- b) Given the experience in other closed-club submarine cables elsewhere¹³, designing the project based on open access principles ensured a very important multiplying effect so that necessary investment to complement private funds for the cable could bring the maximum value to the country. To complement the ACE investment *per se*, project preparation included TA to ensure the best open access structure to cable capacity (through incorporation of STP-Cabo described above).
- c) At the time, experience showed the importance of client ownership for an efficient implementation of project activities. Hence, project design included the intent, interest and priorities of beneficiaries and stakeholders to ensure project ownership. And, it was based on GoSTP's specific request for Bank's support which provided confirmation on Government commitment to the project.
- d) Given the low capacity and lack of experience in PPPs of the institutions involved in project implementation, and the evidence that significant capacity is needed for negotiations with the private sector to establish PPP arrangements, project design incorporated extensive TA.

24. In terms of project institutional design, adequacy of available expertise for project implementation arrangements was ensured at appraisal phase by selecting AFAP (Agência Fiduciária de Administração de Projecto) within the Ministry of Planning and Finance, as the Project Coordination Unit (PCU). AFAP was the only executing agency in the country with experience in managing Bank-financed projects. In 2010, AFAP was successfully implementing another WB education project¹⁴. Rather than recruiting a new team, and after conducting Financial Management (FM) and Procurement assessments, it was decided that AFAP would serve as the implementing agency for CAB2, and that technical staff with sector specific expertise would be hired to strengthen the team with telecom expertise.

25. The project envisioned the creation of a Steering Committee to (i) be in charge of overall operative guidance during implementation; (ii) have fiduciary and governance oversight of the main disbursement areas for CAB2 STP; (iii) be responsible for approving annual work plans and budgets, and any changes in allocation of budgets between institutions; and (iv) be responsible for monitoring the implementation of the M&E framework. It was structured to be chaired by the Minister of Finance and International Cooperation and consist of high level authorities including representatives of the Prime Minister's office, the Minister of Public Works and Natural Resource, and the telecom regulator named General Regulatory Agency (AGER). The meetings of the Steering Committee were scheduled to be held quarterly or exceptionally if so required.

¹³ The monopoly control of access to national and regional fiber infrastructure limits the developmental impact of national and regional infrastructure. Under a monopoly or limited competition regime for international fiber traffic, incumbents have traditionally operated a high-margin, low-volume business, with inflated prices charged to domestic consumers as a result. Open, non-discriminatory and pro-competitive access to infrastructure helps to secure lower prices and the highest level of voice and data traffic. In addition, allowing more players into the market where these do not exist help ensure better conditions to end-users.

¹⁴ STP Education for All - Fast Track Initiative Project Implementation Unit and the implementation of the WB financed Social Sector Support Project (PASS) (Credit No. 3902 STP and Grant No. H088 STP)

26. The assessment of risks and mitigation actions the team prepared at appraisal have proved to be adequate. Despite having only few components and activities, the overall project risks were rated as medium due to the need for complex negotiations during the preparation phase. The team assessed ACE consortium structure, as being led by major industry players, consistent with international good practices. Given the experience of key consortium members in designing, commissioning and operating submarine cables, the implementation risk was estimated minimal. The following table summarizes the risks and mitigation measured by the team at appraisal.

| Risk | Mitigation Objective | Mitigation measure proposed at PAD |
|--|--|---|
| Project PPP structure where private sector partners (CST) are required to finance US\$11.9 to complement IDA funds | Minimize the risk of less favorable negotiations with private sector and the risk of private sector not honoring its financial contributions | - PPP documents had to be in place at first payment to ACE (March 2011) - Option right agreement signed by CST/PT provided the government with the right to substitute CST if required. - Incorporation of SPV shareholder agreement required for project effectiveness |
| Political changes | Minimize impact on negotiation and liberalization processes | In view of elections at the time of preparation, the team requested the government the preparation of a letter of sector policy. The new government also formalized its commitment to reforms in a letter submitted to IDA on November 2010. |
| Implementing Agency (including FM and PR risks) | Minimize weak implementing capacity | PPA included the provision of extensive TA to AFAP and AGER |

27. To sum up, the CAB2 featured comprehensive preparation and design of activities that surpassed usual complexity. The high level of efforts put in place for project preparation and design ensured subsequent effective project implementation.

2.2 Implementation

28. After effectiveness, and since the most difficult issues (such as negotiations to establish STP-Cabo) had been finalized, project implementation proceeded generally well and smoothly, and all activities were successfully completed by the project closing date.

29. The implementation of the largest component under the project – the contribution to the ACE cable membership fee, which represented 88% of the funds – was simple after the PPP negotiations had been completed, in particular because, as explained above, STP’s participation in ACE were deemed as non-procurable activities. The ACE cable¹⁵ was initiated by Orange and administered by a consortium of 17 operators linking Europe to the West and Southern Coast of Africa with advanced high-speed broadband fiber optic technology. Its roll-out was divided in two phases: phase 1 comprised 3 segments in service (France-Senegal, Senegal-Côte d’Ivoire, Côte d’Ivoire-STP) connecting 16¹⁶ countries; and phase 2 planned to extend the cable from STP to South Africa (named segment 4). As mentioned above, the technical execution and project management for the ACE cable was left to the ACE private sector consortium and its supplier, Alcatel, and the project advanced generally according to schedule, with only minor delays.

¹⁵ www.ace-submarinecable.com

¹⁶ 14 countries connected in the coast; France, Portugal, Canary Island (Spain), Mauritania, Senegal, Gambia, Guinea, Sierra Leone, Liberia, Côte d’Ivoire, Ghana, Guinea Equatorial, Gabon, STP; 2 landlocked countries: Mali and Niger.

30. The actual submarine cable project was managed and implemented by the private sector, through the international consortium: the STP party fully participated in the consortium meetings, but technical issues and implementation were dealt with by the consortium, which greatly simplified and accelerated project execution. In order to participate in the consortium, STP paid a membership fee: overall, STP contributed \$25m out of the total US\$700 million ACE cable investment, US\$13.1m of which (52.4%) have been financed by government, through the CAB2 project, with the remaining balance coming from an important contribution by Portugal Telecom and CST as the private sector partners. As of January 2012, barely one year after project approval, 89.8% of the total grant amount had been disbursed.

31. The ACE cable effectively arrived in STP in November 2011, the landing station in STP was inaugurated in October 2012, and the cable was commercially launched in February 2013 after a period of tests throughout the 16 countries connected by ACE. For the time being, only the north segment of ACE has been developed. Once Segment 4 does, STP will not have to pay additional funds¹⁷.

32. Under the enabling environment component, the project firstly focused on TA for the introduction of competition in the telecom market through the tendering of a second global license. Although the process for the second license was initiated shortly after effectiveness, it took some time to materialize. After some delays, in May 2013, the government successfully awarded a second telecommunications global license to UNITEL International Holdings. The commercial launch took place in July 2014 a couple of months after the initial planned date¹⁸. As part of the package for the second license the government sold its 24.5% participation in STP-Cabo, thereby fully divesting, and keeping only a golden share that enables it to guarantee open access principles and safeguard the country interests. The GoSTP received US\$8million from UNITEL: US\$6.36 million for its shares in STP-Cabo, and \$1.62million for the second global license. STP-Cabo held its first board meeting including the second operator, UNITEL, in April 2014. Additionally, the project financed an initial technical audit of STP-Cabo aimed to provide a transparent technical review of landing station conditions at the time of the Government's ownership transition to a new operator.

33. To complement these two main project achievements (i.e. the cable and the introduction of competition), other activities focused on further strengthening of the enabling environment by modernizing and harmonizing ICT sector framework. Three main activities were implemented: (i) support to the regulator to update the legal and regulatory framework, (ii) an analysis on options available for Príncipe Island to improve its connectivity following arrival of the ACE cable, and (iii) structuring for additional PPP projects that would be financed with a part of proceeds the GoSTP received after divestiture.

34. The project assisted the government and AGER to develop and build capacity on legal and regulatory amendments needed to reflect the new sector reality (submarine cable and competition). Firstly, an ICT Sector Strategy for STP was prepared in 2012 under the project after consultations with a wide variety of sector stakeholders, including civil society. However, at the time of preparation of this ICR its adoption by the Council of Ministers was still pending. Secondly, regulatory and economic tools

¹⁷ ACE design foresaw for STP a full landing station given the end and start of segments, however the consortium recognized the country's small size and allowed STP to pay US\$25million (the cost of a single landing station) instead of the standard full landing station cost of US\$40 million.

¹⁸ It could be discussed whether launching competition before introduction of the cable would have been better. The connectivity and enabling environment components were initiated in parallel. However, given that the cable was following its accelerated schedule (imposed by ACE consortium) the connectivity component materialized earlier, and launching the second operator license first was actually not an option. Even though competition was introduced after the cable, the cable was structured in a way that already anticipated the introduction of new operators. In addition, given the intrinsic peculiarities of STP, it could be argued that the market was more successful in attracting a second operator with the submarine cable in place. Previous attempts to introduce competition has failed.

(cost models) were developed that resulted in the timely promulgation of a decree on interconnection required for the second operator arrival at the market. Thirdly, modifications to Telecommunications Law were prepared and approved by the Council of Ministers in April 2014. The promulgation of these amendments had to wait for the new government after the October 2014 elections and is expected to happen in 2015. Also, the assistance provided to AGER included the development of a new legal instrument for regulating the Universal Service Fund (USF) reflecting international best practices. Approval of the final text was dependent on the modifications to the Telecommunications Law mentioned above being approved by Parliament (see immediately above).

35. An options study was developed through the project to identify the best manner of upgrading the existing connection with Príncipe. At the time, microwave link capacity between Sao Tomé and the island of Principe had become fully saturated and there was an urgent need to upgrade the link in order to better serve the population in that island so that it could best benefit from ACE cable. By the end of the project both operators had started the deployment to upgrade the connection to Príncipe for higher capacity by installing separate microwave links. As a result, the internal connectivity capacity between São Tomé and the Príncipe Island is expected to increase twenty-fold, from 32Mbps to 600Mbps. In the medium to long term the GoSTP may be able to pursue opportunities to develop the submarine connection to Principe. While financially difficult to justify from a purely financial perspective, it may be possible to minimize costs by piggy-backing on: (i) the return of the ACE boat to install Segment 4, and/or (ii) the Equatorial Guinea (EQG) authorities' plans to build submarine connection from Malabo to its island of Annabon, located south of STP.

36. During the project MTR in June 2013 Government, sector stakeholders and civil society discussed prioritization of possible investment in the sector that could be structured on a PPP basis¹⁹. A workshop was carried out to identify ICT priority projects to be financed with (i) remaining project funds²⁰, and (ii) funds that the Government obtained from the second operator's license, and which it committed to reinvest to promote ICTs in the country²¹. In order to best leverage the arrival of the submarine cable in STP it was agreed that CAB2 project proceeds would be utilized to connect all secondary schools in STP to the Internet, and that Government would consider using its own financing both for the establishment of three community telecenters, and for purchasing basic computing devices for secondary schools. By the project closing date in December 2014, all 27 secondary schools were connected. TA was also provided to support GoSTP in structuring the tenders for telecenters and for computing devices secondary schools that would be financed with its own funds, but the launching of the tenders was pending at the time of ICR preparation.

¹⁹ As explained above, during MTR it was decided that the implementation of the IXP estimated in US\$50,000, was no longer a priority for STP.

²⁰ Including project net gains generated from exchange rate between XDR and USD

²¹ This commitment was captured in minutes of negotiation during preparation but it was decided not to include it as a legal covenant for the GoSTP.

37. As for implementation arrangements and in accordance to project design, the Steering Committee met regularly as scheduled with some exceptions during the final stage of the project. Throughout implementation, the Steering Committee contributed to the project by providing strategic guidance and validating project steps. With the project in progress, it was decided that a representative of the National Institute of Innovation and Knowledge (INIC) in charge of promoting ICTs for social and economic development, would join the Steering Committee.

2.3 Monitoring and Evaluation (M&E) Design, Implementation and Utilization

38. The PDO determined in the PAD illustrated adequately what the project was aiming at achieving: to contribute to increase geographical reach and usage of regional broadband network services and reduce their prices in São Tomé and Príncipe. The PDO indicators selected in the PAD provided quantitative baseline and clear target indicators against which progress towards objectives were easily assessed:

- a) The international internet bandwidth quantified in Mbps is a proper measure for usage of regional broadband network. This indicator is easily measured by the SPV and operators for whom this is an important operating expense.
- b) The penetration rates of ICT services quantify the extension of access of broadband network proportionally to the size of the population. Since penetration rates don't assess the geographic dimension, the M&E included a specific intermediate indicator to assess broadband coverage as percentage of localities with access to broadband. These are amongst the most common indicators closely monitored by regulators to assess the performance of the sector.
- c) The average price of wholesale international El capacity measures the affordability of international connectivity. This indicator is sometimes not publicly available for confidentiality reasons.
- d) The number of project beneficiaries measured the number of active fixed and mobile subscribers (internet subscribers not accounted to avoid double-counting) assuming a constant total population figure.

39. In addition to wholesale prices, the evolution of affordability of Internet access at the retail level was captured in the indicator "retail price of Internet services".

40. During project implementation, the team was able to collect indicators (on a semi-annual basis), but usually with a 6 months delay, as there were often difficulties in obtaining the data from the incumbent operator in a timely manner. These delays persisted until the project closing, despite follow-up by AGER and the project team, but given that in the end the team was able to get the indicators, no further action was proposed.

41. At project closing some indicator figures were reviewed with special attention to Internet penetration rates. This showed that Internet penetration rates were underestimated along project cycle because mobile broadband technologies (e.g. 3G and 4G) were not added to the number of fixed connections (i.e. DSL).

2.4 Safeguard and Fiduciary Compliance

42. The project triggered two safeguards categories: social and environmental. An Environment and Social Management Framework (ESMF) consistent with national law, any applicable treaty concerning international waters, and OP 4.01, together with a Resettlement Policy Framework (RPF) were published on November 23rd, 2010. An Environmental and Social Management Plan (ESMP) and an Abbreviated Action Plan (ARAP) published on September 2011 were implemented during the project with a constant satisfactory rating. The due compensation payments for involuntary resettlement were successfully completed in a timely manner.

43. AFAP was the entity in charge of procurement and financial management throughout the project. Financial statements audit reports were properly submitted in a timely fashion and accepted by the Bank; and procurement and financial management evolved satisfactory throughout the project. From the second half of the project, AFAP effectively made use of e-Disbursements. The conversion to e-Disbursements contributed to more regular submission of Withdrawal Applications (WAs), and some cost-savings with regards to mail and transaction costs. AFAP performed timely, regular and satisfactory submissions of withdrawal applications; which were always fully paid without any deductions.

44. Regarding procurement, 88% of project funds went towards non-procurable activities and therefore were not subject to WB Procurement Guidelines. This is because payments to the ACE consortium were deemed to be made for membership consortium fees (paid in different installments) against a set of rights including the use of certain capacity at preferred rates and a share of ownership of an indivisible cable infrastructures asset. The additional effort required to procure the activities linked to the remaining 12% of project funds (i.e. \$1.8m) was marginal. AFAP managed procurement in an efficient and appropriate manner, and the team worked actively on correcting any shortcomings identified during project execution.

2.5 Post-completion Operation/Next Phase

45. The two main components executed with the project are fully working in place: international connectivity through the submarine cable and the second licensed operator are managed by the private sector. Operational arrangements and sustainability are ensured by having performing and quality infrastructure, as well as adequate PPP contractual agreements in place: with a technically competent private sector in charge of infrastructure operations, as well as informed authorities (regulator, government), . There are no specific follow-up arrangements expected to be needed in the infrastructure front.

46. Regarding the cable, commercial and operational issues should be dealt with between the cable shareholders (CST and UNITEL). Given the strategic importance of the cable to the country, Government may at times be called to play a facilitating role should any issues emerge, and it keeps the gatekeeping role of the open access principles through the golden share it holds in the cable vehicle²².

47. As for the second operator, any issues are to be dealt with through AGER that has been mentored to do so. Additional TA may be needed in the future as other issues arise.

48. A few of the texts that have been prepared through the project still need to be formally adopted by the government. Such is the case for the ICT Sector Strategy, and the modifications to Telecom Law which will also set the legal framework to issue USF legal instruments. AFAP briefed the government which took office in December 2014, as it will be responsible for approving these pending key telecom regulation reforms.

49. The opportunity to connect the Príncipe Island to the submarine cable has led the GoSTP to explore options for the future. Initial contacts were undertaken by the authorities and by the Bank team to facilitate the possibly of a joint project with EQG (see para. 35). Specific supplier proposals are currently being considered use the return of the boat which may happen in 2015-2016 for segment 4 and leverage it to connect Malabo-Príncipe-Sao Tome-Annabon. While this investment would be difficult to justify on pure financial grounds, contributions could possibly be obtained by aggregating investment from the two

²² At the time of preparation of this ICR there had been incidents of delays in payments from one of the operators to STP-Cabo SARL.

operators, other investors like oil companies operating in the country's territory, and Government, for example through the USF - no Bank funds have yet been requested for this purpose.

50. Current ongoing Bank-funded education projects could provide opportunities to build on some of the project successes. Contacts were established with the education team to ensure synergies between a recently approved STP Quality Education for All Project (P146877, Credit IDA-H9030 and IDA-H9770). This project includes support for connecting primary schools to Internet. This will complement the connection of all secondary schools under CAB2 project, and provide a new landscape in the country with all schools benefited from high-speed connection to Internet.

51. The project has contributed to revamp the supply side of the ICT sector. Follow-up phases focusing on the demand-side to help promote the absorption of STP installed capacity could be considered to complement the work completed. Indeed, now that STP benefits from international connectivity, there is an unprecedented opportunity for STP to increasingly harness the positive outcomes related to ICTs. Follow-up activities could start with an assessment to identify main areas where ICTs could have greater impact to improve economic growth, government efficiency, and social development. Eventually, these activities could include: the setup of a Data Center, or the development of various applications such as of an Electronic ID application, eGovernment Services, or other citizen engagement and participatory platform initiatives, or application for using ICTs for education (especially given that secondary schools are connected to Internet).

3. Assessment of Outcomes

52. The CAB2 project has allowed the telecommunication sector to take a “giant step” forward in STP. As further detailed in the section below, the arrival of high-speed international connectivity, first time ever sector competition, update of the legal and regulatory framework, and regulatory capacity building have allowed a strong and lasting development in the telecommunications sector to benefit STP population.

3.1 Relevance of Objectives, Design and Implementation

Relevance of objectives

Rating: High

53. CAB2 project objectives helped overcome STP’s lack of affordable connectivity and absence of competition consistently with STP’s current National Poverty Reduction Strategy (NPRS-II). The NPRS-II 2012-2016 seeks to provide the entire population with access to basic services, promoting access of ICTs to alleviate high costs from small insular country. The specific Telecom objectives/strategies²³ set in STP’s NPRS refer to the implementation reform of the telecommunications sector to maximize investment opportunities, and improve effectiveness and efficiency. Under its policy measures it includes (i) the development of universal services, (ii) the definition of a sectorial legal and regulatory framework to ensure the promotion of investments, and (iii) the development of new services provided by ICTs.

²³ NPRS Telecom specific objectives: to enable the public and private parties involved in the sector to deal with the technological and economic risks of the telecommunications market; to provide incentives to the private sector to invest in the telecommunications sector; to improve the reliability of the network and the level of national and international telecommunications infrastructure; to reduce the cost of market prospecting and rates as a means of helping businesses grow; to reduce the cost of international communications; to develop basic telecom services in rural areas; to develop the regulatory capacity of the government in this sector.

54. WB's 10-year vision Regional Strategy for Africa shows CAB2's high relevance as it places ICTs as a key enabler to promote the region's economic and social development. The competitiveness and employment pillar, as well as the governance and public sector capacity strategy's foundation, refer to the immense potential of ICTs to provide innovative ways for transformation and sustained growth in Africa.

55. WB's Country Partnership Strategy (CPS) 2014-2018 for STP aims to improve regional broadband connectivity under the Supporting Macroeconomic Stability and National Competitiveness pillar. Beyond this, the transformational cross-sector impact from improved connectivity would contribute to other areas captured in the CPS, including but not limited to improved private sector capacity and business environment, and skills development.

Relevance of Design

Rate: Substantial

56. The project design (activities, components, policy areas) was relevant to the objectives:
- a) The highest impact activities to be carried out were appropriately identified in CAB2 design, and no major shortcomings affected the achievement of their objectives.
 - b) In the policy area, the project provided regulatory TA as well as sector policy and regulatory capacity building in order to adapt to the new sector situation prompted with the arrival of ACE and competition.
 - c) Components were adequately designed to achieve project outcomes.
57. The project's M&E framework was overall of good quality:
- a) Overall the PDO focused on outcomes for which the project could reasonably be held accountable. The objectives were clear, realistic and meaningful for the country, and were well defined with quantitative baseline and target indicators.
 - b) The outcome indicators properly reflected sector performance and captured progress to project objectives. The intermediate indicators were similarly relevant to project objectives, providing more detail on retail prices, network coverage, and telecom sector's competitiveness as a result of project's technical assistance.
 - c) Indicators were simple and most of them relied on usual market indicators which eased data collection. The causal chain between project funding and outcomes was quite straightforward, particularly given that the project financed STP's participation in ACE and provided the TA to launch a second global telecom license.
 - d) Despite that in general broadband contribution to service penetration is difficult to assess, the link to regional network reach and usage outcome was clear.

Relevance of Implementation

Rating: High

58. The Bank's implementation assistance was responsive to project needs and adapted to changing priorities (i.e. options for Principe's connectivity).

3.2 Achievement of Project Development Objectives

Rating: High

59. The CAB2 project was completed by the original closing date as planned and substantially achieved all its objectives including: access and use of regional broadband network with ACE, and reduce of international and domestic telecom prices driven by the arrival of ACE and competition. Highly relevant tangible outcomes have emerged from CAB2 project, and even greater impacts are expected in the future. As better international connectivity continues to be absorbed, competition keeps stimulating the telecom market, and the regulation reform effects further settle better sector conditions, project's achievement of development objectives will be largely surpassed in the mid/long-term.

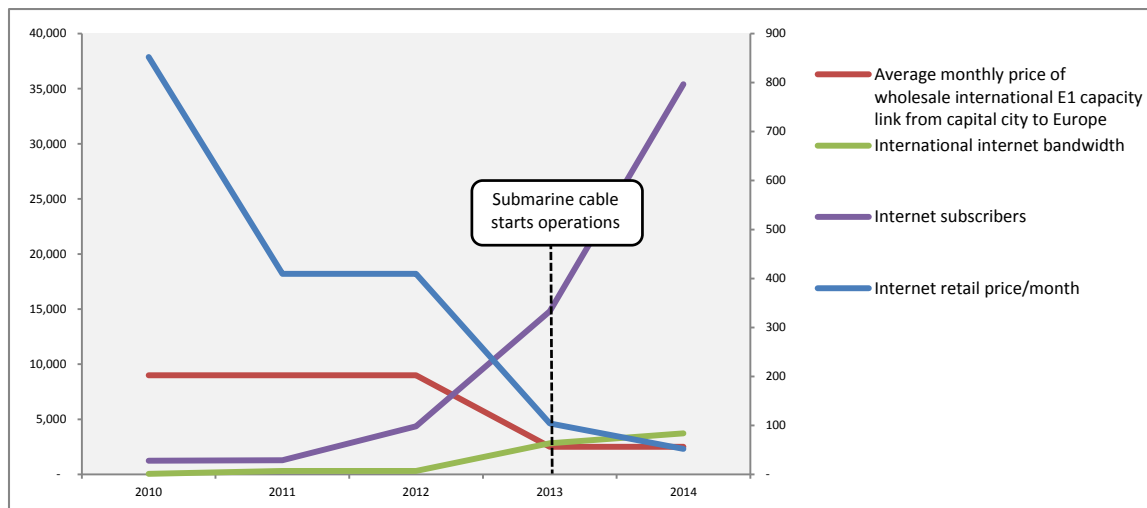


Figure 3. Submarine Cable Impact in STP on Internet prices and bandwidth

60. Today STP has become one of the countries with the highest installed bandwidth capacity per inhabitant (currently a total of 4,500Mbps) and faces a new era of opportunities. This can be directly attributed to the entry of the ACE in operation. Since it was commercially launched in February 2013, results have been increasingly visible: the use of capacity has grown from 50Mb before the cable to 300Mb in June 2013, 456Mb in December 2013, 775Mb in November 2014, to 1,085Mb at the end of the project. The use has so far increased 15 times and it is expected that this can still increase 20 times in the two years after the project. The international internet bandwidth measured as the volume of international traffic per capita has grown remarkably to 4,600 Mbps.

61. Immediately after the entry into service of the submarine cable, Internet access prices, both wholesale and retail, started to fall. Before ACE, STP had to pay an average monthly cost of US\$9,000 for international connectivity. With the arrival of the cable, this wholesale price dropped to US\$2,500, lower than expected. It could be argued that targets were not aggressive enough, they were set based on expected demand (wholesale prices are linked to international traffic) which grew faster than forecasted. Nevertheless, wholesale prices in STP fell 72% after ACE's launch, which can be seen as significant results, especially if compared to other cases such as in the east coast of Africa where, one year after the arrival of the first fiber optic cable, prices fell 89% in Kenya, 64% in Madagascar, or 61% in Rwanda -

this is particularly true when considering that the market size in these countries is much larger than in STP and also that the east coast of Africa benefitted early on from competition in the international market with the arrival of alternative cables²⁴. At the same time, there are other small island examples, like the case of Tonga (with even fewer population than STP and a monopolistic telecom market) that experienced a more consequent drop in wholesale prices of 87% in a similar period – this may be explained by the different characteristics in these countries²⁵ (see international wholesale price benchmark analysis in Annex 5).

62. As for retail costs, ever since ACE's entry, CST commercial offers increased up to 15 times the volume offered at the same price (a connection of 1Mb used to cost 315 Euros per month, currently 15Mb cost 160 Euros per month with unlimited traffic). In order to make services more affordable to the larger population, low consumption packages with cheaper prices are being offered which did not exist before. For example, DSL offer for 25 Euros per month (increasing the traffic included in 50%, from 8GB to 12GB). This trend is expected to continue with much stronger results in terms of affordability for a broader spectrum of the population²⁶.

63. The effective introduction of competition in the telecom market through the licensing of a second operator is likely to have contributed to reduce retail prices, as it provided the incentives for CST to pass on the lower wholesale prices to consumers, even before the arrival of the second carrier. When UNITEL started its commercial activity, its tariff offering for 1GB of 3G mobile data was for 8 Euros a month and 2GB for 12 Euros per month. Just a few weeks after its launch, UNITEL had acquired more than 3,000 customers. Competition has brought a new dynamism and stimulus to the market, which have created unexpected job opportunities. According to information provided by the two operators, around 650 jobs (50 direct, and 600 indirect) have been created in 2014 alone²⁷. Mobile retail tariffs were also reduce by more than 30%, but not as much as initially expected (target ~ 52%)²⁸.

64. In regards to geographical coverage, the initial 56% percent of localities with access to broadband Internet (256Kbps) has increased to reach 100% of the territory. Driven by the arrival of ACE and competition, telecom operators have improved their internal backbone networks to provide connectivity to broadband to all 6 districts and its 23 localities. Additionally, coverage and accessibility of Internet was further improved by the connection of all public secondary schools in the country to the Internet.

65. As a result, Internet penetration in STP has grown remarkably even higher than initially forecasted. While in 2010, only 0.7% of the population had access to Internet services, as of December 2014, 18 per 100 people was subscribed to Internet services, and this trend is forecasted to continue further after CAB2. Moreover, given that the submarine cable became operational on 2013, and competition started in mid-2014 (both later than expected), it may be even too early to measure full

²⁴ The cables TEAMS and SEACOM landed in the East Coast of Africa in June 2009 and July 2009 respectively and the EASSy cable launched commercial service in July 2010. Unfortunately there is no data available for other countries connected to ACE (due to the Ebola crisis in Sierra Leone and Liberia). STP particularities (i.e. prior international connectivity by satellite, small size, lack of submarine cable competition) make it difficult to perform a benchmark analysis for comparison purposes.

²⁵ Despite similarities between Tonga and STP, the difference on price drop may be explained by the fact that Tonga is an upper-middle income country where tourism accounts for 10% of GDP.

²⁶ According to the International Telecommunications Union (ITU), broadband can be considered affordable when it is at or below 5% of the average monthly income. The \$52 monthly cost of Internet represents still a 45% of the average income per capita.

²⁷ Data provided by CST and UNITEL

²⁸ Most of the impact from the connectivity component was on data and international traffic and local cost structures did not change significantly. The impact on mobile prices was linked to the entrance of the second operator, which occurred at the last stage of the project, later than expected – i.e., prices may still continue to come down.

impact of these events. STP's new context of international connectivity is seen as a fundamental contribution to promote attractiveness for international investors²⁹.

66. The introduction of competition helped access to mobile services penetration rates surpass targets: 83% of the population in STP has a cellular phone, a 20% increase since 2010. And mobile cellular prices for voice calls have fallen 31%³⁰ throughout project life. Beyond reductions in prices, especially for Internet, competition has had a clearer effect on the availability and quality of services in STP. Operators expanded and improved dramatically their marketing offerings and commercial network throughout the country. STP citizens no longer need to travel to the capital to acquire neither phone and Internet services, nor equipment (i.e. handsets and routers) as operators have opened new customer stores and sales points in more remote areas (i.e. Trindade, Neves, Principe –see images below).



Figure 4 Sample pictures of CST and UNITEL's new sales points across STP, November 2014

3.3 Efficiency

Rating: Substantial

67. ACE constituted the most cost-effective option for STP to access high-capacity international connectivity and savings in connectivity costs largely tangible. The analysis at appraisal included a comparison of ACE with other alternatives for international connectivity, and concluded that ACE represented the preferred option for STP given its associated long term cost savings and higher bandwidth. (See also ACE long term cost savings and higher bandwidth compared to other options in Annex 3).

68. CAB2 investment in ACE has proved to have a significant rate of return. Based on the financial model developed at appraisal of ACE in STP market, the estimated Internal Return Rate (IRR) was 19%. A re-estimated IRR rate, updated with latest data available data and with a review of original projections results in a 19% (see Financial Analysis at Annex 3). This rate as highly consistent with initial IRR rate calculated indicates a faithful estimation at appraisal.

69. Further, the project with IDA support leveraged private funds, not only the US\$12 million from CST, but also the fees collected from the second operator. While the financial analysis looked at revenues from both CST and an expected second operator in the STP market, it did not include the full effect of UNITEL's investment, as at the time the conditions for introduction of the second operator were still uncertain. The award of the second license to UNITEL and its purchase of GoSTP STP-Cabo's shares resulted in US\$8 million paid into the STP's Treasury account.

70. Price reductions in Internet services have also originated significant consumer savings. Internet subscribers have benefited from a drop in the monthly rates per Mbps paid to service providers (see discussion on consumer savings in Annex 3). If assuming that the full extent of retail price reduction is attributable to the project, it could be argued the cumulative consumer savings along the four years of

²⁹ According to IMF's report, STP's GDP current estimated growth of 4.5% is considered to be buoyed by higher foreign direct investment.

³⁰ Measured as the cost for a 3 minute call during peak hours.

project for the entire subscription base for 1Mbps are estimated close to US\$88 million (US\$67 since ACE's).

71. ACE's return rate calculations in the PAD were purely financial and did not consider an Economic Return Rate (ERR). The impact of the incremental consumer surplus associated with ACE's expected effect on price reductions was not quantified in the PAD. If added to the financial return rates (including UNITEL's investment cash flow), the estimated ERRs is 73%.

72. There were no cost overruns in this project, but rather savings, and the project has generated a payment of US\$8million for government through the sale of STP-Cabo shares and the second license. For the small part of the project subject to procurement, AFAP optimized the use of resources, succeeding in getting good value for the price of the contracts, during the procurement process and implementation of activities.

3.4 Justification of Overall Outcome Rating

Rating: Highly Satisfactory

73. Based on the above-mentioned factors, the overall outcome rating is highly satisfactory. Connecting the country for the first time ever to reliable and affordable international connectivity, bringing competition and private sector participation in the telecommunication sector, updating the legal framework, and strengthening the regulatory authorities, was a highly relevant and successful combination of activities, especially when considering STP's previous insularity and isolation and Africa's potential to benefit from extended use of ICTs. The project contributed to substantial and sustainable changes in the telecommunication sector, and the PDO indicators were largely surpassed:

- a) Overall volume of international internet bandwidth measured as bit per second per person grew from 51 in 2010 to 4,624 in 2014, largely surpassing the 500 set target.
- b) Access to Internet services, grew up to 18 subscribers per 100 people, largely exceeding the 1.8% target. Access to cellular phones, met its target of 75 per 100 people.
- c) Access to telephone services (fixed mainlines plus cellular phones per 100 people) increased from 67% in 2010 to 79% in 2014, 3 p.p. above the pursued target.
- d) Average monthly price of wholesale international E1 capacity link dropped from US\$9,000 in 2010 to US\$2,500, far below the US\$6,000 target set at appraisal.
- e) Number of project direct beneficiaries stood up close to 140,000 while the target was set at 134,300 from 113,900 in 2010, out of which 50.5% constitute female beneficiaries.

3.5 Overarching Themes, Other Outcomes and Impacts

(a) Poverty Impacts, Gender Aspects, and Social Development

74. CAB2 can further help STP address larger development challenges. STP can now start pursuing outputs to improve economic growth, jobs, transparency, accountability, and social inclusion, which in turn impact poverty reduction and sustainable development. STP can also harness benefits from ICTs in terms of productivity throughout the economy since it also raises efficiency across sectors³¹ to ultimately reduce poverty.

75. The improvements in ICT sector in STP can allow Sao Tome's women (and men) to access markets in growing numbers by lowering the transaction costs associated with market work. Because time

³¹ See i2010 (2006). But other complementary measures, such as firm organizational measures, may be needed to take full advantage of the productivity enhancement potential of ICT (European Commission 2010).

and mobility constraints are more severe for women than men, women stand to benefit even more from these improvements.

(b) Institutional Change/Strengthening

76. From an institutional standpoint, an important long-term impact of the project is the capacity built in the multi-sector regulator. The project's real-time and hands-on training provided to AGER in preparation for unprecedented telecom market in the country has strengthened its capabilities to regulate and monitor STP's Telecom sector. The multi-sector regulator with no previous experience in handling a competitive telecom sector with a submarine cable installed, learnt about economic cost model calculations, regulations for open-access-based infrastructure, and establishment of interconnection tariffs between different operators. Moreover, unintended positive externalities may arise from the knowledge transfer that AGER could apply to the other sectors under its mandate to oversee (e.g. Energy and Water).

77. AFAP has further strengthened its experience in WB fiduciary procedures, but also in managing successfully sophisticated tenders to procure technology. This will be particularly useful as the unit sets out to implement STP Quality Education for All Project approved in December 2013 and which foresees similar tenders for procuring internet connectivity for primary schools.

(c) Other Unintended Outcomes and Impacts (positive or negative)

78. The project had two unintended positive impacts through the preparation of the above-mentioned options study for connecting Príncipe Island, and the connection of all public secondary schools to high-speed Internet. Bringing Internet to secondary schools has the potential to have a high transformational impact, and for example contribute to bridge the existing gap in skills development.

3.6 Summary of Findings of Beneficiary Survey and/or Stakeholder Workshops

Not applicable.

4. Assessment of Risk to Development Outcome

Rating: *Low*

79. The arrival of the ACE cable and market competition are here to stay. These reforms will very unlikely be reversed, and the changes introduced by the project are structural, and its impact is expected to intensify with time. The open access principles embedded in the STP-Cabo structural documents guarantee that future additional telecom operators access cable capacity.

80. Over recent years, STP has been characterized by several changes in government, but this has proven to pose limited threat to the achievement of the project development objectives. Even if some approvals of legal documents prepared through the project are outstanding, there seems to be general agreement and ownership of these texts by the various institutions involved. It is therefore hoped that the texts will be approved without major delays.

81. The lack of reliable energy supply may pose a risk to the well-functioning use of ICTs. A Bank-financed energy project is currently being prepared which may address some of these risks.

5. Assessment of Bank and Borrower Performance

5.1 Bank Performance

(a) Bank Performance in Ensuring Quality at Entry

Rating: Satisfactory

82. According to the Borrower and other stakeholders, and as evidenced by the project milestones, the Bank team was able to provide a very timely and quick response to the government and to approve a larger than normal and complex PPA in record timing. This allowed the country not to miss the opportunity to be part of ACE submarine cable. This required developing innovative solutions under very stringent time constraints, and a close collaboration between several Bank departments, both at technical and regional management level.

83. Bank facilitation with the ACE consortium at the regional level and on behalf of the several countries involved also helped remove certain roadblocks and clear the way for negotiations at the national level. The Bank's value added also came from helping to put together a PPP-based management arrangement, support for ICT sector policy, legal and regulatory reforms. The significant support provided to GoSTP allowed negotiations to converge in a relatively timely way, allowing project effectiveness and disbursements to resume without jeopardizing the country's financial obligations towards the ACE consortium.

84. Project design at entry proved to be appropriate and successful; the project achieved its development objective without the need to go through any major restructurings. The TA put in place for project design, envisioning the outsourcing the infrastructure development to a private consortium with an open access enabling environment and the introduction of competition, made project design prevail throughout its implementation and ensured the project success and sustainability.

85. Overall, submarine cable projects imply complexity at technical and financial levels. In this case, given the country's weak technical capacity, designing the project as a PPP where most of the work was in practice outsourced to the international consortium greatly simplified project implementation and allowed for timely implementation and quick disbursing.

(b) Quality of Supervision

Rating: Satisfactory

86. The Bank team ensured very close supervision of the project, both during and between missions. Frequency of supervision (on average two formal supervision missions per year, and TTL presence in the field in key milestones of the project) was adequate as it was complemented by intensive support provided from a distance. Issues and opportunities were identified in a timely manner, and the Bank and the government teams' worked seamlessly to address these. Progress of project implementation, and discussions with government were documented through comprehensive and high quality aide memoires. ISRs were filed on time, and included relevant information, but timely updating of M&E could have been improved. An analysis of project documentation shows that the WB team responded adequately to project demands. It did so by demonstrating adaptability, consulting project stakeholders for identifying evolving priorities.

(c) Justification of Rating for Overall Bank Performance

Rating: Satisfactory

87. The services provided by the Bank ensured quality at entry of the operation and supported effective implementation through appropriate supervision, with clear and outstanding results.

5.2 Borrower Performance

(a) Government Performance

Rating: Satisfactory

88. The GoSTP was quick to identify the ACE unique opportunity and its relevance for the country, and immediately reached out to the Bank to seek assistance. Throughout the most important phases of project (namely negotiations and the launch of the second operator) government was generally very quick to react and showed ability to take decisions under difficult conditions, supported by the TA provided through the project.

89. During implementation and despite low technical capacity in certain areas (technical and PPP), Government support and commitment continued. Successive governments and Presidents from various political quarters showed commitment and full support to the project, however in later years of implementation there were some delays in approval of documents prepared through the project.

90. Specific government agencies, such as AGER and INIC, played an important role. AGER demonstrated leadership in implementation and provided sound technical inputs to government, although sometimes with delays. It participated in negotiations regarding the setup of STP-Cabo and was the main counterpart for all the legal and regulatory reform work. AGER was cooperative and demonstrated willingness to bring the project to fruition, contributing to the discussions when needed. INIC made substantial contribution in the latter part of the project.

(b) Implementing Agency or Agencies Performance

Rating: Satisfactory

91. AFAP was responsible for project coordination and implementation, including Procurement, Financial Management, M&E, Communications and Environmental Support. AFAP managed the project in an efficient and proactive manner, ensuring that the various project and government stakeholders were involved and informed as appropriate. Despite some delays, especially in the second half of the project, project implementation advanced at a steady pace and objectives were met.

92. Before CAB2, AFAP was already managing other Bank operations in different sectors (education and health) in a satisfactory manner. CAB2, however, was quite a different project of sophisticated technical nature. AFAP demonstrated flexibility in adapting to this new technical domain (telecom infrastructure and regulation) supported by technical expertise when needed. Due to low technical capabilities, AFAP often relied on the WB's team advice. There were a few occasions where project activities suffered minor delays in finalizing bidding documents and launching tenders.

93. AFAP ensured compliance on safeguards and fiduciary aspects in a satisfactory manner. All project covenants were complied with. Overall, reports and audits were submitted in a timely and efficient fashion. AFAP remained adequately staffed along the project life with experienced financial and procurement managers as well as an accountant. AFAP's good understanding of project relevance and its focus on the achievement of outcomes contributed to ensure solid project results.

(c) Justification of Rating for Overall Borrower Performance

Rating: Satisfactory

94. In light of the above, the overall performance of the borrower is rated satisfactory. The technical and complex nature of the project and the corresponding low capacity of the client in this regard were known in advance, and were mitigated by a more intensive supervision by the Bank. In the end, however, this had limited impact on the project successful implementation and outcomes.

6. Lessons Learned

95. A number of lessons emerge from the project implementation experience, being the following most relevant:

- a) The WB is well positioned to facilitate the financing and implementation of regional projects, in particular when it receives financing requests from several countries involved in that given project – in the absence of a regional instrument supporting individual countries may not even be feasible; in addition, the Bank’s negotiating strength on behalf of these countries is stronger, and transaction costs within the institution for any given country can be reduced³²;
- b) Developing infrastructure through PPPs helps empowering the private sector (who has the technical expertise) while government can retain a strong governance role. In complex and highly technical infrastructure deployments (like the case of a submarine cable), the private sector has better technical expertise and is better positioned to organize and roll out infrastructure investments. It is easier to work out PPP arrangements when initial infrastructure investment plans come from the private players. It may be easier to propose and implement PPP schemes when the sector is already working under private sector arrangements (i.e. in this case CST was already 51% privately-owned). While private sector can generally provide the bulk of the financing for the deployment of regional communications, public sector retains a key role to bridge the financing gap and especially to ensure that the enabling environment for open access to infrastructure is in place;
- c) The Bank may want to consider expanding the use of models where items are considered as non-procurable (as was the case for 88% of this project, which has certainly contributed to the project success): In investment projects where private sector consortium models intervene, if a comprehensive analysis is carried out to ascertain the principles of efficiency and transparency, accepting industry-specific procurement processes and practices as valid may greatly accelerate project implementation, while still ensuring efficiency and transparency principles;
- d) In ICT projects focused on the development of the infrastructure supply-side, it is beneficial to incorporate demand-side development components as well, like for instance connecting schools to the Internet as was the case of CAB2 project, or hospitals, and other government sites. In order to enhance adoption of installed connectivity capacity it is useful to envisage actions to stimulate demand so that the effects of improved connectivity reaches the local population faster.

96. Another lessons learnt include:

- a) When the implementation capacity of the borrower is limited, more effort/resources are needed to provide strong technical assistance and closer supervision. In small countries with limited project implementation experience, the selection of an existing PIU may prove to be a good decision, but capacity may need to be strengthened in particular areas where specific technical expertise is needed to ensure successful project implementation;
- b) In the context of low capacity, it is preferable to keep project design simple, with few components and contracts. This can improve the chances of achieving the development objectives. A phased implementation, focusing on one component at once, can also help. The general recommendation is to begin implementation with policy framework, and market liberalization activities before embarking on PPPs for investment in connectivity infrastructure. However, when intrinsic conditions limit market attractiveness, sequencing activities reversely can contribute to successfully introduce competition (so that the availability of infrastructure enhances attractiveness of the sector). In such cases, the setup of the PPP vehicle instruments following open access principles for future players becomes essential;
- c) When a country experiences frequent changes of government, it is extremely important to be prepared to brief the incoming government and reconfirm government’s priorities;

³² The relationship with the ACE consortium was very fluid and positive, and the Bank was able to obtain flexibility for the group of countries it was financing.

- d) When considering the development of a program to distribute computer devices for educational purposes, it is important to develop a comprehensive program beyond just the procurement of equipment, and including teachers training, digital content, sustainability models and distribution channels.

7. Comments on Issues Raised by Borrower/Implementing Agencies

97. The borrower's comments on the draft version of this ICR are included in Annex 6 and translated below:

“The support that our country had from the World Bank, focused in the design and implementation of a strategic project had an undeniable and significant impact in the area of Telecommunications and Information and Communication Technologies. We are pleased with the extremely positive results which were obtained by the project. Government is extremely pleased for having been able to operationalize the objectives that had been set and implement all of the activities which were foreseen.

We would also like to stress that the World Bank support, both from an institutional point of view and with regards to the various teams involved in implementation was not only fundamental, but also of a high level of professionalism, quality and efficacy. This has allowed the country to disburse 105% of the project original amount, by the original closing date, as well as, and most of all, create many synergies by making the most of the financial resources that were made available to us.

For everything that translated into a successful implementation of the project, we take this opportunity to express our recognition and sincerely thank all those who have contributed directly and indirectly for the project's success. Kindly convey to all the relevant bodies in the World Bank and particularly to the Board all our appreciation and consideration.”

98. The ICR prepared by the borrower is also included in Annex 7.

Annex 1. Project Costs and Financing

(a) Project Cost by Component (in USD Million equivalent)

| Components | Appraisal Estimate (USD millions) | Actual/Latest Estimate (USD millions) | Percentage of Appraisal |
|--|--------------------------------------|---|----------------------------|
| Component 1 – Enabling Environment | 1.15 | 1.42 | 101% |
| 1.1 ICT strategic Plan | 0.05 | 0.05 | 103% |
| 1.2 Technical assistance and capacity building for legal and regulatory reform | 0.25 | 0.56 | 225% |
| 1.3 Tendering of a second global license | 0.35 | 0.38 | 109% |
| 1.4 Technical Assistance for PPP arrangements | 0.40 | 0.19 | 48% |
| 1.5 Environmental studies + M&E | 0.10 | 0.18 | 184% |
| Other Consultancies ³³ | 0 | 0.05 | 184% |
| Component 2 – Connectivity | 13.25 | 13.10 | 99% |
| 2.1 Participation in ADE consortium | 13.10 | 13.10 | 100% |
| 2.2 Establishment of IXP | 0.15 | - | 0% |
| Internet Access - Educational Institutions | 0 | 0.27 | |
| Component 3 – Project Management | 0.5 | 0.55 | 110% |
| 3.1 Project coordinator, other staff (shared by PASS), audits, etc. | 0.5 | 0.55 | 110% |
| Total Baseline Cost | 14.9 | 15.06 | 101% |
| Physical Contingencies | 0.00 | 0.00 | 0.00 |
| Price Contingencies | 0.00 | 0.00 | 0.00 |
| Total Project Costs | 14.9 | 15.06 | 101% |
| Front-end fee PPF | 0.00 | 0.00 | .00 |
| Front-end fee IBRD | 0.00 | 0.00 | .00 |
| Total Financing Required | 14.9 | 15.06 | |

Note:

Figures based on PCU accounting records. Several of the figures are above 100% because the project experienced a net gain in exchange rate between the SDR and the US\$ throughout its implementation. Due to constant changes on exchange rates along project cycle, amounts differ as the exchange rate from XDR to USD as of project closing date differs from the rates used when paid each of the WA. The final disbursed amount in USD equivalent for the project is USD 15,425,665.61.

³³ Study of options for Island of Principe Connection.

(b) Financing

| Source of Funds | Type of Cofinancing | Appraisal Estimate (USD millions) | Actual/Latest Estimate (USD millions) | Percentage of Appraisal |
|-----------------|---------------------|--------------------------------------|--|-------------------------|
| Borrower | | 0.00 | 0.00 | .00 |
| IDA Grant | | 14.90 | 15.06 | 101% |

(c) Reallocation of funds

| Category of Expenditure | Allocation | | % of Financing | | |
|--|------------|------------------|------------------|---------|----|
| | Revised | Current | Current | Revised | |
| Current | | | | | |
| (1) Goods, works, consultants' services and Operational Costs for the Project | - | 725,000 | 1,243,503.03 | 7 | 13 |
| (2) Consortium Fee under Part 2.1 of the Project | - | 5,315,000 | 5,147,903.03 | 54 | 53 |
| (3) Refund of Preparation Advance No. Q 715-STP and of Preparation Advance No. Q 725-STP | - | 3,760,000 | 3,408,593.94 | 38 | 35 |
| | | 9,800,000 | 9,800,000 | | |

Annex 2. Outputs by Component

The project has delivered most of the expected outputs, being the most significant Component 2 – Connectivity. All the consultancies under the enabling environment component were successfully delivered and its outputs attained. The only exception is the setup of the IXP, as already discussed above

The following table includes the activities carried out during the project per component linked to the outputs attained:

| Component | Activities | Outputs |
|---|--|---|
| Component 1 – Enabling Environment | | |
| Technical assistance for legal and regulatory reform, to develop public private partnership (PPP) arrangements for the infrastructure to be developed and to launch a second mobile telecommunications operator, environmental studies and M&E support; | Technical Assistance provided to modernize and harmonize legal and regulatory framework the ICT Sector | Bill for the Modification to the Telecom Base Law - It aimed at reflecting the new reality in the Telecom sector, namely the regulation for infrastructure open access principle. In mid-2140 the GoSTP approved the bill, but pending the publications of the bill (see also comment on interconnection decree below) |
| | Tendering of a second global license | In May 2013 the second license was awarded to UNITEL International Holding BV and on July 2014 UNITEL launched their commercial activities meaning the arrival of competition in the Telecom sector for first time in the country. |
| | Technical assistance to perform technical and financial annual audits of the ACE SPV | In April 2014, prior the effective entrance of UNITEL in STP-Cabo SPV, a technical audit was performed to ensure smooth transition from GoSTP participation to UNITEL. It was decided that technical assistance for financial audit was not needed. |
| | Technical Assistance to improve access to ICT service in rural areas and to structure PPP investments | Three projects were structured: <ul style="list-style-type: none"> • Internet connection to Secondary Schools: On July 2014 a tender was launched that resulted in a contract awarded to CST on August 2014. By the end of the project all 27 secondary schools were connected to Internet with Wi-Fi technology. The implementation of this contract project was funded with CAB2 project proceeds. • Telecenters: On October 2014, the tender documents for establish 4 telecenters in underserved areas were delivered to the GoSTP. |

| | | |
|-----------------------------------|--|--|
| | | <ul style="list-style-type: none"> • ICT devices for Secondary Schools: On October 2014, the design and bidding documents for the provision of low cost tablet devices to secondary students and teachers was also delivered to the GoSTP. <p>The implementation of the two latter projects is subject to Government approval of the use of its own funds received from the introduction of UNITEL.</p> |
| | ICT Strategy Plan | <p>The ICT Sector Strategy which provides a comprehensive framework to continue promoting ICTs across the country. It established for first time objectives, roles, responsibilities, monitoring measures, etc. to harness the best potential of ICTs in STP.</p> <p>In 2012 an ICT Strategy was prepared after consultations with various sector stakeholders. At the end of 2014 the GoSTP approved the ICT Strategy, but its adoption it's pending.</p> |
| | Technical assistance provided to AGER for the establishment of interconnection tariffs between different operators | <p>On July 2014, interconnection tariffs were established through an agreement between CST and UNITEL allowing mobile subscribers to call regardless operator.</p> <p>Interconnection Decree – On September 2014, the GoSTP published the Interconnection Decree which set the legal basis for interconnection given the arrival of competition in the Telecom sector.</p> |
| | Technical assistance carried out to build capacity within AGER to develop economic cost model calculations | |
| | Technical assistance provided to AGER to update Universal Service Fund legal foundations | <p>In October 2014, an updated Universal Service Fund proposal was prepared and delivered. Its implementation depends on the approval of the modifications to Telecom law bill, which is still outstanding and is expected for 2015</p> |
| | Environmental studies and Monitoring and Evaluation | <p>Studies were duly completed and STP cable landing station installation was done in compliance with safeguards regulation. All compensations that were due were calculated and successfully paid to the affected people.</p> |
| Component 2 – Connectivity | | |

| | | |
|---|---|--|
| <p>Financing for STP's contribution (consortium fee) for participating in the Africa Coast to Europe (ACE) cable on an open access basis and on the basis of PPPs, leveraging private sector investment and associated investments such as the setup of an IXP;</p> | <p>Participation in ACE consortium (consortium fee)</p> | <p>The negotiations between CST/Portugal Telecom and the GoSTP concluded with the physical arrival of ACE Submarine Cable in November 2011. The works for Cable Landing Station in São Gabriel were concluded in May 2012. In February 2013, ACE Submarine Cable became commercially effective in STP. In May 2013, the GoSTP fully divested in STP-Cabo SPV, transferring its shares to UNITEL and keeping a golden share to ensure the country's interests are protected (such as guaranteeing the continued application of open access principles).</p> |
| | <p>* During MTR it was decided that the implementation of the Internet Exchange Points (IXP), was no longer a priority given that there were not many websites hosted in STP the impact of an IXP would be limited.</p> | |
| <p>Component 3 – Project Management</p> | | |
| <p>Support to finance management related issues at the Project level, such as human resources support with management, procurement, financial management, M&E, internal and external audit, and communications expertise, operating expenses and equipment.</p> | <p>Technical Assistance in journalism for the mid-term evaluation of the project</p> | <p>A video report was produced to capture project results at MTR.</p> |
| | <p>Technical Assistance in monitoring and evaluation for the mid-term evaluation of the project</p> | <p>A report was prepared to summarize project results at MTR.</p> |
| | <p>Technical Assistance to Elaborate the ICR</p> | <p>A consultant prepared a first version of the Government's ICR draft.</p> |
| | <p>PIU's training and capacity building</p> | <p>Advanced Procurement Training: In June 2014 two staff members from AFAP received one-week training in World Bank procurement guidelines. English language training program: To build language capacity within AFAP, thanks to project savings at the end of the project an English training program was conducted, including English lessons to all AFAP staff, and an intensive three-week course in England for AFAP coordinator.</p> |
| | <p>Project coordination and operational activities</p> | <p>AFAP remained adequately staffed along project cycle, and provided a satisfactory implementation of all project activities, including financial and procurement management, and accounting in compliance with WB guidelines.</p> |

| <i>Additional Consultancy</i> | | |
|--------------------------------------|---|--|
| Connection to the Island of Principe | Study of options to improve connectivity of Principe Island | An assessment of options to improve Principe's connectivity was carried out. This resulted in, the two operators upgrading their microwave links to Principe to better serve the population in that island. It also identified scenarios for extending the submarine cable to Principe. This has resulted in high level contacts with the government of Equatorial Guinea with the objective of possibly developing a joint investment. These discussions are still ongoing. |

Annex 3. Economic and Financial Analysis

1. ACE Long Term Cost Savings and Higher Bandwidth Compared to other Options.

At appraisal the project documentation included a comparison of ACE with other alternatives for international connectivity, and concluded that ACE represented the preferred option for STP given its associated long term cost savings and higher bandwidth. Although the levels of service between the various options vary to some degree, options were compared upon the cost per Mbps/month (cost of termination/transit to the global backbones), and the chart below illustrates analysis of options conducted at appraisal³⁴.

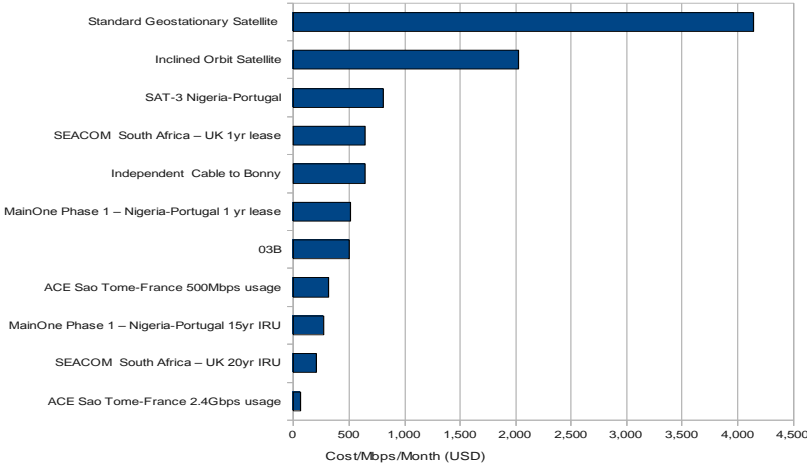


Figure 6. STP International Connectivity Options - Bandwidth Comparison Chart

The analysis indicated that the preferred option to improving international connectivity in STP was a submarine fiber link (in preference to any of the satellite solutions) due to both long term cost and the higher performance (low latency) offered by fiber connections. The benefits of cable over satellite were expected to grow as demand for international connectivity in STP continued to grow. The option to use funds to subsidize the high cost of satellite links over a long period was found to be not cost effective, as much more funds would have been required just over the following 8 years, than would have been needed to build the fiber link.

Amongst the fiber options, although ACE had the highest up-front-costs (the 20-year pre-paid subscription fee), ACE was recommended due to its long-term low cost. This is mainly because no intermediary links needed to be purchased and the traffic lands directly in Europe where global transit fees are highly competitive. In addition, the investment costs made up-front in the consortium model implied cost savings which would not have been available through the third party supplier model adopted in other alternatives.

The table below summarizes the details of the technical options analyzed at appraisal. A comparison is done first between generic satellite and fiber features. The figures shown in the table for satellite bandwidth required are based on CST's initial estimates of demand. The fiber bandwidth figure for the independent cable is the total that would be available for the fixed price of the investment in the cable project, rather than being a reflection of demand.

³⁴ Prices for some links that do not include Sao Tome are shown for illustrative purposes and inform the discussion around the possibility of an independent link.

| | Variant 1a: Geostationary satellite | Variant 1b: Inclined orbit satellite | Variant 1c: 03B | ACE Submarine Cable Consortium | MainOne Cable Phase 2 | Independent Cable to Bonny, Nigeria |
|------------------------------------|---|--|---|--|---|---|
| Start Date | Mid 2010 | Mid 2010 | Q3 2012 | Mid to Late 2012 | 2012 | Could be 2011 |
| Bandwidth Cost (Mbps/month) | \$4,000 | \$2,000 | \$1500 (up to 155Mbps symmetric) \$1000 after | \$60-500 | \$250-\$300 | \$650 |
| Advantages | Many options in case of satellite or equipment failure | Price per Mbps 50% lower than Option 1a | Lowest bandwidth cost for the satellite options; Higher quality bandwidth (lower latency than geo-satellites) | Single point of purchase, low local management overhead. Consortium is already in place and the project is about to close; Includes onward connectivity to Europe. | Single point of purchase, simpler management. The project is already in place and the project is about to close. Includes onward connectivity to Europe. Decision not required immediately. No need to pre-purchase so much unused bandwidth. | Choice of upstream services, greater reliability, ultimately more b/w available. Lower CAPEX and OPEX. Decision not required immediately |
| Dis-advantages | Price per Mbps much higher than for Option 1b | O&M more expensive than Option 1a More limited options for timely restoration | Not quite fiber speeds/costs; Need to wait to 2012 while other satellite options can be implemented immediately | Highest CAPEX investment required. Immediate decision required. | No investment CAPEX required, other than as pre-project IRU purchase. Likely higher cost /Mbps than ACE | Need for independent management, planning and maintenance; Need to purchase upstream bandwidth from landing station(s). Higher cost /Mbps |
| Risks | Very low chance that satellite bandwidth is unavailable | Small risk of service being discontinued (satellite fails) | Small risk of project failure | Small risk of project failure | Small risk of Phase 2 project failure | Unexpected cost escalation due to sea-floor or approach anomalies |
| Investment required/ CAPEX | \$292K | \$585K | \$250K | \$25m | None | \$15m |
| Capacity | 205Mbps | 390Mbps | up to 800Mbps/transponder | up to 5Gbps | As much as needed | 40-80Gbps |
| Annual Opex | \$0.3-3.5K | \$1.3-3.8K | None (supplier provided) | \$655K (3.5% CAPEX) | 4.5% of IRU value, built into b/w cost above | \$339K (3.5% CAPEX) |
| NPV | -\$4.94 | -\$3.51m | | -\$5.33m | | |

2. Financial model calculation.

The financial model used at time of appraisal, among other things, estimated costs and demand for broadband connectivity in STP over the life of the ACE cable, by simulating the broadband / Internet access businesses of the incumbent CST and providing high level estimates of potential capacity usage by the second operator. Particularly, IRR focused on four assumptions:

(i) required capital investment of US\$25 million over two years; (ii) weighted average capacity of 5,500 Mbps; (iii) operating and maintenance expenses of US\$439,000 annually over 10 years; and (iv) increases in Internet penetration rates.

Initial forecast for Internet penetration rates (which constituted the basis for Internet revenues in the financial model) assumed an extremely low level of Internet uptake: a 10% increase from 2010 to 2021; however, as of December 2014 Internet penetration was 18%.

In 2010, STP’s Internet penetration rate was below the average for African countries, but in contrast Internet usage was higher for STP than the average for Africa. This was assumed as an indication of potential subscribers in STP who could be aware of the benefits of the Internet and might pay for Internet access if prices were more affordable. Also, appraisal projections considered Africa’s recent evidences in broadband demand elasticity³⁵, the high costs (relative to income levels) and the relatively slow speeds available before ACE in STP.

Despite the above considerations, penetration forecasts substantially underestimated pent-up demand, particularly if considering (i) the expected improvement with ACE in bandwidth and price (a factor affecting demand elasticity); and (ii) the trends worldwide in broadband adoption levels (especially encouraged by the explosion of mobile broadband 3G³⁶). Internet rates were especially underestimated towards the end of the analysis period (1.8% in 2021), by which date it is expected that almost every mobile phone user would have access to broadband on their handset.

At preparation, the model was used to assess many different scenarios, based on a wide range of assumptions, not simply the assumptions showing now. These included for example:

- Allocation of ACE capacity to CST vs. new operator, depending on timing and success of the second operator
- Annual O&M (based on ACE fixed 3%)
- Pricing
- WACC of 12%
- Perpetual growth rate of 2.0%

The financial model has been reviewed by updating the estimated figures at the time of preparations, with real data (2009-2013), and with a re-estimation of forecasted figures from 2014 and onwards based on latest data available. The following table summarizes the datasets updated for the purposes of financial model review:

| Item | Dataset | Source |
|-----------------------------|------------------------------|---------------------------|
| Internet Revenues | Penetration rates | CST and UNITEL |
| | Population | World Economic Indicators |
| | Fixed Internet ARPU | CST |
| | Fixed Mobile ARPU | CST |
| STP-Cabo Operating Expenses | ACE Operating & Maintenance | CST (STP-Cabo) |
| | STP-Cabo other running costs | CST (STP-Cabo) |
| | Amortization ACE payments | CST (STP-Cabo) |

Financial Analysis (without UNITEL’s investment)

(Figures in US\$)

| IRR | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|-----|------|------|------|------|------|------|------|------|------|------|------|------|
|-----|------|------|------|------|------|------|------|------|------|------|------|------|

³⁵ Broadband demand is very sensitive to changes in price, and even relatively small reductions in price can generate substantial increases in demand and penetration.

³⁶ 3G data service uptake from the consumer has been massive and unprecedented in other developing countries such as Kenya

| | | | | | | | | | | | | |
|-----------------------|-------------|--------------|-------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------------|
| CST Internet Revenues | - | - | - | 1,956,188 | 2,374,528 | 3,153,500 | 4,217,362 | 4,800,333 | 5,411,598 | 6,046,586 | 6,701,384 | 7,372,702 |
| Other Revenue | - | - | - | 1,480,403 | 1,934,675 | 3,077,460 | 3,696,375 | 4,356,206 | 4,861,057 | 5,429,729 | 5,962,150 | 6,545,654 |
| ACE Opex | - | - | - | 1,988,054 | 1,784,913 | 1,836,456 | 1,834,640 | 1,832,825 | 1,831,013 | 1,829,202 | 1,827,393 | 1,825,585 |
| ACE payments | 7,500,000 | 16,250,000 | 1,250,000 | - | - | - | - | - | - | - | - | - |
| Terminal Value | - | - | - | - | - | - | - | - | - | - | - | 38,907,029 |
| Net Cash Flow | (7,500,000) | (16,250,000) | (1,250,000) | 1,448,537 | 2,524,291 | 4,394,503 | 6,079,096 | 7,323,714 | 8,441,642 | 9,647,113 | 10,836,141 | 50,999,800 |

IRR **19%**

Financial Analysis (with UNITEL's investment)

While the financial analysis looked at revenues from both CST and an expected second operator in the STP market, it did not include the effect of the UNITEL's investment, as at the time the conditions and timeline for introduction of the second operator were still uncertain. The award in 2013 of the second license to UNITEL Holding and its purchase of GoSTP STP-Cabo's shares resulted in US\$8 million paid into the STP's Treasury account. Taking this into account, the financial IRR resulting from STP investment into ACE consortium rises to 22%.

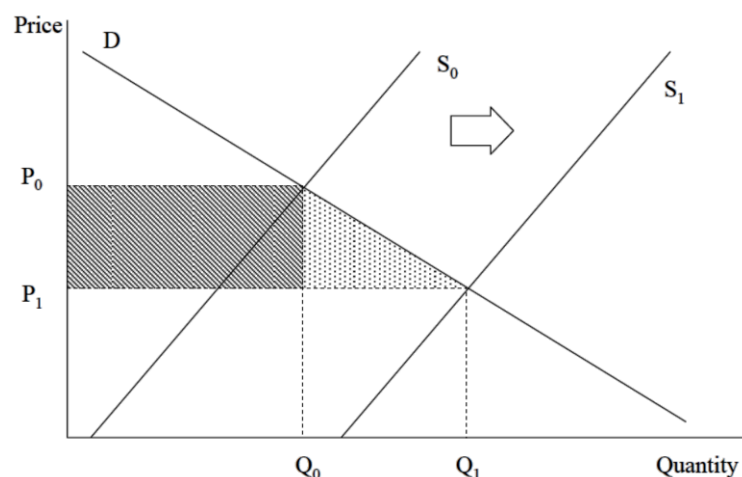
(Figures in US\$)

| IRR | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|----------------------------|-------------|--------------|-------------|------------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|--------------|
| CST Internet Revenues | - | - | - | 1,956,188 | 2,374,528 | 3,153,500 | 4,217,362 | 4,800,333 | 5,411,598 | 6,046,586 | 6,701,384 | 7,372,702 |
| Other Revenue | - | - | - | 1,480,403 | 1,934,675 | 3,077,460 | 3,696,375 | 4,356,206 | 4,861,057 | 5,429,729 | 5,962,150 | 6,545,654 |
| ACE Opex | - | - | - | 1,988,054 | 1,784,913 | 1,836,456 | 1,834,640 | 1,832,825 | 1,831,013 | 1,829,202 | 1,827,393 | 1,825,585 |
| ACE payments | 7,500,000 | 16,250,000 | 1,250,000 | - | - | - | - | - | - | - | - | - |
| Terminal Value | - | - | - | - | - | - | - | - | - | - | - | 38,907,029 |
| UNITEL's Investment | | | | 8,000,000 | | | | | | | | |
| Net Cash Flow | (7,500,000) | (16,250,000) | (1,250,000) | \$9,448,537 | \$2,524,291 | \$4,394,503 | \$6,079,096 | \$7,323,714 | \$8,441,642 | \$9,647,113 | \$10,836,141 | \$50,999,800 |

IRR **22%**

3. Consumer surplus calculation for 2010-2014

For consumer surplus calculations, it has been assumed that the segment of demand relevant to this analysis is assumed to be linear. Basically, the calculation of consumer surplus can be shown in the following graph:



When supply shifted from S_0 to S_1 with the arrival of the submarine cable, price dropped and quantity increased. The area shown in dark grey represents transfers from operators or suppliers to consumers, whereas the light grey area represents actual gains in consumer surplus created with the increase subscriber's base.

It could be argued that what happened in the market was a combination of shifts in demand and supply. However, it can be demonstrated that had a shift in demand occurred, it would increase welfare.

If we take weighted price of Internet services per Mbps, and quantity to be the total number of subscribers to Internet services, then the following table can be calculated:

Figures in USD

| | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---------|-----------|------------|--------------|-------------------|
| Weighted Internet retail price for 1 Mbps subscription (monthly) | 852 | 410 | 410 | 104 | 52 |
| Weighted Internet retail price for 1 Mbps subscription (annually) | 10,224 | 4,914 | 4,914 | 1,248 | 624 |
| Total Population | 178,228 | 183,177 | 188,098 | 192,993 | 197,781 |
| Penetration rate (Internet subscribers per 100 people) | 0.70% | 0.70% | 2.32% | 7.67% | 17.90% |
| Total subscribers | 1,248 | 1,282 | 4,364 | 14,809 | 35,403 |
| Increment number of subscribers | | 35 | 3,082 | 10,445 | 20,594 |
| New Consumer Surplus (linear) | | | 7,571,887 | 6,517,680 | 6,425,287 |
| Transfer from suppliers | | 6,624,735 | 6,624,735 | 22,623,159 | 31,863,975 |
| Total consumer surplus | | 6,624,734 | 14,196,621 | 29,140,838 | 38,289,262 |
| | | | | Total | 88,251,457 |

Source: CST, UNITEL, World Bank Development Indicators.

So the total gains consumers have been approximately US\$88 million (US\$67 since ACE's).

Overall, consumer surplus is calculated for the entire project implementation cycle, as opposed to just from the arrival of ACE given that in addition to international connectivity infrastructure, the project included activities to contribute reduce prices in the sector. However, for the purpose of including

consumer surplus into the economic analysis of ACE investment (see section 5 of this Annex), only data from 2013 and onwards is considered.

4. Financial and Economic Analysis

ACE's return rate calculations in the PAD were purely financial and did not consider an Economic Return Rate (ERR). The impact of the incremental consumer surplus associated with ACE's expected effect on price reductions was not quantified in the PAD. If added to the financial return, the estimated ERRs is 73%.

Financial and Economic Analysis (with UNITEL's investment)

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|------------------------|------|------|------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Total Consumer surplus | | | | 29,140,839 | 38,289,262 | 33,486,785 | 33,545,794 | 33,602,756 | 33,657,406 | 33,709,482 | 33,758,721 | 33,804,870 |
| Total Economic | | | | 29,140,839 | 38,289,262 | 33,486,785 | 33,545,794 | 33,602,756 | 33,657,406 | 33,709,482 | 33,758,721 | 33,804,870 |

| | |
|---------------------|----------------------|
| Economic NPV | \$145,344,841 |
|---------------------|----------------------|

| | | | | | | | | | | | | |
|-------------------------|-------------|--------------|-------------|------------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------------|
| CST Internet Revenues | - | - | - | 1,956,188 | 2,374,528 | 3,153,500 | 4,217,362 | 4,800,333 | 5,411,598 | 6,046,586 | 6,701,384 | 7,372,702 |
| Other Revenue | - | - | - | 1,480,403 | 1,934,675 | 3,077,460 | 3,696,375 | 4,356,206 | 4,861,057 | 5,429,729 | 5,962,150 | 6,545,654 |
| ACE Opex | - | - | - | 1,988,054 | 1,784,913 | 1,836,456 | 1,834,640 | 1,832,825 | 1,831,013 | 1,829,202 | 1,827,393 | 1,825,585 |
| ACE payments | (7,500,000) | (16,250,000) | (1,250,000) | - | - | - | - | - | - | - | - | - |
| Terminal Value | - | - | - | - | - | - | - | - | - | - | - | 38,907,029 |
| UNITEL's investment | | | | 8,000,000 | | | | | | | | |
| Net Financial Cash Flow | (7,500,000) | (16,250,000) | (1,250,000) | 10,524,291 | 2,524,291 | 4,394,503 | 6,079,096 | 7,323,714 | 8,441,642 | 9,647,113 | 10,836,141 | 50,999,800 |

| | | | | | | | | | | | | |
|--------------------------------------|-------------|--------------|-------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Total returns (financial + economic) | (7,500,000) | (16,250,000) | (1,250,000) | 30,589,376 | 48,813,553 | 37,881,288 | 39,624,890 | 40,926,471 | 42,099,048 | 43,356,595 | 44,594,862 | 84,804,670 |
|--------------------------------------|-------------|--------------|-------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|

| | |
|------------|------------|
| IRR | 73% |
|------------|------------|

5. Economic Impact on GDP Growth

The estimated economic benefits to STP of investing in ACE at appraisal were linked to the economic multiplier effect of increased broadband penetration rates to the economy. According to WB research, each 10% increase in broadband penetration increases overall GDP growth in developing countries by 1.38%³⁷. The lower-cost broadband connectivity provided by ACE was expected to encourage substantially higher broadband penetration in STP, thereby increasing GDP growth. Based on the economic multiplier and estimated penetration rates in STP with and without ACE capacity, the analysis concluded that the increased penetration resulting from ACE would had increased annual GDP by an annual average of approximately 0.8 points over the first 9 years after ACE. This considered that without ACE penetration rates would had remained at 0.5% until 2021, which is a scenario proved unrealistic given that in 2012, without ACE in place yet, penetration rate grew in 1.62 points. The following table shows illustrates the potential economic impact studied at project preparation.

³⁷ "Information and Communications for Development 2009: Extending Reach and Increasing Impact, World Bank. Chapter: Economic Impacts of Broadband, page 45. Authors: Christine Zhen-Wei Qiang and Carlo M. Rossotto with Kaoru Kimura

| Indicative STP Growth in GDP Resulting from Increases in Broadband Penetration Rate | | | | | | | | | |
|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
| Penetration Rate – without ACE | 0.50% | 0.50% | 0.50% | 0.50% | 0.50% | 0.50% | 0.50% | 0.50% | 0.50% |
| Penetration Rate - CST Forecast | 1.80% | 2.80% | 3.90% | 5.10% | 6.10% | 7.20% | 8.20% | 9.10% | 10.10% |
| Increase in Penetration Rate | 1.30% | 2.30% | 3.40% | 4.60% | 5.60% | 6.70% | 7.70% | 8.60% | 9.60% |
| GDP Multiplier | 1.38% | 1.38% | 1.38% | 1.38% | 1.38% | 1.38% | 1.38% | 1.38% | 1.38% |
| Increase in GDP Growth Rate | 0.179% | 0.317% | 0.469% | 0.635% | 0.773% | 0.925% | 1.063% | 1.187% | 1.325% |
| STP forecast GDP growth rate without ACE | 4.803% | 4.755% | 4.707% | 4.660% | 4.614% | 4.568% | 4.522% | 4.477% | 4.432% |
| Indicative STP GDP Growth Rate with ACE | 4.982% | 5.072% | 5.177% | 5.295% | 5.387% | 5.492% | 5.585% | 5.663% | 5.757% |

Since the launch of ACE’s commercial services in 2013, STP’s actual increase in penetration rates (+15.6%) shows that the effect on GDP growth could have already contributed to GDP growth by 2.2 points as of the end of 2014. And the updated forecast on annual average impact GDP growth for the first 9 years could account for an average close to 0.5 points per year since the arrival of ACE. The following table depicts an updated analysis of the potential economic impact on GDP growth after ACE’s arrival:

| | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|------------------------------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|
| Penetration rate | 2.32% | 7.67% | 17.90% | 20.05% | 22.20% | 24.35% | 26.50% | 28.65% | 30.80% | 32.95% |
| Increase in penetration rate | | 5.35% | 10.23% | 2.15% | 2.15% | 2.15% | 2.15% | 2.15% | 2.15% | 2.15% |
| GDP Multiplier | | 1.38% | 1.38% | 1.38% | 1.38% | 1.38% | 1.38% | 1.38% | 1.38% | 1.38% |
| Increase in GDP growth rate | | 0.7% | 1.4% | 0.3% | 0.3% | 0.3% | 0.3% | 0.3% | 0.3% | 0.3% |

| | |
|---|-------|
| Estimated ACE impact on GDP Annual average (2013-2021): | 0.47% |
|---|-------|

6. Affordability Analysis

According to the International Telecommunications Union (ITU), broadband can be considered affordable when it is at or below 5% of the average monthly income. If looking at the portion of the population in STP for which a monthly Internet retail price of US\$52 can cost more than 5% of their monthly income, the result is Internet services are not affordable yet for the population. The monthly cost of Internet represents still a 45% of the average income per capita. In addition to the costs of Internet, the cost of devices also affects affordability. For instance, a monthly cost of US\$2³⁸ could be added to STP’s affordability gap.

³⁸ The price for low/mid-range cellular handset with Internet connectivity (Alcatel 2005 model) is US\$37. Assuming a usage life of 18 months, US\$2 would be the monthly impact on affordability coming from device on top of the US\$52 monthly Internet cost.

Income Distribution for São Tomé and Príncipe

| | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | |
|-----------------------|-------|-------|------|------|------|------|------|------|------|------|--------|
| São Tomé and Príncipe | 43.6% | 12.7% | 9.6% | 8.0% | 6.6% | 5.6% | 4.7% | 3.9% | 3.0% | 2.2% | 100.0% |

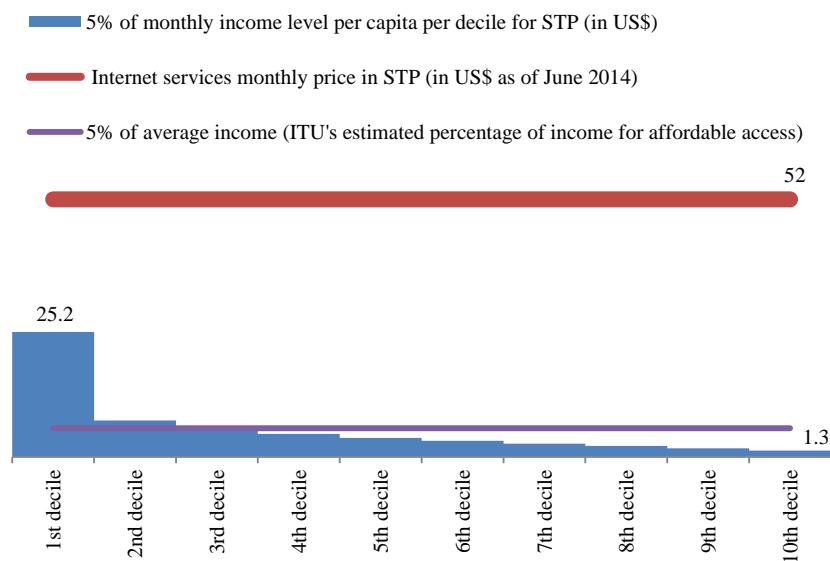
Monthly Income Level per decile for São Tomé and Príncipe in US\$

| Deciles | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| São Tomé and Príncipe | 504 | 147 | 112 | 93 | 77 | 65 | 54 | 45 | 35 | 26 |

Affordability of broadband in São Tomé and Príncipe (in US\$)

| | 1st decile | 2nd decile | 3rd decile | 4th decile | 5th decile | 6th decile | 7th decile | 8th decile | 9th decile | 10th decile |
|-----------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|
| 5% of income per decile (in US\$) | 25.2 | 7.4 | 5.6 | 4.7 | 3.8 | 3.2 | 2.7 | 2.2 | 1.7 | 1.3 |
| Internet services | 52.0 | 52.0 | 52.0 | 52.0 | 52.0 | 52.0 | 52.0 | 52.0 | 52.0 | 52.0 |
| 5% of average income | 5.8 | 5.8 | 5.8 | 5.8 | 5.8 | 5.8 | 5.8 | 5.8 | 5.8 | 5.8 |

The chart below illustrates this analysis of affordability in STP of Internet services.



*Source: World Development Indicators (<http://data.worldbank.org>) and ITU (2013)

Annex 4. Bank Lending and Implementation Support/Supervision Processes

(a) Task Team members

| Names | Title | Unit | Responsibility/ Specialty |
|-------------------------------|---|-------|------------------------------|
| Lending | | | |
| Isabel Neto | Senior Operations Officer | GEEDR | Task Team Leader |
| Jerome Bezzina | Senior Regulatory Economist | GTIDR | |
| Yann Burtin | Senior Underwriter | MIGOP | |
| Kaoru Kimura | ICT Policy Specialist | GTIDR | |
| David Satola | Lead Council | ICOIO | |
| Claudia M. Paradinas Ocana | Senior Council | LEGCF | |
| Christiaan Johannes Nieuwoudt | Financial Officer | CTRLA | |
| Elvis Teodoro Bernado Langa | Financial Management Specialist | GGODR | |
| Antonio Chamuco | Senior Procurement Specialist | GGODR | |
| Michele Ralisoa Noro | Operations Analyst | GTIDR | |
| Michael Jensen | Consultant | GTCDR | |
| Emeran Serge M. Menang Ecouna | Senior Environmental Specialist | GENDR | |
| Lucienne M. M'Baipor | Senior Social Development Specialist | GSURR | |
| Alexandra C. Bezeredi | Regional Environmental and Safeguards Advisor | OPSOR | |
| Aissatou Diallo | Senior Finance Officer | CTRLA | |
| Sonia Guilherme | Consultant | GGODR | Procurement Specialist |
| Harvey D. Van Veldhuizen | | | |
| Supervision/ICR | | | |
| Isabel Neto | Senior Operations Officer | GEEDR | Task Team Leader |
| Enagnon Ernest Eric Adda | Senior Financial Management Specialist | GGODR | |
| Christiaan Johannes Nieuwoudt | Financial Officer | CTRLA | |
| Elvis Teodoro Bernado Langa | Financial Management Specialist | GGODR | |
| Aissatou Diallo | Senior Finance Officer | CTRLA | |
| Antonio Chamuco | Senior Procurement Specialist | GGODR | |
| Juvenia Lidia Mapilele Cohen | Finance Analyst | CTRLA | |
| Sonia Guilherme | Consultant | GGODR | Procurement Specialist |
| Eva Clemente Miranda | ICT Policy Specialist | GTIDR | ICR Primary Author |
| Christine Abdelmasih | Program Assistant | GTIDR | |

(b) Staff Time and Cost

| Stage of Project Cycle | Staff Time and Cost (Bank Budget Only) | |
|------------------------|--|---|
| | No. of staff weeks | USD Thousands (including travel and consultant costs) |
| Lending | | |
| FY10 | 30.64 | 207.7 |
| FY11 | 28.63 | 138.5 |
| FY12 | .68 | 2.7 |
| FY13 | - | - |
| FY14 | - | - |
| FY15 | - | - |
| Total: | 59.95 | 348.9 |
| Supervision/ICR | | |
| FY10 | - | - |
| FY11 | - | - |
| FY12 | 6.11 | 34.2 |
| FY13 | 10.2 | 70.1 |
| FY14 | 10.85 | 72.9 |
| FY15 | 4.23 | 4.9 |
| Total: | 31.21 | 219.1 |

Annex 5. International Connectivity Wholesale prices Benchmark Analysis

Immediately after the entry into service of the submarine cable, Internet access prices, wholesale and retail, started to fall. Before ACE, STP had to pay an average monthly cost of US\$9,000 for international connectivity. With the arrival of the cable, this wholesale price dropped to US\$2,500, lower than expected. It could be argued that targets were not aggressive enough, they were set based on expected demand (wholesale prices are linked to international traffic) which grew faster than forecasted. Nevertheless, wholesale prices in STP fell 72% after ACE’s launch, within the parameters of relevant results, especially if compared to other cases such as East coast of Africa where one year after the arrival of the first fiber optic cable prices fell 89% in Kenya, 64% in Madagascar, or 61% in Rwanda - this is particularly true when considering that the market size in these countries is much larger than in STP and also that the East Coast of Africa benefitted early on from competition in the international market with the arrival of alternative cables³⁹. At the same time, there are other small island examples, like the case of Tonga (with even fewer population than STP and a similarly monopolistic telecom market at cable arrival) that experienced a more consequent drop in wholesale prices of 87% in a similar period – this may be explained by the different characteristics in these countries: despite similarities between Tonga and STP, the difference on price drop may be explained by the fact that Tonga is an upper-middle income country where tourism is 10% of GDP.

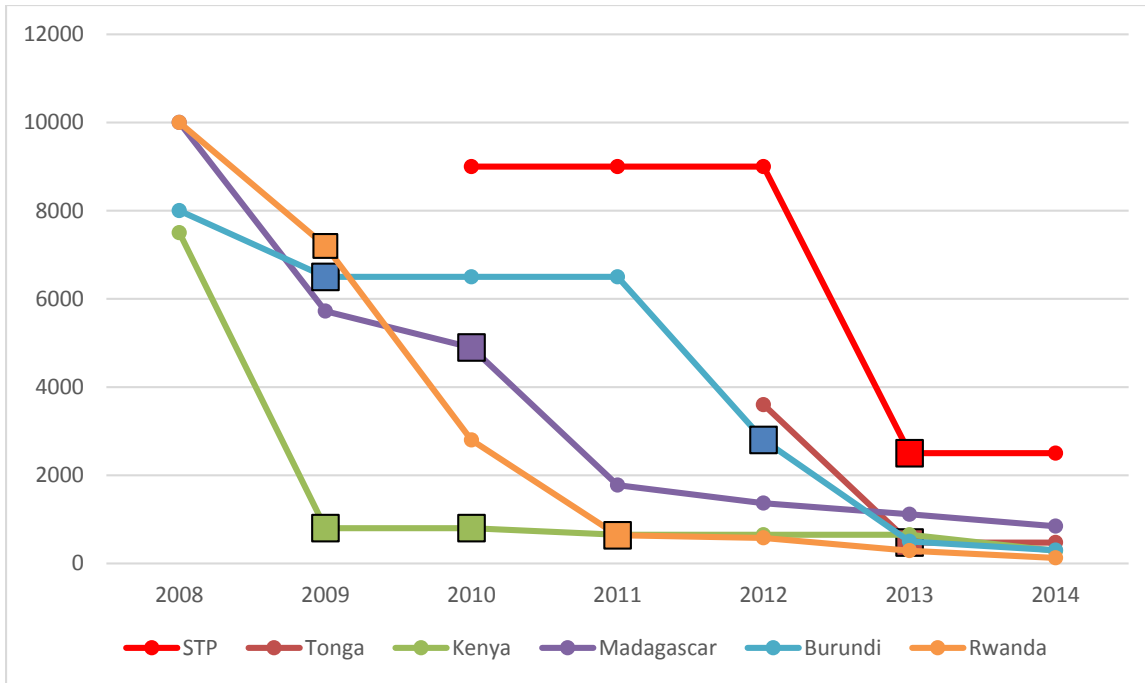
| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|-------------------|----------|---------|---------|---------|---------|---------|---------|
| STP | | | \$9,000 | \$9,000 | \$9,000 | \$2,500 | \$2,500 |
| Tonga | | | | | \$3,600 | \$475 | \$475 |
| Kenya | \$7,500 | \$800 | \$800 | \$650 | \$650 | \$650 | \$287 |
| Madagascar | \$10,000 | \$5,721 | \$4,897 | \$1,776 | \$1,367 | \$1,115 | \$844 |
| Burundi* | \$8,000 | \$6,500 | \$6,500 | \$6,500 | \$2,800 | \$500 | \$300 |
| Rwanda | \$10,000 | \$7,200 | \$2,800 | \$640 | \$580 | \$290 | \$125 |

* As a landlocked country, Burundi’s connection to international submarine cables has depended on the roll out of the national backbone network. Burundi’s national network is being gradually expanded across the country, having few locations connected at initial stages. This is why the wholesale prices (as linked to capacity usage) have been falling later than the first date in which the country was connected to a cable consortium.

Name of Regional Cable consortiums:

- EASSy
- SEACOM
- TEAMS
- ACE
- Tonga Fiji Cable - Southern Cross Cable Network

³⁹ The cables TEAMS and SEACOM landed in the East Coast of Africa in June 2009 and July 2009 respectively and the EASSy cable launched commercial service in July 2010. Unfortunately there is no data available for other countries connected to ACE (due to the Ebola crisis in Sierra Leone and Liberia). STP particularities (i.e. prior international connectivity by satellite, small size, lack of submarine cable competition) make it difficult to perform a benchmark analysis for comparison purposes.



□ Year in which a new fiber optic cable arrived to the market

Source: project M&E data from WB projects P094103, P094103, P094103, P106369 and Tonga ICT Economic and Social Impact Report (Draft May 2015) from Pacific Infrastructure Facility.

Annex 6. Borrower's comments on Draft ICR

REPÚBLICA DEMOCRÁTICA  DE S.TOMÉ E PRÍNCIPE
(Unidade-Disciplina-Trabalho)
MINISTÉRIO DAS FINANÇAS E ADMINISTRAÇÃO PÚBLICA
GABINETE DO MINISTRO

Exmo Senhor
Gregor Binkert
Director do Banco Mundial para S.Tomé e Príncipe,
Região de África

Ref.715/GM/2015
São Tomé, 25 de Maio de 2015.


Assunto: *Parecer do Governo referente ao fecho do projecto CAB2 (Dom N° H642-ST)*

O relatório de ICR (Implementation Completion and Results Report) do Banco Mundial retracts de forma exaustiva os principais objectivos de desenvolvimento do projecto (PDO), o âmbito de implementação, os riscos e principais resultados alcançados e o desempenho das partes envolvidas.

A título de conclusão acrescenta-se que, por tudo o exposto no relatório ICR do Banco Mundial, resulta claro que o apoio financeiro prestado por esta Instituição ao Governo de São Tomé e Príncipe no âmbito do projecto CAB2 foi essencial para incrementar a economia santomense e revolucionar o sector das telecomunicações, colocando São Tomé e Príncipe conectado aos restantes países, através da fibra óptica.

Queira aceitar, Excelência, Senhor Director, os protestos da nossa mais elevada estima e consideração.

O Ministro,


Américo d'Oliveira dos Ramos

REPÚBLICA DEMOCRÁTICA  DE S. TOMÉ E PRÍNCIPE

(Unidade-Disciplina-Trabalho)

MINISTÉRIO DAS FINANÇAS E ADMINISTRAÇÃO PÚBLICA
GABINETE DO MINISTRO

Exma Senhora
Clara Coutinho de Sousa
Representante Residente do Banco Mundial para Angola e São Tomé e Príncipe

Ref.714/GM/2015
São Tomé, 25 de Maio de 2015.

Assunto: *Fecho do projecto CAB2 (Dom N° H642-ST)*

Apraz-me cumprimentar Vossa Excelência e acusar a recepção do *Implementation Completion Report (ICR)* correspondente ao Projecto do cabo-submarino de fibra óptica que beneficiou de um importante donativo do Banco Mundial de USD 14 900 000 (Catorze milhões e novecentos mil dólares).

O apoio que o nosso país teve do Banco Mundial, focalizado na concepção e implementação de um projecto estratégico, teve indiscutivelmente um impacte amplamente positivo no domínio das telecomunicações e das Tecnologias de Informação e Comunicação.

Permita-me comunica-la que congratulamos com os resultados altamente satisfatórios que foram alcançados.

Por isso, o nosso Governo está francamente satisfeito por ter tido a oportunidade de operacionalizar os objectivos preconizados e implementar todas as actividades previstas. Quero recordá-la também, Excelência, que o apoio do Banco Mundial, quer em termos institucionais, quer em termos das diferentes equipas que assistiram as instituições governamentais envolvidas na implementação foi não só determinante mas, sobretudo, de alto nível de profissionalismo, de elevada qualidade e de grande eficácia. Isso permitiu ao país não só atingir uma taxa de desembolso na ordem dos 105% do montante original, no tempo previsto, como também e acima de tudo, criar muitas sinergias aproveitando ao máximo os recursos financeiros colocados à nossa disposição.

Por tudo o que traduziu a implementação exitosa desse projecto, aproveito a oportunidade para exprimir todo o nosso reconhecimento e endereçar os nossos maiores agradecimentos a todos os que contribuíram directamente e indirectamente para este sucesso.

...



.../2

Queira transmitir a todos os órgãos do Banco Mundial e, particularmente, ao Conselho d Administração, todo o nosso apreço e consideração.

Atenciosamente,

O Ministro,



Américo d'Oliveira dos Ramos

Annex 7. Borrower's ICR

RESUMO

O presente relatório integra a fase final do Projecto “CENTRAL AFRICAN BACKBONE – APL 2”, doravante apenas Projecto CAB2, e é referente ao período compreendido entre Janeiro de 2011 e Dezembro de 2014.

Este relatório de avaliação do Governo de São Tomé e Príncipe, adiante apenas Governo, procura descrever, de forma sucinta, os diferentes estágios de desenvolvimento do projecto, desde a sua implementação até a concretização dos objectivos propostos.

O relatório final de avaliação está estruturado em seis secções: na primeira secção é feita a introdução do projecto; na segunda secção é feita uma abordagem sobre o processo de preparação do projecto; na terceira secção é descrita a forma de implementação do projecto; na quarta secção são descritos os principais resultados alcançados; na quinta secção é feita a avaliação dos resultados, dos riscos e dos intervenientes no projecto; na sexta e última secção são feitas as conclusões e as recomendações e aborda-se também a existência ou não de riscos de sustentabilidade que poderão diminuir a utilidade do projecto.

1. Introdução

O Projecto CAB2 surgiu da necessidade e da oportunidade única de São Tomé e Príncipe integrar a rede de cabos submarinos de telecomunicações, que constitui a espinha dorsal da rede de comunicações a nível mundial.

As infraestruturas deste projecto foram implementadas pelo consórcio ACE (*Africa Coast to Europe*), com sede em Paris, visando interligar 23 países, desde a França até a África do Sul, através de um cabo de fibra óptica de cerca de 17.000 km, também designado por cabo ACE.

O projecto foi desenvolvido pelo Governo de São Tomé e Príncipe, com o apoio do Banco Mundial, da Companhia São-tomense de Telecomunicações, adiante apenas CST e da Portugal Telecom, adiante apenas PT.

Certo é que, dos quatro segmentos do cabo ACE, três já estão concluídos; o terceiro segmento que liga Costa de Marfim- São Tomé já foi instalado. O quarto segmento, que deverá ligar São Tomé à África do Sul, ainda não foi implementado, mas as últimas informações indicam que as discussões para a implementação do segmento 4 evoluíram positivamente e já há financiamento

para tal. Contudo, esta informação deveria ser ainda confirmada numa reunião do consórcio ACE a ter lugar em Lisboa em meados de Dezembro de 2014.

Os cabos de fibra óptica transmitem tráfego de voz e de dados com maior fiabilidade e segurança a taxas menos onerosas do que por satélite.

Assim sendo, os principais objectivos traçados com o Projecto CAB2 foram os seguintes:

- a) Reduzir os custos das telecomunicações, nomeadamente das comunicações internacionais e do acesso à Internet de banda larga;
- b) Reformar o quadro jurídico e regulamentar para o sector das telecomunicações;
- c) Promover a entrada de uma segunda operadora de serviços de telecomunicações;
- d) Melhorar o acesso das populações mais desfavorecidas à rede de telecomunicações, aumentando o alcance geográfico do uso de serviços de banda larga e;
- e) Elaborar uma estratégia nacional para as Tecnologias de Informação e Comunicação (TIC).

A implementação do projecto foi co-financiada pelo IDA, adiante apenas Banco Mundial, e pelo sector privado, nomeadamente pelo grupo PT e pela CST.

A competência para coordenar as acções administrativas, contabilísticas, financeiras, a licitação e a execução do projecto CAB2 foi atribuída a Agência Fiduciária de Administração de Projectos (AFAP), devido essencialmente ao seu reconhecimento junto ao Banco Mundial.

2. Preparação do Projecto

As negociações para o acesso aberto às capacidades do cabo submarino ACE iniciaram em Abril de 2010, através da elaboração de documentos de Parceria Público Privada (PPP) entre o Governo e o grupo PT, para o estabelecimento de uma *Special Purpose Vehicle* (SPV), com a intervenção do Banco Mundial e consultores do Governo.

Por conseguinte, em Junho de 2010, a Companhia Santomense de Telecomunicações (CST) assinou o acordo de adesão ao consórcio ACE, como operadora de telecomunicações de São Tomé e Príncipe, para ligação ao cabo submarino ACE.

Atendendo a inúmeras vantagens que este projecto apresenta para o país, o Governo decidiu angariar meios de financiamento para a concretização do mesmo.

Deste modo, o Governo estabeleceu com o Banco Mundial um acordo de donativo, N° H-642-ST, no valor de 14,9 milhões de USD.

O Banco Mundial aprovou o projecto em 12 de Janeiro de 2011, os documentos legais foram assinados em 24 de Janeiro de 2011, tendo-se tornado efectivo a 6 de Julho de 2011.

O Plano de Acção e Aquisição do Projecto, conhecido como *Procurement Plan* (PP) foi aprovado em 11 de Outubro de 2011.

Pese embora o financiamento do Banco Mundial e atendendo que o custo total do investimento foi calculado em 25 milhões de USD, o Governo conseguiu angariar a segunda parte do financiamento junto às entidades privadas, tendo a Portugal Telecom (PT) participado com 7 milhões de USD e a Companhia Santomense de Telecomunicações (CST) participado com 4,9 milhões de USD, perfazendo um total de 11,9 milhões de USD.

O financiamento privado foi concedido na totalidade no ano 2012.

É preciso considerar que, dos 14,9 milhões de USD previstos inicialmente no acordo de financiamento assinado entre o Governo e o Banco Mundial, a AFAP conseguiu desembolsar o total de 15.7 milhões de USD. Esta diferença representa o ganho decorrido da diferença cambial entre USD e SDR (Direitos Especiais de Saque, que foi a moeda utilizada no acordo de financiamento), tendo-se registado uma taxa de desembolso na ordem dos 105%.

Para melhor ilustrar a distribuição do investimento efectuado até 31 de Dezembro de 2014, de acordo com as actividades do projecto, veja-se a tabela seguinte, em milhões de USD:

| Custos do projecto por componentes/Actividades | Financiamento do Banco Mundial (valor estimado) | Financiamento do Banco Mundial (valor efectivo) | Sector Privado | Valor em percentagem |
|---|--|--|-----------------------|-----------------------------|
| Componente 1- Condições favoráveis | 1.15 | 1.85 | | |
| 1.1. Plano estratégico das TIC | 0.05 | 0.05 | | 100% |
| 1.2. Assistência Técnica a reforma legal e regulamentar | 0.25 | 0.20 | | 80% |
| 1.3. Concurso para atribuição da segunda licença | 0.35 | 0.38 | | 109% |
| 1.4. Assistência Técnica para estruturação das PPPs | 0.40 | 0.12 | | 30% |
| 1.5. Estudos ambientais do projecto | 0.10 | 0.12 | | 123% |
| 1.6. Assistência técnica para realizar auditorias técnicas e financeiras anuais ao projecto | | 0.02 | | |

| | | | | |
|---|--------------|--------------|-------------|-------------|
| 1.7. Assistência técnica prestada a AGER para o estabelecimento de tarifas de interconexão entre os diferentes operadores | | 0.2 | | |
| 1.8. Assistência técnica a AGER para desenvolver cálculos do modelo de custo económico | | 0.1 | | |
| 1.9. Assistência técnica a AGER para actualizar bases legais do Fundo de Serviço Universal | | 0.2 | | |
| | | | | |
| Componente 2 - Conectividade | 13.25 | 13.10 | | 99% |
| 1.1. Participação no consórcio ACE | 13.10 | 13.10 | 11.90 | 100% |
| 1.2. Estabelecimento das IXP | 0.15 | Anulado | | |
| | | | | |
| Componente 3 – Gestão do projecto | 0.50 | 0.50 | | 100% |
| 3.1. Coordenação, <i>Staff</i> , auditorias, novos projectos, etc. | 0.50 | 0.50 | | 100% |
| Componente 4 – Consultoria suplementar | | 0.295 | | |
| Conectividade para a Ilha do Príncipe | | 0.025 | | |
| Internet nas escolas secundárias | | 0.27 | | |
| | | | | |
| Custo total do projecto (milhões USD) | 14.9 | 15.70 | 11.9 | 105% |

Mesmo não estando previsto no acordo, o Governo santomense também disponibilizou terrenos e benefícios fiscais para a concretização do projecto.

3. Implementação do Projecto

Para a implementação do projecto, foi necessário criar uma entidade de gestão do Cabo submarino ACE em São Tomé, a STP Cabo, constituída inicialmente pela CST, com a participação de 74.5% e pelo Governo com a participação de 25.5%. Posteriormente, em 2013, o Governo alienou 25,4999997% da sua participação na STP Cabo à UNITEL STP, detendo actualmente uma participação de 0,0000003%, a “*golden share*” na Sociedade, o que lhe confere poder para vetar qualquer alteração aos estatutos da STP Cabo que altere o princípio de acesso aberto à capacidade do cabo e ainda de ser representado no Conselho de Administração por um membro.

A STP Cabo é a entidade responsável pela implementação e operação da estação de cabos e infra-estruturas associadas em São Tomé.

Ainda no âmbito do projecto CAB2, foi necessário efectuar, em 2011, estudos de impacto ambiental e social e/ou dos riscos relativos ao projecto e incorporá-los num Plano de Gestão Ambiental e Social (ESMP) bem como num Plano de Acção de Reassentamento Abreviado das Pessoas Afectadas pelo Projecto (RAP).

O estudo do impacto ambiental foi efectuado devido a necessidade de edificar duas câmaras de visita na Praia Melão, condutas de cabos terrestres e a construção de uma estação de amarração dos cabos em São Gabriel, no Distrito de Água Grande, São Tomé.

Por outro lado, foi também imprescindível que a CST alienasse os terrenos próximos da estação de São Gabriel à STP Cabo, que eram ocupados por agricultores com o consentimento da CST. Os sete agricultores afectados pela desocupação dos 1 922m² de terra próxima da estação de amarração dos cabos foram compensados, pela perda directa de colheita, em apoio relativo aos rendimentos e no restauro das formas de sustento. A CST foi a responsável pelo pagamento de todas as indemnizações às pessoas afectadas pelo projecto, no valor total de STD 267.914.893,00 (duzentos e sessenta e sete milhões, novecentos e catorze mil, oitocentos e noventa e três dobrás). As compensações foram pagas na totalidade no ano 2012.

Posteriormente, foi também necessário que a STP Cabo celebrasse um contrato de compra e venda com o proprietário do terreno em Praia Melão, São Tomé, onde foi amarrado o terceiro segmento do Cabo ACE.

A auditoria técnica à estação de amarração do cabo submarino teve início em princípios do ano 2014 e terminou em Maio de 2014. Esta auditoria, que foi elaborada pelo consultor Gerard Dupin, serviu sobretudo para avaliar as condições de instalação e amarração do cabo ACE, desde a praia até a estação de cabos em São Gabriel. Os resultados foram satisfatórios.

No seguimento de um dos principais objectivos do projecto, foram entregues à AGER pelos consultores GIDE/ICEA, no dia 6 de Agosto de 2012, os documentos finais para o lançamento do concurso de atribuição de licença a uma segunda operadora de telecomunicações. Após a aprovação do Governo, o lançamento do concurso internacional foi efectuado em Novembro 2012, tendo o prazo sido prorrogado por mais 30 dias devido a mudança de Governo.

Por último, é importante ressaltar que, para a implementação do projecto CAB2 foi necessário haver uma estreita colaboração entre as várias partes envolvidas, nomeadamente consultores, técnicos e especialistas nas diversas áreas e foi igualmente imprescindível o cumprimento e a elaboração dos diversos documentos orientadores do projecto, tais como o Acordo de Financiamento N.º H-642-ST assinado entre o Governo e o Banco Mundial, o *Project Appraisal Document (PAD)*, os relatórios trimestrais de supervisão financeira (RSF) elaborados pela AFAP, os relatórios anuais das auditorias externas, os Planos de Aquisições e os *Aide-Mémoires*.

4. Principais Resultados Alcançados

Relativamente aos resultados esperados e efectivamente alcançados, a 7 de Fevereiro de 2013, foi lançado no mercado santomense a oferta comercial de fibra óptica. Os resultados foram muito satisfatórios, considerando que através de satélite, a capacidade de tráfego de internet era de 50Mbps e actualmente com o cabo a capacidade passou a ser de 4.500Mbps, estando já instalados pela CST 775Mbps.

Prevê-se ainda que este valor aumente de 775 Mbps para 1,085Mbps com a instalação de mais 2 STM-1, ou seja, com o cabo submarino ACE, está a ser utilizada 15 vezes mais capacidade do que era utilizada antes do cabo chegar, prevendo-se que este valor aumente até 20 vezes nos primeiros dois anos após a adesão de São Tomé e Príncipe ao cabo submarino.

Outrossim é o facto de, com a adesão ao sistema de cabo submarino, os preços médios de acesso à internet, em termos gerais, terem baixado significativamente.

Relativamente aos dados apresentados pela CST, com a adesão ao cabo ACE, as ofertas mais baixas em ADSL passaram a ter velocidades 8 vezes superiores, os preços foram reduzidos em aproximadamente 50% e o limite de tráfego foi triplicado, de 4Gb para 12Gb. Nas ofertas mais altas, a velocidade passou de 2Mbps para 100 Mbps (50 vezes superior), os custos baixaram significativamente e o tráfego máximo passou de 40 Gb a ilimitado, com os serviços de fibra óptica.

Outras vantagens apontadas pela CST com a adesão ao cabo submarino são o serviço 3G, que entrou em funcionamento, e o lançamento da banda larga móvel pré-paga, com um custo aproximado de 8 Euros/1 Gb. As ofertas de serviço melhoraram e conseqüentemente a procura aumentou. A CST passou assim de 600/700 clientes para um total de 5,300 clientes em ADSL, fibra e banda larga móvel.

No que se refere à Região Autónoma do Príncipe, houve um acordo com as autoridades locais no sentido de haver um *upgrade* da actual ligação por Feixe Hertziano da CST para 250 Mbps de capacidade. A referida operadora efectuou este investimento adicional e os trabalhos estão em curso.

A amortização do investimento efectuado pela CST no cabo ACE terá um impacto muito grande nas contas da empresa e espera-se resultados líquidos negativos para 2015, pese embora, no geral, os resultados da adesão ao cabo ACE serem benéficos para o país.

Quanto ao concurso internacional para a atribuição de licença a uma segunda operadora, a UNITEL Holding Internacional foi a única concorrente e a UNITEL STP, empresa criada no âmbito do concurso, foi quem obteve a licença, em Abril 2013.

Conforme foi referido anteriormente no ponto 3, a UNITEL STP detém actualmente 25,4999997% da participação na STP Cabo, conjuntamente com a CST e com o Governo.

Houve, contudo, um ligeiro atraso no arranque desta operadora em São Tomé e Príncipe, devido a factores de diversas ordens.

Contudo, a UNITEL STP, não tendo completado ainda um ano de presença no mercado são-tomense, considera que a sua entrada já demonstra resultados positivos, tendo-se verificado uma clara expansão da sua rede de vendas por todo o país e a conquista, antes de 31 de Dezembro de 2014, de mais de 10% da quota de mercado.

Tal feito é justificado pelos preços actualmente praticados nos serviços de voz e de dados.

Quanto ao serviço de voz, a UNITEL STP começou com um pacote base de pré-pago de 0.10 Euros/minuto, similar ao oferecido pela CST (tarifário leve-leve), com a diferença de que a UNITEL STP mantém os mesmos preços de chamadas para ligações na sua rede e fora da rede, ao passo que a CST cobra as chamadas efectuadas para fora da rede a um preço por minuto 70% mais elevado. A UNITEL STP oferece ainda chamadas internacionais ligeiramente mais económicas.

Em termos estatísticos, A UNITEL STP estima que 65% dos seus clientes seja em serviço de dados e 35% em serviço de voz.

Acrescente-se que esta operadora já tem cobertura em todo o país, incluindo Ilhéu das Rolas e Região Autónoma do Príncipe, onde, de momento, tem um agente exclusivo.

De modo a impedir o corte dos serviços caso ocorra alguma anomalia com o funcionamento do cabo ACE, a UNITEL STP já estabeleceu, com outro parceiro, uma garantia de redundância via satélite.

Relativamente a solução por cabo submarino na Região Autónoma do Príncipe, nada ficou estabelecido com o actual Governo.

Contudo, com as actuais melhorias que têm sido feitas nas comunicações para o Príncipe, quer pela CST, quer pela UNITEL STP, espera-se que até ao primeiro trimestre de 2015 a capacidade passe a ser de 600Mbps.

Em suma, com a adesão ao cabo ACE e com a entrada da UNITEL STP no mercado das telecomunicações, registou-se um maior dinamismo do mercado, com ofertas melhores e mais baratas e maior diversidade de pacotes. O serviço prestado ao cliente melhorou significativamente, com o reforço das redes de distribuição e venda de recargas. Acrescente-se que o serviço móvel já tem uma cobertura muito satisfatória, e as operadoras estão agora a investir na expansão da rede interna por fibra, para melhor poderem tirar partido da chegada do cabo ACE.

No âmbito dos investimentos efectuados pelo Banco Mundial e pelo sector privado no Projecto CAB2, foram realizadas auditorias anuais às contas do projecto e os relatórios dos auditores apresentaram resultados muito positivos, não fazendo menção a nenhuma irregularidade quanto a execução técnica e/ou financeira do projecto, tendo-se concluído que foram aplicados correctamente os normativos do Banco Mundial.

Do montante patrocinado pela CST e pela PT, foram desembolsados o equivalente a 11,9 milhões de USD, correspondendo a uma taxa de realização financeira de 100%. O desembolso serviu exclusivamente para cobrir a participação no Consórcio ACE.

Dos 14,9 milhões de USD patrocinados pelo Banco Mundial ao projecto CAB2, foram desembolsados, até ao momento, aproximadamente 98,66%. Estima-se que o restante valor seja continuamente desembolsado até ao final do primeiro trimestre de 2015, período em que se prevê a finalização de todos os pagamentos de trabalhos referentes ao projecto.

Acrescente-se que, foi realizada no dia 14 de Junho de 2013 uma revisão do meio percurso do projecto entre o Governo e o Banco Mundial com o objectivo de verificar se os objectivos traçados

foram sendo cumpridos de forma satisfatória. Esta revisão estava prevista no Acordo de Donativo do Banco Mundial, já mencionado anteriormente.

Foi nesta revisão de meio percurso que se constatou que, devido as alterações cambiais, o valor do desembolso do Banco Mundial seria equivalente a 15,7 milhões de USD, o que representaria uma taxa de realização financeira na ordem dos 105%, conforme foi referido no ponto 2.

Assim, pelo facto de os objectivos, em termos financeiros, terem sido alcançados de forma satisfatória, ficou decidido pelas partes realizar outras actividades complementares antes do término do projecto.

Estas actividades seriam patrocinadas pelos recursos financeiros remanescentes do Projecto CAB2, cerca de 200 mil USD, e pelo comprometimento do Governo aquando da preparação do projecto CAB2, de reinvestir no sector parte dos fundos obtidos com a atribuição da segunda licença e venda das acções na STP Cabo, cerca de 2 milhões de USD.

Tendo por base os princípios de sustentabilidade, contestabilidade e parceria com o sector privado ou afins, foram seleccionados os seguintes projectos, por ordem de prioridade:

- a) Integração das TIC nas escolas secundárias, (cerca de USD 310.000), financiado pelos fundos do projecto CAB2;
- c) Pontos de acesso partilhado para a população – Telecentros, (90.000 USD) e;
- d) Compra de Tabletes para estudantes e professores (1.700.000 USD).

Os dois últimos projectos, que ainda não se concretizaram, seriam financiados com fundos do Governo gerados da venda das acções na STP Cabo à UNITEL STP.

Dos projectos propostos, apenas a integração das TIC nas escolas secundárias já se encontra em execução. A CST ganhou o concurso para a implementação deste projecto e as actividades preparatórias tiveram início a 14 de Julho de 2014. Todos os equipamentos já foram instalados e actualmente o projecto encontra-se em fase de recepção nas diversas escolas secundárias. Estima-se que o projecto esteja concluído a 31 de Dezembro de 2014 e durante os próximos 5 anos, estas escolas terão acesso gratuito ao sistema de internet.

Para além dos três projectos acima referidos, surgiram ainda outras propostas que acabaram por não ser implementadas nem ganhar consistência no âmbito do projecto CAB2.

No que se refere à reforma do quadro jurídico e regulamentar para o sector das telecomunicações (TIC), pretendeu-se dar assistência à AGER do modo a assegurar que fossem regulamentadas questões ligadas ao acesso aberto às infraestruturas e à capacidade do cabo, nomeadamente partilha

de infraestruturas, processo e modelos que possam reger o estabelecimento de taxas de interligação entre operadores, entre outros.

Contudo, é agora necessário oficializar os vários diplomas preparados, designadamente o Decreto sobre interligação apresentado ao Ministério das Obras Públicas e aprovado em Conselho de Ministros e a Lei de Bases de Telecomunicações, também apresentado ao Ministério das Obras Públicas e aprovado em Conselho de Ministros. A Lei de Bases de Telecomunicações ainda não foi aprovada pela Assembleia Nacional nem Promulgada pela Presidência da República, mas espera-se que ambos os Diplomas ainda possam ser publicados no Diário da República no decorrer do ano 2015.

Quanto a elaboração de uma estratégia nacional para as TIC, foram realizadas várias consultas com os Ministérios, AGER, CST, INIC, SIDONIA, Finanças, ONG, dentre outros, e foi decidido que a estratégia deveria também incluir uma descrição sobre a estrutura institucional do sector, com o papel das várias instituições envolvidas. As alterações necessárias foram feitas e o texto final da estratégia foi entregue ao Secretário-Geral do antigo Governo, mas ainda não foi aprovada. Espera-se que este também seja aprovado em 2015.

De resto, todas as actividades inscritas nos Planos de Actividades do projecto CAB2 e previstas para terminar a 31 de Dezembro de 2014, foram implementadas dentro do prazo previsto, correspondendo a uma taxa de realização física de 100% do programado.

Por elaborar encontra-se apenas a auditoria anual externa às contas da AFAP, referente ao ano 2014, a qual terá o seu início nos primeiros meses do ano 2015. A contratação do consultor encontra-se em curso e deverá estar concluída até 31 de Dezembro de 2014.

5. Avaliação dos Resultados, dos Riscos e dos Intervenientes no Projecto

Segundo os Critérios de Avaliação Harmonizado para ICR e IEG, a avaliação geral dos resultados do projecto é satisfatória e, por outro lado, os riscos no resultado do desenvolvimento são, de um modo geral, insignificantes.

Contudo, um dos principais riscos do projecto prende-se com a assistência adicional à AGER quanto ao *Dossier Sexline*, pelo facto desta questão ainda não estar resolvida, o que influencia negativamente a conectividade de São Tomé e Príncipe ao mundo.

Sintetizando, de um modo geral, os principais resultados alcançados, veja-se o quadro que se segue com os principais objectivos do projecto:

| PRINCIPAIS OBJECTIVOS DO PROJECTO | AVALIAÇÃO |
|---|--------------------|
| <i>ADESÃO AO CABO SUBMARINO ACE:</i> | |
| a) Redução dos custos das comunicações de dados | Muito satisfatória |
| b) Redução dos custos das comunicações de voz | Muito satisfatória |
| c) Aumento do alcance geográfico dos serviços de voz e de dados | Muito satisfatória |
| <i>ATRIBUIÇÃO DA 2ª LICENÇA À UNITEL STP</i> | Muito satisfatória |
| <i>OUTRAS ACTIVIDADES:</i> | |
| a) Desenvolvimento de uma estratégia nacional para o sector das TIC | Pouco satisfatória |
| b) Assistência à AGER em aspectos legais e regulamentares | Satisfatória |
| c) Assistência sobre o Acesso Universal (FSU) | Satisfatória |
| d) Ligação da Internet às escolas secundárias | Muito satisfatória |

A avaliação da estratégia nacional para o sector das TIC foi considerada pouco satisfatória, devido ao facto das alterações necessárias, apresentadas ao antigo Governo, ainda não terem sido aprovadas.

Ainda relativamente aos resultados alcançados, o Governo avaliou também a evolução dos principais indicadores do projecto, no período compreendido entre 2010 e 2014, os quais evoluíram, no geral, de forma muito satisfatória:

| PRINCIPAIS INDICADORES | 2010 | 2011 | 2012 | 2013 | 2014 | AVALIAÇÃO |
|-------------------------------------|-------------|------------------------|------------------------|-------------------------|-------------------------|----------------------------|
| Tráfego internacional de Internet | 51Mbps | 314Mbps (Dez. 2011) | 309Mbps (Dez. 2012) | 1898Mbps (Jun. 2013) | 3732Mbps (Jun. 2014) | Muito Satisfatório |
| Acesso aos serviços de internet (%) | 0.7% | 0.7% (Dez. 2011) | 0.7% (Dez. 2012) | 0.7% (Jun. 2013) | 0.7% (Jun. 2014) | Moderadamente Satisfatório |

| | | | | | | |
|--|------------------------------|--|--|--|--|--------------------|
| Acesso aos serviços de telefone fixo e móvel (%) | 67% | 74% (Dez. 2011) | 75% (Dez. 2012) | 76% (Jun. 2013) | 79% (Jun. 2014) | Muito Satisfatório |
| Acesso aos serviços de telefone móvel (%) | 63% | 69% (Dez. 2011) | 72% (Dez. 2012) | 71% (Jun. 2013) | 75% (Jun. 2014) | Muito Satisfatório |
| Preço médio das comunicações internacionais (Europa) (\$) | \$ 9.000 | \$ 9.000 (Dez. 2011) | \$ 9.000 (Dez. 2012) | \$ 2.500 (Jun. 2013) | \$ 2.500 (Jun. 2014) | Muito Satisfatório |
| Nº de beneficiários directos do projecto (% de mulheres) | 113.900 (50.5%) | 125.800 (50.5%) (Dez. 2011) | 130.500 (50.5%) (Dez. 2012) | 132.301 (50.5%) (Dez. 2013) | 138.098 (50.5%) (Jun. 2014) | Muito Satisfatório |
| Impacto da assistência técnica do Banco Mundial no sector das telecomunicações | Nota: 5 (Impacto elevado) | Nota:5 (Impacto elevado) (Dez. 2011) | Nota:5 (Impacto elevado) (Dez. 2012) | Nota:5 (Impacto elevado) (Dez. 2013) | Nota:5 (Impacto elevado) (Jun. 2014) | Muito Satisfatório |
| Preço máximo cobrado por três minutos de comunicação móvel (\$) | \$ 0.42 | \$ 0.40 (Dez. 2011) | \$ 0.40 (Dez. 2012) | \$ 0.40 (Dez. 2013) | \$ 0.40 (Jun. 2014) | Satisfatório |
| Número de operadoras com acesso ao cabo ACE (%) | 0% | 0% (Jul. 2011) | 100% (Dez. 2012) | 100% (Dez. 2013) | 100% (Jun. 2014) | Muito Satisfatório |
| Preço dos serviços de internet (\$/mês) | \$852/mês | \$409.5/mês (Dez. 2011) | \$409.5/mês (Dez. 2012) | \$52/mês (Dez. 2013) | \$52/mês (Jun. 2014) | Muito Satisfatório |
| Localidades com acesso a Internet de banda larga móvel (%) | 56% | 56% (Dez. 2011) | 70% (Dez. 2012) | 70% (Dez. 2013) | 80% (Jun. 2014) | Satisfatório |

Tal como demonstrado no quadro acima, durante estes quatro anos, a capacidade de tráfego internacional de internet evoluiu de forma muito satisfatória, assim como também aumentou consideravelmente o número de pessoas com acesso aos serviços de telefone fixo e móvel.

O preço médio das comunicações internacionais para a Europa diminuiu para menos de metade, comparativamente com o preço praticado em 2010 e diminuíram de igual modo os preços cobrados pelas operadoras pela utilização dos serviços de internet.

O número de beneficiários directos do projecto sofreu também um aumento significativo; contudo, existem dois indicadores que se mantiveram inalterados ao longo dos 4 anos: o número de pessoas com acesso à internet e o preço máximo cobrado por três minutos de comunicação móvel. A CST justificou que os dados relativos ao número de pessoas com acesso à internet não incluíram as pessoas com acesso a internet móvel, pelo que a percentagem referida acima é justificada apenas

pela utilização de internet fixa. Para além disso, a CST oferece certos pacotes com preços de chamadas móveis consideravelmente mais baixos (um exemplo é o serviço “Moche”), compensando assim o facto do custo das chamadas móveis, no geral, não ter diminuído.

No âmbito deste projecto, das 23 localidades previstas para ter acesso a internet de banda larga móvel, apenas duas, Monte Mário e Ribeira Peixe, ainda não têm acesso a este serviço e deverão, numa primeira fase, ter acesso ao serviço 2G.

Acrescente-se ainda que o apoio técnico do Banco Mundial, através deste projecto, teve um impacto muito grande no sector das telecomunicações em São Tomé e Príncipe.

Relativamente ao desempenho dos principais agentes envolvidos no projecto CAB2, nomeadamente Banco Mundial, Governo e AFAP, em termos gerais, a avaliação feita pelo Governo ao longo do decurso de todo o projecto é a seguinte:

1. Banco Mundial

- Garantir a qualidade desde o início – Muito satisfatório; não houve deficiências na identificação, preparação ou avaliação do projecto.
- Qualidade de supervisão – Muito satisfatório; não houve deficiências na identificação proactiva de oportunidades e de resolução de ameaças.
- Classificação do desempenho global do Banco – Muito satisfatório em ambas as dimensões.

Em termos mais específicos, o Governo entende que o Banco Mundial desempenhou um papel fundamental na implementação do Projecto CAB 2, em todas as suas vertentes. Os desembolsos dos fundos foram feitos da melhor forma possível e sempre de acordo com as necessidades do projecto; o acompanhamento das actividades foi sempre constante de modo a garantir a sua concretização. Os técnicos e profissionais disponibilizados cumpriram na íntegra todas as tarefas a que estavam adstritos, demonstrando sempre grande qualidade e profissionalismo. Todos os documentos elaborados no âmbito do projecto foram elucidativos e ajudaram na sua implementação.

A equipa de implementação atribui como um dos factores de sucesso, a valiosa colaboração e assistência prestadas pela equipa do Banco Mundial ao longo de todas as etapas de existência do projecto.

2. Desempenho do Beneficiário

- Desempenho do Governo – Muito satisfatório; não houve bloqueios no seu desempenho.
- Desempenho da AFAP – Altamente satisfatório; não houve deficiências no seu desempenho.
- Desempenho global do Beneficiário – Muito satisfatório em ambas as dimensões.

6. Conclusões e Recomendações

Em termos gerais, a colaboração institucional do Governo com os vários agentes, nomeadamente Banco Mundial, Autoridade Geral de Regulação (AGER), os operadores CST e UNITEL STP, os consultores, a AFAP e outras instituições ligadas directa ou indirectamente ao projecto foi muito satisfatória.

Verificou-se uma incontestável e evidente melhoria da conectividade em São Tomé e Príncipe. A adesão ao cabo submarino ACE e a sua entrada em funcionamento contribuiu significativamente para a melhoria dos serviços de voz e de internet no país, de tal modo que São Tomé já se encontra ao nível dos restantes países beneficiários dos serviços por cabo.

Com a atribuição da segunda licença à Companhia de Telecomunicações UNITEL STP, houve um aumento da oferta dos serviços de telecomunicações e uma melhoria dos serviços prestados e dos preços praticados por ambas as operadoras ainda antes de 2015, conforme era esperado.

É interessante reiterar que as próprias infraestruturas de acesso interno sofreram melhorias, como por exemplo a comercialização de bandas largas móveis e a utilização do sistema de fibra óptica, conforme já foi referido anteriormente. No entanto, é necessário continuar a melhorar a qualidade dos serviços prestados e a adaptar os preços de mercado.

No que se refere ao quarto segmento do cabo ACE, é de extrema importância que o mesmo seja implementado e que seja garantido um sistema de restauro do cabo submarino ACE a partir de S. Tomé, de modo a que a operacionalidade do projecto não seja posta em causa. Contudo, toda a infraestrutura de amarração do segmento 4 (*Beach Man Hole*, sala de equipamentos, energia e ar condicionado) já se encontra disponível, sendo apenas necessário construir as condutas do segmento terrestre em relação à qual o traçado já foi projectado.

Por outro lado, ainda existem condicionantes que podem limitar o impacto do serviço de cabo submarino ACE e da entrada do segundo operador, as quais ainda precisam ser devidamente

ponderadas e resolvidas, nomeadamente: o *dossier* “*sexline*” que dificulta as chamadas do exterior para São Tomé e Príncipe; o contrato assinado entre a AGER e uma empresa para uma “*exclusive international gateway*”; a situação da gestão do domínio ICANN e da divulgação do domínio “.st” e; os procedimentos e requisitos exigidos para a atribuição de licenças para ISPs.

De acordo com as informações prestadas pela AGER, todas estas situações se manterão inalteradas até 31 de Dezembro de 2014, apesar de já se terem iniciado as negociações no sentido de se chegar a uma rápida resolução, conjuntamente com o Governo e com as partes envolvidas. Espera-se, assim, que as soluções sejam alcançadas no decorrer do ano 2015.

Ademais, segundo a AGER, com a adesão ao cabo ACE será mais fácil reduzir as tarifas aplicadas no âmbito das telecomunicações, comparativamente com a época em que se dispunha apenas dos serviços por satélite. A única desvantagem que poderá eventualmente advir é a “invasão” dos *crackers* da internet e a solução passará pela adopção de uma Lei que regule os crimes na Internet, de forma a proteger também as operadoras.

Finalizando, acrescenta-se que, de acordo com as orientações de encerramento do projecto, todos os bens, serviços e obras devem estar concluídos até a data de fecho – 31 de Dezembro de 2014, e o pagamento deve ser realizado no período compreendido entre Janeiro e Abril de 2015. A AFAP deverá adoptar todas as medidas necessárias para garantir que todos os novos compromissos financeiros sejam assumidos atendendo a data de fecho e aos fundos disponíveis.

AFRICA COAST TO EUROPE (ACE) OPTICAL FIBER SUBMARINE CABLE



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