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Report No: PAD4839

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED GRANT

IN THE AMOUNT OF SDR15.7 MILLION  
(US\$21 MILLION EQUIVALENT)

AND

A GLOBAL INFRASTRUCTURE FACILITY GRANT  
IN THE AMOUNT OF US\$0.8 MILLION

TO THE

DEMOCRATIC REPUBLIC OF SÃO TOMÉ AND PRÍNCIPE

FOR THE

DIGITAL SÃO TOMÉ AND PRÍNCIPE PROJECT

May 24, 2022

Digital Development Global Practice  
Eastern and Southern Africa Region

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## CURRENCY EQUIVALENTS

(Exchange Rate Effective April 30, 2022)

Currency Unit =

US\$1 = SDR 0.74

## FISCAL YEAR

January 1 - December 31

Regional Vice President: Hafez M. H. Ghanem

Country Director: Jean-Christophe Carret

Regional Director: Christine Zhenwei Qiang

Practice Manager: Isabel Neto

Task Team Leaders: Maria Claudia Pachon, Audrey Ariss

## ABBREVIATIONS AND ACRONYMS

3G	Third Generation (Mobile Communication System)
4G	Fourth Generation (Mobile Communication System)
ACE	Africa Coast to Europe
AFAP	Fiduciary and administrative agency for projects ( <i>Agência Fiduciária de Administração de Projectos</i> )
AGER	General Authority for Regulation ( <i>Autoridade Geral de Regulação</i> )
ANPDP	National Agency for the Protection of Personal Data ( <i>Agencia Nacional de Protecção de Dados Pessoais</i> )
APCI	Trade and Investment Promotion Agency ( <i>Agência de Promoção do Comércio e Investimentos</i> )
CAB	Central African Backbone
CAPI	Computer-Assisted Personal Interviews
CERC	Contingent Emergency Response Component
CERT	Computer Emergency Response Team
COVID-19	Coronavirus Disease 2019
CNE	National Council of Statistics ( <i>Conselho Nacional de Estatística</i> )
CPF	Country Partnership Framework
CPS	Country Partnership Strategy
CR	Civil Registration
CST	<i>Sao Tomean Telecommucations Company(Companhia Santomense de Telecomunicações)</i>
DA	Designated Account
DEA	Digital Economy Assessment
DE4A	Digital Economy for Africa
DFS	Digital financial services
DGRN	Directorate General of Registries and Notaries ( <i>Direcção Geral dos Registos e Notariado</i> )
EMAE	Water and Electricity Company ( <i>Empresa de Água e Electricidade</i> )
E&S	Environmental and Social
ESF	Environmental and Social Framework
ESCP	Environmental and Social Commitment Plan
ESMF	Environmental and Social Management Framework
FM	Financial Management
FY	Fiscal Year
GBV	Gender-Based Violence
GDP	Gross Domestic Product
GIF	Global Infrastructure Facility
GoSTP	Government of São Tomé and Príncipe
GRM	Grievance Redress Mechanism
GRS	Grievance Redress Service
ICT	Information and Communication Technology
ID	Identification
ID4D	Identification for Development
IDA	International Development Association

IFR	Interim financial report
IFMIS	Integrated Financial Management Information System
IGF	Inspector General of Finances ( <i>Inspeção Geral das Finanças</i> )
INE	National Institute of Statistics ( <i>Instituto Nacional de Estatística</i> )
INIC	Institute of Innovation and Knowledge ( <i>Instituto de Inovação e Conhecimento</i> )
IOF	Household Budget Survey ( <i>Inquérito ao Orçamento Familiar</i> )
IPF	Investment Project Financing
IT	Information Technology
ITU	International Telecommunication Union
LMIC	Lower Middle-Income Countries
LMP	Labor Management Procedures
M&E	Monitoring and Evaluation
Mbps	Megabits per second
MDAs	Ministries, Departments and Agencies
MINR	Ministry of Infrastructure and Natural Resources ( <i>Ministério das Infraestruturas, Recursos Naturais e Ambiente</i> )
MIS	Management Information System
MNO	Mobile Network Operators
MSGI	Minimum Set of Gender Indicators
NPV	Net Present Value
ODA	Overseas Development Aid
OHS	Occupational Health and Safety
PALOP-TL	African Countries with Portuguese as the Official Language and Timor Leste ( <i>Países Africanos de Língua Oficial Portuguesa e Timor Leste</i> )
PCM	Private Capital Mobilization
PDO	Project Development Objective
PFM	Public Financial Management
PIM	Project Implementation Manual
PIN	Personal Identification Number
PIU	Project Implementation Unit
PPA	Project Preparation Advance
PPP	Public-Private Partnership
PPSD	Project Procurement Strategy for Development
PSC	Project Steering Committee
PSWG	Private Sector Working Group
QoS	Quality of Service
RAP	Autonomous Region of Príncipe– ( <i>Region Autonomia do Príncipe</i> )
RPF	Resettlement Policy Framework
SCD	Systematic Country Diagnostic
SEA	Sexual Exploitation and Abuse
SEP	Stakeholder Engagement Plan
SH	Sexual Harassment
SIGA	Integrated system for Certificate Management ( <i>Sistema Integrado de Gestão de Assentos</i> )
SPI	Statistical Performance Indicator
STEP	Systematic Tracking of Exchanges in Procurement

STP	São Tomé and Príncipe
TA	Technical Assistance
TOR	Terms of Reference
UNDP	United Nations Development Programme
UNICEF	United Nations International Children's Emergency Fund
UNFPA	United Nations Population Fund
WBG	World Bank Group
WDR	World Development Report



**TABLE OF CONTENTS**

<b>DATASHEET .....</b>	<b>1</b>
<b>I. STRATEGIC CONTEXT .....</b>	<b>7</b>
A. Country Context.....	7
B. Sectoral and Institutional Context .....	8
C. Relevance to Higher Level Objectives.....	16
<b>II. PROJECT DESCRIPTION.....</b>	<b>19</b>
A. Project Development Objective (PDO) .....	19
B. Project Components .....	19
C. Project Beneficiaries .....	27
D. Results Chain.....	28
E. Rationale for Bank Involvement and Role of Partners.....	30
F. Lessons Learned and Reflected in Project Design.....	31
<b>III. IMPLEMENTATION ARRANGEMENTS .....</b>	<b>32</b>
A. Institutional and Implementation Arrangements.....	32
B. Results Monitoring and Evaluation Arrangements.....	34
C. Sustainability.....	34
<b>IV. PROJECT APPRAISAL SUMMARY .....</b>	<b>35</b>
A. Technical, Economic and Financial Analysis.....	35
B. Fiduciary.....	38
C. Legal Operational Policies.....	39
D. Environmental and Social .....	39
<b>V. GRIEVANCE REDRESS SERVICES .....</b>	<b>40</b>
<b>VI. KEY RISKS .....</b>	<b>41</b>
<b>VII. RESULTS FRAMEWORK AND MONITORING .....</b>	<b>43</b>
<b>ANNEX 1: Implementation Arrangements and Support Plan.....</b>	<b>53</b>
<b>ANNEX 2: Support for Climate Change Adaptation and Mitigation.....</b>	<b>64</b>

## DATASHEET

### BASIC INFORMATION

Country(ies)	Project Name	
Sao Tome and Principe	Digital Sao Tome and Principe	
Project ID	Financing Instrument	Environmental and Social Risk Classification
P177158	Investment Project Financing	Substantial

### Financing & Implementation Modalities

<input type="checkbox"/> Multiphase Programmatic Approach (MPA)	<input checked="" type="checkbox"/> Contingent Emergency Response Component (CERC)
<input type="checkbox"/> Series of Projects (SOP)	<input type="checkbox"/> Fragile State(s)
<input type="checkbox"/> Performance-Based Conditions (PBCs)	<input checked="" type="checkbox"/> Small State(s)
<input type="checkbox"/> Financial Intermediaries (FI)	<input type="checkbox"/> Fragile within a non-fragile Country
<input type="checkbox"/> Project-Based Guarantee	<input type="checkbox"/> Conflict
<input type="checkbox"/> Deferred Drawdown	<input type="checkbox"/> Responding to Natural or Man-made Disaster
<input type="checkbox"/> Alternate Procurement Arrangements (APA)	<input type="checkbox"/> Hands-on Enhanced Implementation Support (HEIS)

Expected Approval Date	Expected Closing Date
15-Jun-2022	30-Jun-2027

Bank/IFC Collaboration

No

### Proposed Development Objective(s)

To improve equity and sustainability of telecommunications services between the islands of São Tomé and Príncipe, and strengthen data governance, data systems and statistical capacity.

### Components

Component Name	Cost (US\$, millions)
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Digital access	16.25
Data foundations for digital public service delivery	2.65
Housing and population census	3.00
Project management and coordination	2.00
Contingent Emergency Response	0.00

### Organizations

Borrower: Democratic Republic of São Tomé and Príncipe  
 Implementing Agency: Ministry of Infrastructure, Natural Resources and Environment

### PROJECT FINANCING DATA (US\$, Millions)

#### SUMMARY

<b>Total Project Cost</b>	23.90
<b>Total Financing</b>	23.90
<b>of which IBRD/IDA</b>	21.00
<b>Financing Gap</b>	0.00

#### DETAILS

##### World Bank Group Financing

International Development Association (IDA)	21.00
IDA Grant	21.00

##### Non-World Bank Group Financing

Trust Funds	0.80
GLOBAL INFRASTRUCTURE FACILITY	0.80
Commercial Financing	2.10
Unguaranteed Commercial Financing	2.10





**IDA Resources (in US\$, Millions)**

	Credit Amount	Grant Amount	Guarantee Amount	Total Amount
<b>Sao Tome and Principe</b>	0.00	21.00	0.00	21.00
National PBA	0.00	21.00	0.00	21.00
<b>Total</b>	<b>0.00</b>	<b>21.00</b>	<b>0.00</b>	<b>21.00</b>

**Expected Disbursements (in US\$, Millions)**

WB Fiscal Year	2022	2023	2024	2025	2026	2027	2028
<b>Annual</b>	0.00	2.40	2.40	11.40	3.00	1.20	0.60
<b>Cumulative</b>	0.00	2.40	4.80	16.20	19.20	20.40	21.00

**INSTITUTIONAL DATA**

**Practice Area (Lead)**

Digital Development

**Contributing Practice Areas**

Education, Governance, Poverty and Equity

**Climate Change and Disaster Screening**

This operation has been screened for short and long-term climate change and disaster risks

**SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)**

Risk Category	Rating
1. Political and Governance	● Moderate
2. Macroeconomic	● Substantial
3. Sector Strategies and Policies	● Moderate
4. Technical Design of Project or Program	● Moderate
5. Institutional Capacity for Implementation and Sustainability	● Substantial
6. Fiduciary	● Substantial
7. Environment and Social	● Substantial
8. Stakeholders	● Moderate



9. Other ● Substantial

10. Overall ● Substantial

## COMPLIANCE

### Policy

Does the project depart from the CPF in content or in other significant respects?

Yes  No

Does the project require any waivers of Bank policies?

Yes  No

### Environmental and Social Standards Relevance Given its Context at the Time of Appraisal

E & S Standards	Relevance
Assessment and Management of Environmental and Social Risks and Impacts	Relevant
Stakeholder Engagement and Information Disclosure	Relevant
Labor and Working Conditions	Relevant
Resource Efficiency and Pollution Prevention and Management	Relevant
Community Health and Safety	Relevant
Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Relevant
Biodiversity Conservation and Sustainable Management of Living Natural Resources	Relevant
Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Not Currently Relevant
Cultural Heritage	Relevant
Financial Intermediaries	Not Currently Relevant

**NOTE:** For further information regarding the World Bank’s due diligence assessment of the Project’s potential environmental and social risks and impacts, please refer to the Project’s Appraisal Environmental and Social Review Summary (ESRS).



## Legal Covenants

### Sections and Description

Schedule 2. Section I.A.1.b The Recipient not later than three months after the Effective Date, through the NIS, shall establish a Dedicated Census Office satisfactory to the Association, with a structure, staff, functions, responsibilities and adequate resources as set forth in the Project Implementation Manual, to be responsible for carrying out Part 3 of the Project.

### Sections and Description

Schedule 2. Section 1.A.2 Not later than one month after the Effective Date, the Recipient shall establish and thereafter maintain throughout Project implementation a Steering Committee with a composition and functions satisfactory to the Association, including the responsibility to provide strategic guidance on Project implementation, and ensure coordination across the Recipient’s institutions and agencies, as set forth in the Project Implementation Manual.

### Sections and Description

Schedule 2. Section 1.A.3 Not later than three months after the Effective Date, the Recipient shall establish and thereafter maintain throughout Project implementation a Local Census Commission in each of the Recipient’s six districts with a composition and functions satisfactory to the Association, including the responsibility to coordinate the carrying out of the census at district level, as set forth in the Project Implementation Manual.

### Sections and Description

Schedule 2. Section 1.A.4 Not later than one month after the Effective Date, the Recipient shall establish and thereafter maintain throughout Project implementation Project Technical Committees with a composition and functions satisfactory to the Association, including the responsibility to ensure coordination amongst Project stakeholders, as set forth in the Project Implementation Manual.

### Sections and Description

Schedule 2. Section 1.A.5 Not later than one month after the Effective Date, the Recipient shall maintain throughout Project implementation a Private Sector Working Group with a composition and functions satisfactory to the Association, including the responsibility to coordinate telecommunications investments under the Project, as set forth in the Project Implementation Manual.

## Conditions

Type	Financing source	Description
Disbursement	IBRD/IDA	No disbursements shall be made under Category (2), unless the debt, equity and/or other agreements that are necessary for commencement of implementation of Part 1.b.i of the Project, acceptable to the Association: (i) have been fully executed between the investor(s) selected by the Recipient and the relevant parties for the financing of Part 1.b.1 of the Project; and (ii) became effective;



Type Disbursement	Financing source IBRD/IDA	Description No disbursement shall be made for Emergency Expenditures under Category (4), unless and until all of the following conditions have been met in respect of said expenditures: (A) the Recipient has determined that an Eligible Crisis or Emergency has occurred, and has furnished to the Association a request to withdraw Financing amounts under Category (4); and (B) the Association has agreed with such determination, accepted said request and notified the Recipient thereof; and the Recipient has adopted the CERC Manual and Emergency Action Plan, in form and substance acceptable to the Association.
Type Effectiveness	Financing source IBRD/IDA	Description The Recipient, through the MINR, has adopted the Project Implementation Manual in accordance with the provisions of Section I.C of Schedule 2 to the Financing Agreement.
Type Effectiveness	Financing source IBRD/IDA	Description The Recipient, through the MINR, has recruited the following additional staff with qualifications, experience and under terms of reference satisfactory to the Association: a Project coordinator, a procurement specialist, an environmental specialist and a social specialist.
Type Effectiveness	Financing source IBRD/IDA	Description The Subsidiary Agreement has been executed and delivered and all conditions precedent to its effectiveness have been fulfilled.
Type Effectiveness	Financing source IBRD/IDA	Description The Recipient, through the MINR, has prepared and disclosed in the Recipient's territory the final ESMF and RPF, acceptable to the Association.
Type Effectiveness	Financing source IBRD/IDA	Description The Grant Agreement has been executed and delivered and all conditions precedent to its effectiveness have been fulfilled.



## I. STRATEGIC CONTEXT

### A. Country Context

1. **São Tomé and Príncipe (STP) is a lower middle-income small-island country that faces challenges typical of small and remote states.** The country consists of two main islands in the Gulf of Guinea with a surface area of 1,001km<sup>2</sup>. STP is a parliamentary, unitary republic (though the island of Príncipe is recognized as an autonomous region), and its fast-growing population is approximately 219,000, with 42 percent of the population at or below the age of 14.<sup>1</sup> In 2020 the country's per capita gross national income was estimated at US\$4,250 in purchasing power parity, and its per capita gross domestic product (GDP) at market exchange rates was US\$2,158. About a quarter of the population lives below the global poverty line of US\$1.90 (2011 purchasing power parity) per person per day. STP's development challenges are typical of small island nations, including low government capacity, an undiversified production base, and isolation and poor connectivity to global markets.

2. **STP's economy has grown modestly over the past two decades and remains highly dependent on overseas development aid (ODA).** ODA and inflows of foreign direct investment following potential oil development in the first decade of the 2000s supported STP's market reforms and played a pivotal role in the country's modest economic growth over the past two decades. Whilst inflows and growth started slowing after 2015, a large increase in external grant financing offset the negative impact of the Coronavirus disease 2019 (COVID-19) pandemic on the tourism sector, allowing the economy to grow in 2020. The COVID-19 outbreak in STP has been among the worst in Africa on a per capita basis (2,817 cases per 100,000 inhabitants) as of March 30, 2022. STP's economy was hit by a near total halt in tourism, one of the main growth drivers of the economy prior to the pandemic, as well as mobility restrictions to contain the spread of the virus. According to government statistics, however, these pandemic-related shocks were more than offset by increased government spending and investment, financed by exceptionally large donor financing. Real GDP growth is estimated to have slowed from 3.1 in 2020 to 1.8 percent in 2021 as international financing was scaled back due to lower COVID-19 emergency support. Global travel restrictions continued and prolonged energy shortages in mid-2021 disrupted economic activity.

3. **Despite developments in agribusiness and tourism, the private sector remains underdeveloped, and productivity remains low—2019 GDP per capita reached only the 1980 level.** Agriculture, forestry, and fishing play a critical role in the economy and are the source of most exports but productivity in these primary sectors is low, both relative to other sectors in STP and relative to similar countries. Tourism, an important source of income and foreign exchange earnings for STP, remains a small part of the economy but represents an important area of growth potential. Developing a high-end tourism sector closely integrated with local agriculture and fisheries is a key component of the country's development strategy. The Autonomous Region of Príncipe (*Região Autónoma do Príncipe*, RAP) has opted for this type of development model that prioritizes activities that respect nature, such as responsible tourism, rather than large-scale extractive activities (the entirety of Príncipe is a recognized Biosphere Reserve). Most people are self-employed in low-productivity jobs, a key reason why poverty remains high in STP relative to international peers. Women have lower labor force participation rates (58.7 percent versus 87.5 percent in 2017) and higher rates of unemployment (7.9 percent versus 4.1 percent in 2017)

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<sup>1</sup> United Nations Population Division (2020). World Population Prospects: World Bank estimates based on age/sex distributions of United Nations Population Division's World Population Prospects.



than men.<sup>2</sup> Despite significant progress in access to schooling, most citizens have only a basic education and they lack some of the key paths out of poverty, such as a strong social safety net or income from foreign remittances.

4. **STP's remoteness limits its access to international markets and slows the development of the private sector and creation of jobs. The island of Príncipe, located 148 km from São Tomé, is burdened by double isolation.** Besides increasing the costs of trade and narrowing international market access, the country's isolation limits its access to information on best practices and international expertise. Unreliable electricity, an inadequate road network, and problems with the main port and airport also hamper connectivity and private sector activity. Príncipe's population has limited access to critical public services that are available only in São Tomé (such as certain medical services and the judicial system) and its private sector is isolated from international markets due to irregular and inefficient maritime connection between the islands and air connection that depends on favorable weather conditions and is too expensive for most of the population. The spread of digital connectivity has been slowed by high costs and the country's unpredictable power supply, and Príncipe is dependent on an unreliable connection to São Tomé for its digital connection to the world. In addition to frequent power outages, the country experienced severe energy crises in 2018 and again in 2021, both linked to poor infrastructure maintenance, resulting in power supply being cut by as much as 75 percent. Frequent power outages and poor energy access also reduce the effectiveness of public service provision, including in key sectors like health and education. The government has taken a fragmented approach to deploying digital service delivery platforms, slowing their rollout. Although many of STP's connectivity problems are due to its geography, there are ample opportunities to mitigate them through technology and effective policies.

5. **STP's geographic characteristics make the country also one of the most vulnerable to climate change and rising sea levels.** Its remote, small island nature, and populations largely concentrated around the low-lying coastlines of the two main islands, make STP extremely vulnerable to natural and climate related disasters. Climate change imposes high costs and may even threaten the physical viability of some areas of both islands of STP. STP is especially vulnerable to adverse weather events, with a prolonged rainy season that exposes the country to increasing risk of storm surge, flooding, king tide ingress and extreme coastal erosion that will increase in frequency because of climate change.

## B. Sectoral and Institutional Context

6. **The fundamental digital building blocks needed to create an inclusive and modern private sector as well as a modern public sector in the country, need to be strengthened.** These are reflected in the Government's sustainable development plan for 2020-2024 which highlights digital connectivity and data assets as key inputs for the development of STP.<sup>3</sup> The digital economy presents significant opportunities for STP and is an avenue to help STP overcome some of its small island isolation challenges and provides economic opportunities for the country as well as ways for the population to access public services. Improved digital connectivity can help boost access to finance, improve marketing and services connected to international clients and tourists, and improve service delivery. It can facilitate the provision

<sup>2</sup> World Bank (2021). Prosperity for All Saotomeans: Priorities to end poverty, promote growth and build resilience in São Tomé and Príncipe. Systematic Country Diagnostic.

<sup>3</sup> Sao Tomé and Príncipe Sustainable Development Plan for 2020-2024. It states that sustainable development will require "improvement of telecom infrastructure to ensure complete coverage of the island, and the provision of electronic communication services at 'reasonable' prices," noting as well that "data and information, and above all the use of that information, is extremely important for governance".



of remote education and telehealth services, reducing the need for inhabitants of Príncipe to travel to São Tomé. Improving connectivity to the Island of Príncipe can assist also with the development of the tourism industry and improve communications between the islands, as well as improving public service delivery to citizens in Príncipe from the main seat of Government in São Tomé. Similarly, a key public good that is lacking in STP is information: a lack of data, monitoring, and research undermines the ability to develop well-informed policy and effective implementation, limiting both private sector investment and public sector effectiveness. Despite commitments to address STP's economic and social challenges, without statistical evidence to guide the planning, targeting, and monitoring of reform strategies, the government cannot effectively implement or assess the effectiveness of the strategies.

7. **The challenges caused by the COVID-19 pandemic have also highlighted the need for accelerating digital adoption in STP as a means of boosting resilience.** Greater digital adoption would, for example, allow for economic exchange to continue to take place via e-commerce and digital payments, reducing market disruption, support business continuity and uninterrupted delivery of critical basic services. Looking forward, prioritizing measures that increase digital adoption across government, private sector and the public will help boost STP's resilience to future crises.

8. **Although the country has made investments in international connectivity, STP's digital economy remains nascent, and limited access and affordability of broadband internet services hinders the growth of STP's digital ecosystem.**<sup>4</sup> Most of the foundational building blocks needed to propel digital transformation at scale are still under-developed or missing. This includes areas such as last-mile digital access, digital platforms, financial services, skills and entrepreneurship. The recently conducted STP Digital Economy Assessment (DEA) report highlighted priority areas to build the foundations of a digital economy in the country.<sup>5</sup> These include: (a) consolidation of the country's digital infrastructure by providing a reliable link to Príncipe and improving digital inclusion; (b) strengthening STP's regulatory capacity to support greater competition in the telecom sector; and (c) supporting digital transformation of government, including strengthening the legal framework and development of key data systems and platforms that provide a solid digital foundation.

9. **Similarly, statistical information pertaining to fundamental macroeconomic and microeconomic indicators is either lacking or outdated, while the last Housing and Population Census, the backbone of the country's statistical system, impacting population and economic growth estimates, was completed in 2012.** International best practices recommend that a census be held every 10 years to provide updated population counts for the targeting of public policies and as a base for other public policy planning and statistical core activities. This is particularly important in STP, a country with high population growth and with incomplete administrative records for monitoring current population size. There are no labor force or enterprise surveys—though, notably, an Economic Census was finalized in 2021—and data that are available do not follow international standard classifications, such as the International Standard Industrial Classification of All Economic Activities, Standard International Trade Classification, or International Standard Classification of Occupations. As a result, there are no studies on labor productivity and limited information to assess challenges to private sector development.

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<sup>4</sup> World Bank (2021). São Tomé and Príncipe Digital Economy Assessment

<sup>5</sup> World Bank (2021). Sao Tomé and Príncipe Digital Economy Assessment.



*Digital Infrastructure and Broadband Adoption*

10. **The Information, Communications and Technology (ICT) agenda lies primarily within the Ministry of Infrastructure and National Resources (*Ministério das Infraestruturas, Recursos Naturais e Ambiente, MINR*).** In parallel, the Ministry of Planning, Finance, and Blue Economy through its Directorate of Technology and Innovation (*Direcção de Tecnologia e Inovação*), is responsible for several public platforms. Additionally, there is also a concerted effort inside the Government of São Tomé and Príncipe (GoSTP), led by the Institute of Innovation and Knowledge (*Instituto de Inovação e Conhecimento, INIC*), to advance STP's technology transformation. INIC's Digital Government Strategy, published in 2020, outlines cross-cutting approaches for the entire public sector.

11. **STP has nonetheless taken some important steps towards developing the telecommunications infrastructure and market needed for its digital economy.** A key positive development in the sector has been the creation in 2005 of an independent combined utility regulator, the General Authority for Regulation (*Autoridade Geral de Regulação, AGER*), which is responsible for supervising the telecom sector, as well as post, water, and electricity utilities. In 2012, to improve its international connectivity, STP switched from satellite links to the Africa Coast to Europe (ACE) submarine fiber-optic cable system, which offers enough low-cost capacity for the short to medium-term. With support from the World Bank under the Central African Backbone (CAB) project (CAB-2; P117652), the GoSTP and private sector partners invested US\$25 million to become a member of the ACE consortium, of which US\$11.9 million was from the private sector (Report No: ICR3141).<sup>6</sup> This gave São Tomé Island access to an effectively inexhaustible source of low-cost international capacity (given the small population and the high 12.8 Tbit/s capacity of the cable) but left Príncipe behind relying only on suboptimal microwave link connections to global internet networks. Along with the opening of the telecom market to competition, this helped encourage the entrance of a second telecommunications operator, Unitel STP, to compete with the dominant operator *Companhia Santomense de Telecomunicações* (CST). This has resulted in reductions in the cost of retail telecommunications services after Unitel STP began operations in 2014, despite difficulties to gain any significant market share.

12. **STP has not been able to realize the full benefits from its investments in digital infrastructure to achieve broad adoption of the internet.** Mobile (3G) broadband services reach 95 percent of the population in major cities, and approximately 85 percent of the population uses a mobile phone.<sup>7</sup> However, only about 36 percent of the population currently uses mobile broadband, and data consumption per capita is at relatively low levels as indicated by the small quantity of international bandwidth consumed relative to comparable nations.<sup>8</sup> Fixed broadband penetration stands at about 13.5 percent. About half the fixed broadband subscribers are businesses, indicating that only about 2-3 percent of households have fixed broadband. The primary use of the internet is to access social media. Affordability is an issue, with the International Telecommunication Union (ITU)'s Internet Price Basket showing that a mobile voice and data plan with 1.5Gb of data per month would cost about 6 percent of monthly income in 2020, while a fixed broadband package costs about 19 percent, both high percentages

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6 STP Cabo, a Special Purpose Vehicle (SPV), was established as a Public-Private Partnership (PPP) to manage the landing station and the country's share of the ACE capacity, with the goal of providing open access and cost-based wholesale capacity. Shareholders in STP Cabo have access to capacity on a pro-rata basis, reflecting their level of share ownership. Shares were sold to CST and later to Unitel STP, which now own the whole company except for a very small Government share.

7 GSMA Intelligence Database (2020). <https://www.gsmainelligence.com/>.

8 World Bank (2021) (2021) São Tomé and Príncipe - Digital Economy Assessment.





even within lower income countries in Sub-Saharan Africa.<sup>9</sup> Affordability of internet-enabled devices is also low; of total connections in 2019, 44 percent were from basic/feature phones.<sup>10</sup> Unfortunately, no gender-disaggregated data related to the digital economy exists to date for STP. However, referring to the existing literature, according to Afrobarometer's 2016/2018 survey, African women use and have less access to the internet than African men do. In São Tomé and Príncipe, 36 percent of women use the internet as opposed to 47 percent of men.<sup>11</sup> This causes a major concern as using the internet is key in today's digital age, since the internet could offer women the avenue to start a business, getting an education, finding jobs, obtaining healthcare, finding banking, and other financial services.<sup>12</sup> The high cost of access and limited income levels, as well as the limited number of local service providers and network unreliability all contribute to the country's low levels of internet uptake. The legal framework underpinning the regulation of the telecommunications sector, enacted under the 3/2004 Basic Law of Telecommunications, also requires updating to meet the needs of modern digital telecommunications technologies and services.

**13. Príncipe's digital connectivity with São Tomé Island (which is connected to the international network) is reaching maximum capacity and provides services of lower quality, intensifying the disparities amongst the two islands.** The primary means of connection between São Tomé and Príncipe is via two microwave links, one owned and operated by the dominant operator CST and the other by Unitel. Both links are amongst the most challenging in the world with a link length of over 176 km over sea, and are degraded during precipitation events, particularly during the rainy season from September to May. CST's link provides 500 Megabits per second (Mbps) of capacity, which has reached saturation and is inadequate to support future telecommunications services in Príncipe such as the upcoming 4G mobile upgrade and Internet Protocol television (IPTV) services. It also limits the availability of new services like remote learning, telehealth, government online services, and digital financial services. Unitel's link provides 168 Mbps of capacity and is nearing saturation, with 70 percent average utilization which reaches capacity during peak periods. Both operators have recognized that more long-term, sustainable capacity will be required within the next five years to serve Príncipe's population of approximately 8000 people with high-speed broadband.

**14. The constraint on the inter-island connection acts as a barrier to the development of equitable social and public services in Príncipe.** Príncipe's remoteness means that there is disparity with São Tomé in the access and quality of public services between the two islands, with São Tomé being the main center. The ability for the country to address this disparity through the provision of services using digital platforms to citizens on Príncipe is constrained by the connection between the two islands, which acts as a bottleneck to deploy digital services to Príncipe, such as digital education platforms, telehealth services, or digital government services. This equity divide will continue to widen over time as the constraint on capacity to Príncipe holds back the opportunity for these services to be utilized, while services on São Tomé improve.

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<sup>9</sup> <https://www.itu.int/en/ITU-D/Statistics/Pages/ICTprices/ICTPricesVisualization.aspx>

<sup>10</sup> GSMA and UNECA (2021). Enabling e-commerce in Central Africa: The role of mobile services and policy implications

<sup>11</sup> Afrobarometer. (2020). African women have less access to the Internet than African men do. That's a problem. <https://afrobarometer.org/blogs/african-women-have-less-access-internet-african-men-do-thats-problem#:~:text=On%20the%20basis%20of%20more,the%20Internet%20regularly%2C%20or%20to.>

<sup>12</sup> Lardies, C., Dryding, D., L, C. (2020). African women have less access to the Internet than African men do. That's a problem. The Washington Post. <https://www.washingtonpost.com/politics/2020/03/06/african-women-have-less-access-internet-than-men-do-thats-problem/>



15. **The inter-island connection is also exposed to climate risks.** The current microwave link is exposed to risks from adverse weather events, storm surges and high winds, all of which significantly affect the performance of the connection at a time when communications with Príncipe is vital, that is, during a natural disaster event. Fueled by climate change, increasing frequency of such events brings additional risk to the existing connection. New infrastructure investments will be designed to adapt to long term climate risk, be resilient to adverse weather events and climate-related risks and contribute to climate risk mitigation.

#### *Digitization of Public Administration and Services*

16. **The GoSTP has taken a fragmented approach to digitization and most of the foundations for digital government service delivery are still nascent.** The country lags internationally across several ICT-related e-Government surveys. It ranks (a) 155th out of 193 countries in the United Nations E-Government Index, 2020<sup>13</sup>; (b) 179th out of 193 countries in the E-Participation Index, EPI 2018<sup>14</sup>; and (c) 166th out of 178 countries in the Open Data Inventory<sup>15</sup>. Critically, STP has been losing ground compared to most of its peers since 2010, as its scores related to digital public platforms have been worsening.

17. **The GoSTP published in 2020 its National Digital Government Strategy and embarked upon its operationalization.** The Strategy frames and integrates a set of digital transformation initiatives to improve the provision of digital public services. Its strategy focuses on nine sectors/themes to provide government-to-citizen services.<sup>16</sup> To support these, a series of structuring of technological, legislative, and administrative pillars are proposed. Amongst the various initiatives, the strategy proposes a national data center, a GOV.ST Single Portal, and digital identity and authentication platforms.

18. **The GoSTP has begun implementing some digital initiatives with the aim to consolidate the disparate government systems into one new and integrated data infrastructure.** With support from United Nations Development Programme (UNDP), a national data center will be operational by end 2022, and an interoperability framework is in the process of being finalized.<sup>17</sup> Digitization initiatives in progress include the land registry, civil registry (more on this below), and criminal registry. A management information system (MIS) for the country's social protection programs contains data on almost half the households in the country. However, many of the building blocks are still needed for the GoSTP to be able to securely and efficiently leverage its data to inform policymaking and deliver services digitally. These include the availability of up-to-date demographic and socio-economic data, as well as digital identification and authentication systems, an interoperability/data exchange solution, and a digital payments system (the "digital stack")<sup>18</sup>. Once these 'enablers' are in place, along with the data 'safeguards' required to build trust in digital services, there is potential for the GoSTP to be a driver of digital transformation in strategic sectors.

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<sup>13</sup> United Nations, EGD (2020). Sao Tome and Principe.

<sup>14</sup> United Nations, EPI (2018). Sao Tome and Principe.

<sup>15</sup> Open Data Watch, ODIN (2018). Sao Tome and Principe.

<sup>16</sup> The sectors include health; education; work and employment; social protection; environment; tourism; agriculture, livestock and fisheries; fiscal and taxation; justice and citizenship.

<sup>17</sup> It is expected these will be completed by September 2022.

<sup>18</sup> World Bank (2022). *A Digital Stack for Transforming Service Delivery ID-Payments and Data Sharing v12 (English)*.



19. **Relevant national laws on personal data protection and cybercrime exist; however, a comprehensive legal framework, an essential foundation to support digital transformation, is still at an initial stage.** A Personal Data Protection Law<sup>19</sup> was enacted in 2016, and its implementation is being overseen by the National Agency for the Protection of Personal Data (*Agencia Nacional de Protecção de Dados Pessoais*, ANPDP), the national authority that regulates, monitors, and controls all transactions involving personal data. It is tasked with monitoring compliance with personal data protection rules. A Law on Cybercrime, enacted in 2017, presents material and procedural criminal provisions, as well as provisions on international cooperation in criminal matters relating to the field of cybercrime and the collection of evidence in electronic form. The most notable gaps in the legal framework regard civil registration (CR) and identification (ID), electronic signatures, digital transactions, open data, and freedom of information.<sup>20</sup> The laws for CR and ID need to be updated with a legal framework that supports digital ID and the use of technology<sup>21</sup> and the law on statistics<sup>22</sup> revised to better ensure privacy protection. The lack of legally recognized digital signatures hampers the advancement of several digital public services.

20. **Increasing cybersecurity and data protection capacity is a priority for the GoSTP, yet operationalizing these guardrails still hinges on implementing the necessary technology and processes.** The GoSTP does not yet have a cybersecurity strategy, action plan, or policies, and support will be needed to bolster STP's capacity for preventing, mitigating, detecting, and responding to cybersecurity incidents. The country is yet to implement a dedicated cybersecurity authority or create a Computer Emergency Response Team (CERT). Regarding data protection, whilst the ANPDP is operational and staffed, many processes remain manual and there are insufficient resources for capacity building and compliance.

21. **STP has made remarkable strides in its CR over the last decade, reaching near universal coverage.** With 95 percent of its population having had their birth registered<sup>23</sup>, near complete death registration and most of its civil registries digitized, STP's performance on CR has been notable. This is the result of strong political will to close the registration gap with the introduction of the National Strategy for Permanent Birth Registration in 2009 and the institutional commitment of the *Direcção Geral dos Registos e Notariado* (DGRN), which is responsible for both CR and identification (ID). Since 2010, major changes have been undertaken, including the digitalization of processes for all vital events, the launch of a unique personal identification number (PIN), the modernization of the identification (ID card) and the consolidation of all vital events up to 2010 into the Integrated System for Certificate Management (*Sistema Integrado de Gestão de Assentos*, SIGA) operational since 2018. SIGA registration posts are operational in DGRN centers and in several maternities. A QR code printed on SIGA-issued certificates enables authorized third parties to verify the validity of certificates via an Application Programming Interface (API) interface. However, the DGRN is still working on the digitization of birth records from 2010 onwards and on the digitization of adoption, marriage, and death records. While STP has achieved impressive results, further reforms and modernization can help strengthen the CR ecosystem and close the remaining shortcomings.

<sup>19</sup> Personal Data Protection Law—Law no. 03/2016, published in the Public Gazette, no. 39 of May 10.

<sup>20</sup> These are also identified as priorities in the country's 2020 Digital Government Strategy.

<sup>21</sup> The legal and regulatory framework of the Civil Registration and Civil Identification in São Tomé e Príncipe has its origin in Decree/Law 47678, of May 5, 1967 (Civil Registration Code) and Decree 251/71, June 1971 (Civil Identification Law).

<sup>22</sup> Lei n.º 5/98 Bases do sistema estatístico nacional.

<sup>23</sup> UNICEF (2015), MICS Sao Tome e Principe. [http://mics-surveys-prod.s3.amazonaws.com/MICS5/West%20and%20Central%20Africa/Sao%20Tome%20and%20Principe/2014/Key%20findings/Sao%20Tome%20and%20Principe%202014%20MICS%20KFR\\_Portuguese.pdf](http://mics-surveys-prod.s3.amazonaws.com/MICS5/West%20and%20Central%20Africa/Sao%20Tome%20and%20Principe/2014/Key%20findings/Sao%20Tome%20and%20Principe%202014%20MICS%20KFR_Portuguese.pdf)



22. **The current state of ID is different, and the GoSTP has identified the need for a digital ID and an authentication platform to enable secure electronic transactions and inclusive access to online services.** While identification is also a prerogative of the DGRN, there is no official coverage data for the ID card (*Bilhete de Identidade*) and the modernization of the ID system, including the interconnections between CR and ID systems, remains in progress. Interoperability between CR and ID systems now enables the importation of SIGA data to facilitate ID registration, but ID registration processes remain complex, with multiple players involved in identity proofing. The GoSTP terminated the issuance of paper-based ID card and now issues polycarbonate ID cards, which are centrally printed in the capital since May 2021. Despite the recent efforts to modernize the system, the DGRN has faced constraints to expand the issuance of the BI to the entire population and is now considering various approaches to further modernize the ID card (notably the introduction of QR code or the pre-personalization of ID cards abroad). In addition, the Government acknowledges the serious shortcomings of the existing PIN and showed interest in reinforcing the link between CR and ID by upgrading and strengthening the national unique ID number. An inclusive and trusted digital ID system that enables identity verification for online and in-person transactions would be a key building block for developing effective delivery of digital services by both government and the private sector. Past international development initiatives – notably the PALOP-TL<sup>24</sup> (*Países Africanos de Língua Oficial Portuguesa e Timor Leste*)<sup>25</sup> supported the modernization of the ID ecosystem. However, the limited institutional capacity and resources reinforce the urgent need for additional funding and technical assistance.

23. **While digital payment systems have seen a significant improvement in recent years, coverage is still very limited, and the financial infrastructure remains underdeveloped and unreliable, constraining access to payment services, particularly in rural areas and on the island of Príncipe.** Currently, cash dominates as the medium of payment, but digital financial services (DFS) are likely to grow in importance. The potential to develop DFS in STP is high, especially with the expected entrance of new market players in mobile money. DFS offers a pathway to enhancing financial inclusion, especially amongst vulnerable groups such as women and rural residents. Support to develop DFS in STP and continue the modernization of the country's legal and regulatory framework for payment systems is being provided through World Bank-financed First São Tomé Inclusion and Stability Project (P173290), and the ongoing Institutional Capacity Building Project (P162129) aims to help scale-up activities with the Central Bank of STP and support modernization of payment systems as part of the COVID-19 mitigation response.

24. **Another constraint to the development of the digital economy in STP is the low level of digital skills, which primarily stems from (a) poor internet connectivity in schools and (b) the low quality of teaching programs to promote digital skills.** Any implementation of a digital skills strategy will hinge on the provision of better access to the internet, particularly broadband internet in schools. This includes both providing improved connectivity to schools that are already connected and connecting those schools that lack access entirely, including to the power grid. In such context, STP would also need to add digital literacy to the curriculum at primary and secondary levels and improve its digital skills programs at the

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<sup>24</sup> The PALOP-TL comprises five African countries, Angola, Cape Verde, Guinea-Bissau, Mozambique and São Tomé and Príncipe, as well as Timor-Leste.

<sup>25</sup> PALOP-TL, *Melhoria da Qualidade e Proximidade dos Serviços Públicos dos PALOP e Timor-Leste*, <https://www.instituto-camoes.pt/activity/o-que-fazemos/cooperacao/cooperacao-na-pratica/projetos-com-a-ue/pasp-palop-tl-melhoria-da-qualidade-e-proximidade-dos-servicos-publicos-dos-palop-e-timor-leste>; and SEF (2020), *SEF entrega de equipamento tecnológico de última geração ao Serviço de Migração e Fronteiras de São Tomé e Príncipe*, <https://www.sef.pt/pt/pages/noticia-sef.aspx?nID=843>.



technical and tertiary levels, including for public servants. ICT capacity and skills are limited among senior Government leaders, policymakers, and civil servants within Government agencies. Development partners working to address these issues in STP include the United Nations International Children's Emergency Fund (UNICEF), which is developing its global Giga initiative to undertake a mapping of connectivity in schools, as well as potential digital learning and content platforms.<sup>26</sup> The World Bank is also planning to provide advisory services to improve digital skills in key sectors through the Skills Development for Priority Sectors activity (P177413) under preparation and the ongoing Girls Empowerment and Quality Education for All Project (P169222).

### *Statistical Capacity*

25. **The National Institute for Statistics (*Instituto Nacional de Estatística*, INE) is the main provider of official statistics in STP.** INE is a national level public institute and the central executive agency of the National Statistical System (NSS). Besides INE, the National Statistical System includes the National Council of Statistics, the Central Bank, and the delegated agencies of INE. It is the main statistical producer, and in charge of producing the national accounts and other economic statistics, as well as demographic and social statistics.

26. **STP's statistical capacity is limited**, as shown by its poor score on the World Bank's statistical performance indicators (SPI). Its score significantly trails the average of lower middle-income countries, LMICs (39.9 out of 100 in 2019 for STP compared to 56.7 for LMICs)<sup>27</sup>. Limited capacity to provide official statistics is reflected by its SPI score being lowest under Pillar 2: Data services (30 out of 100) and Pillar 5: Data Infrastructure (24.7 out of 100). Failure to update national account data makes it impossible to analyze the demand drivers of growth. On gender, the data gaps are such that, according to the UN Women Data dashboard, only 22.5 percent of indicators needed to monitor sustainable development goals from a gender perspective are available, with many data gaps in areas such as physical and sexual harassment, unemployment, gender pay gaps, access to infrastructure (including digital) and skills.

27. **With the support of the United Nations Population Fund (UNFPA), INE has prepared an initial plan for the 2023 Housing and Population Census, the fifth population census since STP's independence and the second to be collected digitally.**<sup>28</sup> INE will build on the modernization efforts implemented in 2012, during which tablets were used for data collection, and lessons learned in more recent surveys.<sup>29</sup> This round will see an expansion of use of digital data, including the use of satellite maps to help update the cartography and the implementation of automatic cross-checks and validation during the field work to quickly identify and address issues in data collection as they arise. These technical upgrades are

<sup>26</sup> UNICEF, Giga Initiative. <https://www.unicef.org/innovation/giga>

<sup>27</sup> World Bank Statistical Performance Indicators. <https://www.worldbank.org/en/programs/statistical-performance-indicators>

<sup>28</sup> Previous census have occurred in 1981, 1991, 2001 and 2012.

<sup>29</sup> For example, the collection of the last household survey, the 2017 *Inquérito ao Orçamento Familiar* (IOF), suffered from high non-response rates (on the order of 25 percent). Weak training and inadequate supervision along with low willingness to participate on the part of respondents are likely to have been other important factors. The issues identified in the IOF suggest a need for technological solutions to enhance fieldwork supervision and quickly identify and address issues as they arise, allowing for timely follow-up visits when needed. This can be done through real-time monitoring in tools such as the World Bank's "Survey Solutions," a free software used for data collection which facilitates monitoring of field work. More information about "Survey Solutions" can be found at <https://mysurvey.solutions/en/>. The experience with the IOF also suggests a high resistance in STP to taking part in surveys and a need for increased outreach and socialization about the importance of these statistical operations to boost response rates.



expected to increase the quality of the resulting data. It will also include an expansive social outreach and engagement effort, both with local authorities and directly with civil society, to ensure high participation rates.

28. **The importance of implementing the Housing and Population Census in 2023 is reinforced by the fact that it will not only provide data on STP’s population and its characteristics (demographic, economic, and other), but will also be used as a fundamental input to most socioeconomic surveys in the country for the next decade and allow for cross-validation of statistics obtained from other data sources.** The census data are used for policymaking, planning and administration, as well as in management and evaluation of programs in education, labor force, family planning, housing, health, access to digital services, transportation, and rural development. It is the unique statistical operation that provides detailed information on the population at the level of small areas and small population groups, essential for decision making, planning, managing, and evaluating program activities at these geographical levels. The census is also an invaluable resource for research and provides business and industry with the basic data they need to appraise the demand for housing, schools, furnishings, food, clothing, recreational facilities, medical supplies and other goods and services. Critically for the statistical capacity of the country, the census also provides the master sampling frame for implementation of household surveys for years to come. In this regard, with an out-of-date census, the quality of socioeconomic data collection deteriorates substantially – in a country with a fast-growing population like STP. An updated census will also serve as an important opportunity to validate the CR, including the extent to which the population is fully included in the system, identify groups disproportionately excluded, and provide information on barriers to registration of marriages (for example, geographical barriers).

### C. Relevance to Higher Level Objectives

29. **The project supports the priorities of the 2021 Systematic Country Diagnostic (SCD) for STP, which identifies ‘inclusive digital development’ as a critical cross-cutting opportunity. It also contributes to the achievement of the SCD’s Priority 4: Creating an enabling environment to boost job-generating private investment.** By supporting the census, a critical statistical input, the project also helps to close critical data gaps identified in the SCD, which have undermined the potential to make comprehensive evidence-based policies. The project is fully aligned with the most recent Country Partnership Strategy (CPS) FY14–FY18 discussed by the Board on May 28, 2014 (Report No. 83144-ST), as broadened and extended to FY20 under a 2019 Performance and Learning Review (Report No: 112944-STP). In particular, the project will support the achievement of CPS Outcome 6: Improved regional broadband connectivity under Theme 1: Supporting Macroeconomic Stability and National Competitiveness. Expanded access to broadband is expected to fuel economic growth, foster greater economic exchange, access to services, as well as market integration. A new Country Partnership Framework (CPF), fully informed by the recent SCD, will be prepared in FY23 The strategic priorities supported by the project are expected to remain fully relevant to the new CPF.

30. **The project supports the Government’s sustainable development plan for 2020-2024, which highlights digital connectivity and data assets as key inputs for the development of STP.** The project will also support the implementation of several priorities described in the 2020 Digital Government Strategy, including the legal framework, data interoperability, and key digital platforms, including digital ID.

31. **The project is also aligned with IDA19 policy commitments and Digital Economy for Africa (DE4A) Initiative.** The IDA19 policy commitments that the project contributes to include (a) helping to



close the digital infrastructure gap, (b) supporting adoption of universally accessible GovTech<sup>30</sup> solutions, (c) supporting women's increased access to and usage of digital services, and (d) climate commitments (more on this aspect below). The project will contribute to job creation and economic development in STP through the improvement of broadband internet services to existing sectors such as tourism in Príncipe, and the potential diversification to new job types or sectors through the improvement of communications and working practices via digital platforms. Finally, building on the FY21 country DEA, the project supports the operationalization of the World Bank's DE4A Initiative that seeks to ensure that every African individual, business, and government is digitally enabled by 2030, and sets key targets related to broadband access and e-services delivery.

32. **The project will also support Green, Resilient and Inclusive Development (GRID),** including the World Bank Group's (WBG) (a) Climate Change Action Plan, 2021-2025, (b) COVID-19 Crisis Response Approach Paper and (c) Gender Strategy, 2016-2023:

- (a) **Climate change** – adaptation and mitigation through digital infrastructure and services investments. Project activities supported are informed by the Climate and Disaster risk screening conducted at the concept stage, which (i) confirmed STP's high exposure and vulnerability to climate-induced extreme weather events, including an increased frequency of adverse rainfall events that cause flooding, landslides and disruption to existing communication services; (ii) identified likely impacts on physical digital infrastructure assets financed by the project; but also (iii) highlighted the potential of digital tools to support adaptation and mitigation, given low existing response capacity and the vulnerability of current services to weather events. This project will support the mitigation against climate risk in STP through climate-resilient design of digital infrastructure; as well as climate risk adaptation through the implementation of energy-efficient, low-power infrastructure solutions. The updated census, including up to date mapping of the country's housing and infrastructure, is also an important input into climate change mitigation strategies, allowing for accurate estimates of which communities are at the highest risk for specific hazards and targeting interventions accordingly. The preparation of climate change hazard map using data from the cartographic update for the census combined with existing data from MINR will also be supported by this project. For a complete climate co-Benefits analysis and further information on what the project is doing to support STP's Nationally Determined Contribution, see Annex 2, where key actions are detailed.
- (b) **COVID-19** – support for response and recovery through increasing digital adoption and digital foundations for service delivery. The pandemic has highlighted the need for accelerating digital access in STP, as a means of boosting resilience. Ultimately, low digital access means that local communities, businesses, and government ministries, departments, and agencies (MDAs) have been ill-equipped to leverage digitally enabled social distancing and services delivery strategies. In this respect, the project will support both Pillar 2

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<sup>30</sup> 'Universally accessible' means that government technology services are designed so that they can be accessed, understood, and used by all people regardless of disability, age, use of assistive devices, location, or means of internet access. It applies to both hardware and software. GovTech (government technology) solutions include hardware, software, applications, and other technology to improve access and quality of public services, facilitate citizen engagement (civic technology), and improve core government operations. These include enabling analog complements to strengthen institutions for government technology implementation, including devising related strategies; building capacity; passing related laws on digital government, data access, and use; and developing regulatory frameworks to facilitate interoperability.



(Protecting Poor and Vulnerable People) and Pillar 4 (Strengthening Policies, Institutions and Investments for Rebuilding Better) of the WBG’s COVID-19 Crisis Response Approach paper through initiatives that help to expand digital access and investments to strengthen STP’s digital foundations, including digital identification.

- (c) **Gender inclusion** – ensuring more women have access to services and opportunities. STP has already filled many of its gender data gaps but some remain, especially sectoral data, and there is a need for updates of some key indicators. As of March 2022, the UN reports that STP has data for only 31 out of 51 indicators in its Minimum Set of Gender Indicators (MSGI). Closer inspection reveals that some of the indicators marked as currently fulfilled are based on older data and need to be updated. The project will directly support the tabulations and publications of updates to at least 18 of the MSGI indicators using the census. This includes indicators for which data are currently unavailable, such as the proportion of individuals using internet disaggregated by sex and the proportion of individuals who own a mobile phone, disaggregated by sex. The reduction of data gaps based on the census will be monitored by the project through an intermediate indicator. The census will also provide updated sex-disaggregated indicators at small area levels, allowing for targeting of interventions to reduce gender gaps (including in access to schooling, basic services, and digital). It will contribute to gender-informed statistics supported by the production and dissemination of up-to-date sex-disaggregated data based on international standards,<sup>31</sup> and the preparation of a report about women in STP. To support women’s access to economic opportunities, the project will also support gender-informed training activities under Component 3 and fair and safe working conditions for women.

33. **The project is also aligned with the priorities emphasized in the World Bank’s World Development Report (WDR) “Data for Better Lives”<sup>32</sup> and corporate commitments to support the production of development data for policy.** It will enhance data governance and security in STP, invest in data systems, and improve the capacity of the GoSTP to collect, analyze, manage, and utilize data through building digital capacity and implementing the population census. Consistent with the fundamental value that population censuses must inform policymaking, the project will contribute to improving the availability and reliability of critical statistics for tracking progress towards the achievement of the SDGs and the World Bank’s twin goals of ending extreme poverty and boosting shared prosperity. Finally, STP’s digital development will enable availability of more inclusive big data that allows further statistical modernization of the country and provides more insight on the development challenges of the country.

34. **The project is also designed to attract private capital mobilization (PCM).** Whilst a significant proportion of the investment is expected to be publicly financed due to the low commercial feasibility, the project aims to leverage private investment into the submarine cable connection. To do so, it will utilize a Public Private Partnership (PPP), also to assure long term sustainability and operation of investments. In addition, the project will seek to crowd in commercial financing by providing support on an enhanced regulatory framework, such as infrastructure sharing to reduce the costs of network deployment and maintenance. Moreover, public investments will provide an avenue for greater private

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<sup>31</sup> The WBG Gender Strategy 2016-2023 calls for better country-level diagnostics on gender gaps to “highlight how closing the key gender gaps in endowments, economic opportunities, and voice and agency would boost the attainment of the WBG twin goals.”

<sup>32</sup> World Bank. 2021. World Development Report 2021: Data for Better Lives. Washington, DC: World Bank. doi:10.1596/978-1-4648-1600-0. License: Creative Commons Attribution CC BY 3.0 IGO





sector participation by de-risking investment and providing catalytic subsidies for infrastructure expansion.

## II. PROJECT DESCRIPTION

### A. Project Development Objective (PDO)

#### PDO Statement

35. To improve equity and sustainability of telecommunications services between the islands of São Tomé and Príncipe, and strengthen data governance, data systems and statistical capacity.

#### PDO Level Indicators

36. Achievement of the PDO will be measured using the following indicators:

- (a) To improve equity and sustainability of telecommunications services between São Tomé and Príncipe
  - Average speed of fixed internet broadband service (Number (Mbps)). This indicator will be disaggregated by location (São Tomé/Príncipe).
  - Reduction in hours lost per year on inter-island connection due to climate events (percentage decrease).
- (b) To strengthen data governance, data systems and statistical capacity:
  - Number of new or revised regulations and policies related to digital infrastructure and data exchange.<sup>33</sup>
  - Number of government digital systems connected to the interoperability platform.
  - Preparation of an updated master sampling frame to be used for all official socioeconomic surveys in STP.<sup>34</sup>

### B. Project Components

37. **The project is designed to build foundations for accelerated development of STP's digital economy and quality of information for both public and private purposes.** Based on the findings and recommendations of the 2021 DEA, project activities will seek to increase digital adoption by expanding access, quality, and affordability of broadband internet services, and improving the long-term capacity of the connection with Príncipe. The project will also seek to create a digitally enabled Government by strengthening digital foundations including legal and regulatory frameworks for digital services, strengthening data protection and cybersecurity capacity, and supporting the development key elements of the GoSTP's 'digital stack', national data exchange and digital identification. In terms of enriching STP's socioeconomic data, the census will be used to construct an updated master sampling frame which will serve as the base for all official socioeconomic surveys to be collected in STP for the next decade. This is

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<sup>33</sup> These include policies and regulations related to open data, e-transactions, data portability, data protection, cybersecurity, digital ID and authentication, and statistics, among others, that are adopted because of project activities.

<sup>34</sup> The updated master sampling frame, derived from the population census results, has a direct contribution to the quality of social statistics in the country for at least a decade as all representative household and social surveys that will be collected until the next population census are derived from this sampling frame. In this way the collection of the census has a direct impact on the statistical capacity of the country.

a critical component of the country’s statistical infrastructure and will serve to support the collection of accurate and inclusive data needed for policy design and implementation.

38. **The project approach has been designed to implement the foundations for connectivity and digital government services, with consideration given to potential future phases that could be funded to build on these foundations and deliver further benefit to the country.** Future phases could include a focus on the middle and last mile connectivity as an addition to the first mile connectivity included in the current design, to extend the value chain. For the digital government foundations components, this includes the possibility to further build out the suite of digital government platforms and develop digital services utilizing the foundational components in the current design, as well as further extending the scope of cybersecurity and data protection capacity building that is currently included.

39. **The project is designed around four integrated and mutually reinforcing components.** It includes US\$21 million equivalent IDA financing, US\$0.8 million financing from the Global Infrastructure Facility (GIF), and US\$2.1 million of unsecured commercial funding (see Table 1 below).

**Table 1: Project Components and Costs**

Components	(US\$ million)			
	IDA	GIF	Commercial Financing (Unguaranteed)	TOTAL
<b>1- Digital access</b>	<b>13.35</b>	<b>0.8</b>	<b>2.1</b>	<b>16.25</b>
1.1: Enabling environment for broadband market development and digital access	1.0	0.0	0.0	1.0
1.2: Connectivity to Príncipe	11.0	0.8	2.1	13.9
1.3: School connectivity	1.35	0.0	0.0	1.35
<b>2- Data foundations for digital public service delivery</b>	<b>2.65</b>	<b>0.0</b>	<b>0.0</b>	<b>2.65</b>
2.1: Legal, strategic and policy frameworks	1.0	0.0	0.0	1.0
2.2: Shared digital government platforms and services	1.65	0.0	0.0	1.65
<b>3- Housing and Population Census</b>	<b>3.0</b>	<b>0.0</b>	<b>0.0</b>	<b>3.0</b>
3.1: Preparation of the Census	2.15	0.0	0.0	2.15
3.2: Census data collection	0.7	0.0	0.0	0.7
3.3: Analysis of results and dissemination	0.15	0.0	0.0	0.15
<b>4- Project Management and Coordination</b>	<b>2.0</b>	<b>0.0</b>	<b>0.0</b>	<b>2.0</b>
<b>5. Contingent Emergency Response</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>TOTAL</b>	<b>21.0</b>	<b>0.8</b>	<b>2.1</b>	<b>23.9</b>



**Component 1: Digital access (US\$16.25 million, including US\$13.35 million IDA equivalent IDA, US\$0.8 million GIF grant and US\$2.1 million of unsecured commercial funding)**

40. This component will focus on supporting wider access and adoption of broadband through financing for the connection of the Island of Príncipe to the international submarine cable network, broadband market reform and school connectivity investments. By strengthening the enabling environment for broadband market development and data-enabled services, activities financed will help catalyze further private sector investment in infrastructure and services expansion.

***Subcomponent 1.1: Enabling environment for broadband market development and digital access (US\$1 million IDA equivalent)***

41. This subcomponent will seek to develop the policy, legal, regulatory, and governance frameworks conducive to enabling a more competitive and vibrant broadband market that offers both expanded network coverage and affordable quality commercial service. Technical assistance (TA) will be provided to the MINR and AGER to address legal and regulatory gaps and bottlenecks, review draft laws to align them with best practice and prepare new drafts where none exist. Related support will boost institutional capacity to shore up core regulatory functions to support affordable wholesale and retail pricing, stimulate wider access to digital services, and improve universal access for rural and underserved communities. This subcomponent will help support upstream reform that can help create a more favorable business environment for dynamic broadband market development and greater investments in digital infrastructure in favor of greater access. Items to be financed under this subcomponent are likely to include:

- (a) **New and improved telecoms legal frameworks and regulation.** The industry regulator will benefit from technical assistance (TA) to review, update, and significantly strengthen governance of the wholesale and retail market segments to ensure open access and fair competition. Support will include: (i) review of current market structure and dynamics, (ii) infrastructure sharing, (iii) assignment of spectrum, (iv), review of the Law of Telecommunications in anticipation of roll-out of 4G in late 2022, (v) processes for recertification of equipment, (vi) improvements of quality of service, and (vii) strengthening of universal access provisions, including a review of the Universal Services Fund. TA and training to strengthen the capacity of the regulatory authority for the sector, AGER, will also be provided, along with financing of critical regulatory equipment (for example, spectrum monitoring, quality of service) to improve regulatory capability.

***Subcomponent 1.2: Connectivity to Príncipe (US\$13.9 million, including US\$11.0 million IDA equivalent, US\$0.8 million GIF grant and US\$2.1 million unsecured commercial financing.)***

42. This subcomponent will aim to improve long-term international connectivity to Príncipe through financing of an inter-island connection with São Tomé. A technical options study conducted in 2021 found that a submarine cable is the most economic and sustainable connectivity option for the long term.<sup>35</sup> Investments will be designed to adapt to long term climate risk, be resilient to adverse weather events, and contribute to climate risk adaptation. They will also focus on energy efficient, low power design of infrastructure, with decommissioning of current energy inefficient infrastructure to contribute to climate mitigation over the long term. This will address the current constraint on the international connection to Príncipe and will also set the foundation for a possible future phase of investment that builds on the

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<sup>35</sup> Other options evaluated in the study included upgrading the existing microwave connection and satellite.



middle and last mile to expand universal access and increase demand across the country. It will enable the development of improved digital social services in the fields of health, education, and government, to ensure that equitable levels of public services are available to citizens in Príncipe. This subcomponent will include financing for:

- (a) **International connectivity to Príncipe (estimated US\$11.0 million IDA equivalent)** International connectivity to Príncipe via a submarine cable connection with São Tomé, at affordable rates on an open access basis (so that connectivity may be available to all current and future operators). The infrastructure will be designed to adapt to the specific climate risks present in the small island context of STP. This will include long term asset ownership, maintenance and sustainability planning to help mitigate climate risk. This funding amount constitutes an estimated 80 percent of the total cost of the investment required, with the remainder (approximately US\$2.1 million of expected unsecured commercial financing) sought from private sector investment partners for a total estimated cost of US\$13.9 million.
- (b) **Transaction advisory services for a PPP investment mechanism** (estimated US\$0.8 million, financed through the GIF grant). Structuring of the financing through a PPP which will seek to leverage private sector investment alongside public funding. This will evaluate the current PPP wholesale entity responsible for the management and operation of the current international cable system, to determine suitability of using the same or a similar structure for the inter-island connection. It will also evaluate other options for financial structuring to ensure that both public and private financing can be mobilized efficiently while ensuring that the development benefits of the project are still realized. These services will be funded through the Global Infrastructure Facility (GIF) grant of the World Bank, which provides funding to support public-private financing opportunities.

***Subcomponent 1.3: School connectivity (US\$1.35 million IDA equivalent)***

43. This subcomponent will aim to accelerate broadband uptake by increasing digital access in primary and secondary schools and addressing demand-side barriers that hamper digital access. Activities in this subcomponent would include:

- (a) **An assessment of the connectivity needs in schools across the country**, working with the Ministry of Education and existing development partners such as UNICEF to conduct a detailed study of needs. This will also capture extraneous constraining factors such as energy access, to help develop a detailed roadmap for connectivity improvement.
- (b) **Provision of internet connectivity to schools in both São Tomé and Príncipe**, including the purchasing of internet services and capacity for schools that are currently connected, as well as new services for schools that lack connectivity at present where possible.

**Component 2: Data foundations for digital public service delivery (US\$2.65 million IDA equivalent)**

44. This component will aim to boost STP's capacity to secure digital public service delivery by enhancing the country's data governance framework and investing in data systems and institutions. It will focus on (a) the institutional, legal and policy enabling environment, (b) strengthening data protection and cybersecurity capabilities, (c) reinforcing DGRN institutional capacity and upgrading STP's digital ID ecosystem, and (d) a national data exchange layer to allow for data interoperability. It will follow the



whole-of-government approach proposed by the GoSTP to modernizing the country's public sector. By enhancing the data foundations and digital capabilities of STP's public administration in select priority areas, the project will expand the country's capacity to provide digital services. The activities have been selected based on the DEA findings, government prioritization, complementarity with existing initiatives and alignment with the STP's national Digital Government Strategy. They include:

***Subcomponent 2.1: Legal, strategic and policy frameworks (US\$1 million IDA equivalent)***

45. This subcomponent will support the development of governance, strategic, regulatory and legal frameworks that enable secure digital service delivery. TA and advisory services will be provided to the INIC, DGRN and ANPDP in support of the adoption of foundational legal and regulatory frameworks for scaling digital services, including data governance and digital ID, and ensure adherence to ICT protocols. Items to be financed under this subcomponent include:

- (a) **New and updated legal frameworks and regulations.** Legal advisory services will be financed to support the legal and regulatory frameworks relevant to project objectives, including cybersecurity and cybercrime, data protection, data sharing (including open data), electronic transactions, CR and ID, national statistics, through enactment or amendments of laws and subordinate legal instruments (i.e., regulations, guidance.)
- (b) **National strategies and policies for data and ID.** This activity includes TA for (i) the development of national strategies, policies, and governance frameworks for data management and (ii) a national strategy for digital ID. The national strategy for digital ID will be aligned with the principles on Identification for Sustainable Development<sup>36</sup>, increase inclusion by identifying and setting gender-specific objectives, and foster data protection notably through the promotion of privacy-by-design approach for all ID-related systems. It will include an operational plan for the modernization of the CR and ID ecosystem, including for increasing inclusive access to services, strengthening the integration between ID and CR systems with a robust and trusted unique ID number, modernizing the credential for both face-to-face and online authentication and designing an authentication framework.<sup>37</sup> The TA will also cover defining the detailed technical design of a future national ID system.

***Subcomponent 2.2: Shared digital government platforms and services (US\$1.65 million IDA equivalent)***

46. This subcomponent will follow an incremental and whole-of-government approach to building the digital foundations for digital services. It will be conducted in coordination with existing projects, including the Institutional Capacity Building Project (P174153) and parallel UNDP initiatives. Training for public servants under this subcomponent will be aimed at government officials using, managing, and maintaining the infrastructure and systems financed. The subcomponent will finance:

- (a) **Cybersecurity and data protection capabilities.** This activity will strengthen STP's cybersecurity capabilities by supporting incident response and management through the establishment of a basic national CERT. On data protection, the project will support the upgrade and expansion of the technical and operational capabilities of the ANPDP, including with the purchase of information technology (IT) systems and platforms, public sensitization

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<sup>36</sup> Principles on ID for Sustainable Development <https://www.idprinciples.org/>

<sup>37</sup> TA for the development of a national cybersecurity strategy, policy and action plan will be provided with support from the World Bank Multi-Donor Cybersecurity Trust Fund.



campaigns and a data protection training program. Whilst the funding available is limited, these activities will ensure the initiation of government services that will enable a more secure data ecosystem.

- (b) **Data interoperability.** Building on the recently created interoperability framework (funded by UNDP), this activity would finance a technical solution for interoperability – i.e., a national data exchange layer, its integration with other information systems including the social safety MIS and SIGA, training for staff to use and manage the solution, and three years of maintenance.
- (c) **Improved quality of CR and ID systems.** This activity will provide support to the DGRN for improving the quality of CR and ID service delivery in the short-term, and for strengthening institutional capacity in the medium and long-term. Support will include (i) financing for the finalization of birth registration records digitization and for registration equipment and (ii) TA for conducting a qualitative study on the population’s perspective related to CR and ID, with a focus on vulnerable populations including women and girls, to help guide the drafting of the national strategy, and the drafting of the pluriannual training plan on CR and ID.
- (d) **Just-in-time digital platforms and services.** This subcomponent will finance “just-in-time” digital services and platforms that have not been planned, but that would be required to support emerging needs during implementation. These would be selected based on level of impact, especially benefitting the population in Príncipe, vulnerable communities, and women, and based on the potential to be “quick wins” or successful pilots to demonstrate the benefits of digital service delivery.

### Component 3: Housing and population census (US\$3.0 million IDA equivalent)

47. **This component will support all phases of the 2023 census and preparation of key outputs, including an updated sampling frame which will have a significant impact on the quality of all socioeconomic statistics that will be produced over the following decade in STP.** While component 2 will seek to improve legal aspects of data governance, strengthen digital guardrails and enable data interoperability, component 3 will support the GoSTP to increase its technical capacity to collect, manage and publish statistical data. The component has three technical objectives: 1) ensuring a high quality population census that is aligned with the statistical methodology and techniques with the international standards; 2) increasing respondent participation (coverage and inclusion of data) and strengthening user confidence in statistics through better communication and dissemination strategies, including local community engagement and publication of aggregated results in machine-readable open data formats; and 3) implementation of modern information technologies at all stages of the population census to increase quality and efficiency. Beyond updated demographic and socioeconomic data,<sup>38</sup> a key output critical for the quality of statistics in the country will be the preparation of an updated sampling frame and master sample for future surveys based on the census.

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<sup>38</sup> Updating knowledge on the structure and movement of the population (count, spatial distribution, fertility, mortality, migration, marital status and nuptiality) and the socio-economic characteristics of vulnerable groups (children, adolescents, young people, women, the elderly, people living with disabilities, etc.). It will also create new knowledge on the characteristics of housing, housing conditions, and access to social services and basic infrastructure. The census is also the most important source of information at the locality level in STP, which can then be used to update the geographic information system.



48. **The component is organized around the preparation cycle of the census and includes financing to support all parts of a successful census implementation, including the pilot cartography, cartography, pilot census, enumeration, post enumeration survey, and data processing and analysis.**<sup>39</sup> It builds on initial TA being provided by the World Bank under the São Tomé and Príncipe: Institutional Capacity Building Project (P162129), which will finance the hiring of a Principal Consultant in 2022 and Angola and STP Poverty Program (P177231), advisory and analytics activity that is providing World Bank TA. INE and INIC will also perform a test-run of the data center to store the recently collected Enterprise Census. From this experience, they will prepare the Data Center for use in storage of the population census.

***Subcomponent 3.1: Preparation of the Census (US\$2.15 million IDA equivalent)***

49. This subcomponent includes all the activities necessary to supplement and build INE's capacity, both its human and physical capital, to prepare for the census collection. These include setup of the organizational structure necessary to carry out the census data collection, the preparation and implementation of a communication campaign, the update of the cartography, and a pilot census. The cartography and census questionnaires will be coded in Computer-Assisted Personal Interviews (CAPI) with cross-validation checks and monitoring tools to facilitate real-time quality control of the data. The subcomponent will finance:

- (a) **Setup of organizational structures, staffing, and equipment.** This activity finances the specialists and technical teams necessary to implement the multi-year project. It finances the IT equipment and other goods necessary for all phases of the census and cartography collections.
- (b) **Preparation and implementation of an outreach, communication, and awareness strategy.** This activity includes the hiring of a communications firm to assist in the design of messages and the identification of audio, audiovisual and print media as well as the acquisition of relevant equipment. It also includes support to establish and coordinate local census commissions (as noted under Institutional and Implementation Arrangements). Outreach and awareness efforts will be designed targeting groups such as women, youth, and marginalized groups to ensure higher participation in the census. INE staff will work closely with the firm to gain experience and skills in this area for future data collection efforts.
- (c) **Update of cartography.** During this phase, all dwellings will be identified and geocoded for inclusion in the census count. This is a crucial step in calculating a high-quality census and one during which the previous STP census encountered challenges. The cartography update will build on the digitized geographic database containing the topographic map at 1/25,000, roads, localities, the hydrographic network, villages and the boundaries of the districts and regions, retrieved from the Ministry of the Environment. It will also be supplemented by digital census maps prepared by INE for the 2012 census and by satellite imagery. The result, an up-to-date and digitized map of STP's housing stock and infrastructure, is expected to be an important product of the census project, with usages in public program implementation, and assessments of climate change vulnerability.

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<sup>39</sup> More specifically, the support will include communication and awareness efforts, cartographical update, development of questionnaires and other technical and methodological inputs, field work for data collection, data analysis, quality assessment, and preparation and dissemination of results necessary training activities, hiring of temporary staff, both international technical consultants and local enumerators, as well as purchase of equipment are included in the proposed component.



- (d) **Pilot census.** The pilot census involves implementing all phases of the census data collection on a small scale. This activity is crucial to ensure quality in the final data collection activities.

***Subcomponent 3.2: Census data collection (US\$0.7 million IDA equivalent)***

50. This subcomponent will support the main data collection for the Housing and Population Census. Careful programming will ensure that only plausible responses are entered for each question, thus minimizing data entry errors. Census data will be hosted in the national data center at INIC (following the test-run mentioned above) to ensure improved data access and build the country's centralized data infrastructure. A post enumeration survey will be implemented to validate the census results. Once data collection is finished, INE will retain a portion of the tablets used for its regular data collection activities, and the remainder will be allocated to support other project activities as needed (for example, ID/CR registration under subcomponent 2.2 or educational activities in schools supported through subcomponent 1.2). The subcomponent will finance:

- (a) **Census data collection.** The field work to collect the census is planned to take two weeks. With quality checks automatically incorporated into the CAPI software, the field team will be notified of inconsistencies during the interviews. Supervisors and the supervision at headquarters will also be able to identify outliers and low response rates and other data issues as the data are uploaded, allowing for a quick response to emerging issues. A regular overlay of the geographical coordinates of the households collected on mapping software will facilitate this monitoring of the progress of the collection in real time. The questionnaire will incorporate questions on disability endorsed by the Washington Group on Disability Statistics, a United Nations Statistical Commission City Group, to ensure that data are collected on all groups of the population and that the questionnaire is in line with international recommendations. This census will also generate information on digital access and use gender disaggregation and other socioeconomic groups.
- (b) **Post enumeration survey.** The purpose of this survey is to validate the results of the census. The survey will cover 10 percent of the enumeration areas in the country and will last less than two weeks.

***Subcomponent 3.3 Analysis of results and dissemination (US\$0.15 million IDA equivalent)***

51. This subcomponent will finance the data analysis and preparation of tabulations and final reports and support the GoSTP in ensuring the census data is published in a manner that ensures personal data protection and anonymity and is accessible and understandable – as machine-readable open data. The census data will enable improved prioritization of public resources, inform service delivery and private sector investments. Activities under this project include:

- (a) **Data analysis and report writing.** Data will be cleaned and analyzed to verify inclusion and consistency. The database will be used to construct the new master sampling frame. A descriptive report of the preliminary results of the census will be prepared. This will be compared with the results of a post enumeration survey, also financed by the project, which will be used to validate the quality of the census and help in preparing statistical adjustments as needed.
- (b) **Results publication and dissemination.** Results will be published in the form of detailed user-friendly tabulations (designed to ensure data privacy and anonymity) published both





online and in the reports that will be prepared as outputs from the census. These will be disseminated to users of statistical data through the organization of presentation workshops at the central level and in the various districts of the country, as well as the preparation of a user-friendly data portal through INE's website.

#### **Component 4: Project management and coordination (US\$2 million IDA equivalent)**

52. **This component will finance the Borrower's project management and coordination capacity, including procurement, financial management (FM), monitoring and evaluation (M&E), as well as environmental and social (E&S) management.** It will also seek to strengthen the capacity of MINR. Specifically, this component will include the following: (a) Operating and staff costs of the Project Implementation Unit (PIU), including the recruitment of expert consultants in key areas, such as project management, technical advice, and support to implementation; (b) support for citizen engagement activities throughout the project, including regular stakeholder consultations and a grievance redress mechanism (GRM); (c) M&E work; and (d) quality assurance to ensure adherence to best practices on procurement related to technology, facilitate on-the-job learning, and transfer competencies.

#### **Component 5: Contingent Emergency Response (US\$0 million)**

53. **This component is added to the project structure to help the government respond swiftly to eligible crisis or emergency, including climate and natural disasters, and public health emergencies.** Including a contingent emergency response component, albeit with no funding, provides for flexibility for an agile response to an imminent or actual emergency (e.g., pandemics like COVID-19; natural disasters like extreme flooding) through quick disbursement of uncommitted balances from other components. The crisis response expenditures could cover, for instance, the facilitation of emergency payments to vulnerable groups using mobile money or ensuring business continuity of core government functions. The contingency emergency response component is not expected or intended to finance activities that may present risks or lead to any activities that result in adverse environmental or social harm. A CERC annex will be included in the PIM and the CERC Manual will be required to disburse against this disbursement category.

### **C. Project Beneficiaries**

54. Project beneficiaries will be the people of São Tomé and Príncipe, including individuals, businesses, and government agencies, who will receive improved access to broadband and digital services.

- (a) **Individuals.** The project will lead to delivery of better and more affordable broadband-enabled services for the population of STP, and to the island of Príncipe in particular, who will benefit from improved digital connectivity. This represents approximately 30,000 residents of Príncipe. School-age students will also benefit from access to broadband. Whilst 70 schools across STP are targeted, the selection of schools will be based on the assessment of connectivity needs. Improved evidence-based policymaking (targeting, program design, and program implementation) is expected as a result from updated data collected through the census, contributing to improved wellbeing for the entire population of STP.
- (b) **Government institutions.** The main beneficiaries of the project include: MINR, AGER, INIC, ANPDP, DGRN and INE. More generally, public institutions across government will benefit from shared digital infrastructure, enabling and improved government-to-government



services, IT equipment, and digital skills trainings. Departments across Government will benefit through an improved ability to manage data in a more secure, reliable, and cost-effective manner through the utilization of common standards, platforms and systems. Updated census counts and housing and population maps will be important for program design and geographical allocation of public funds.

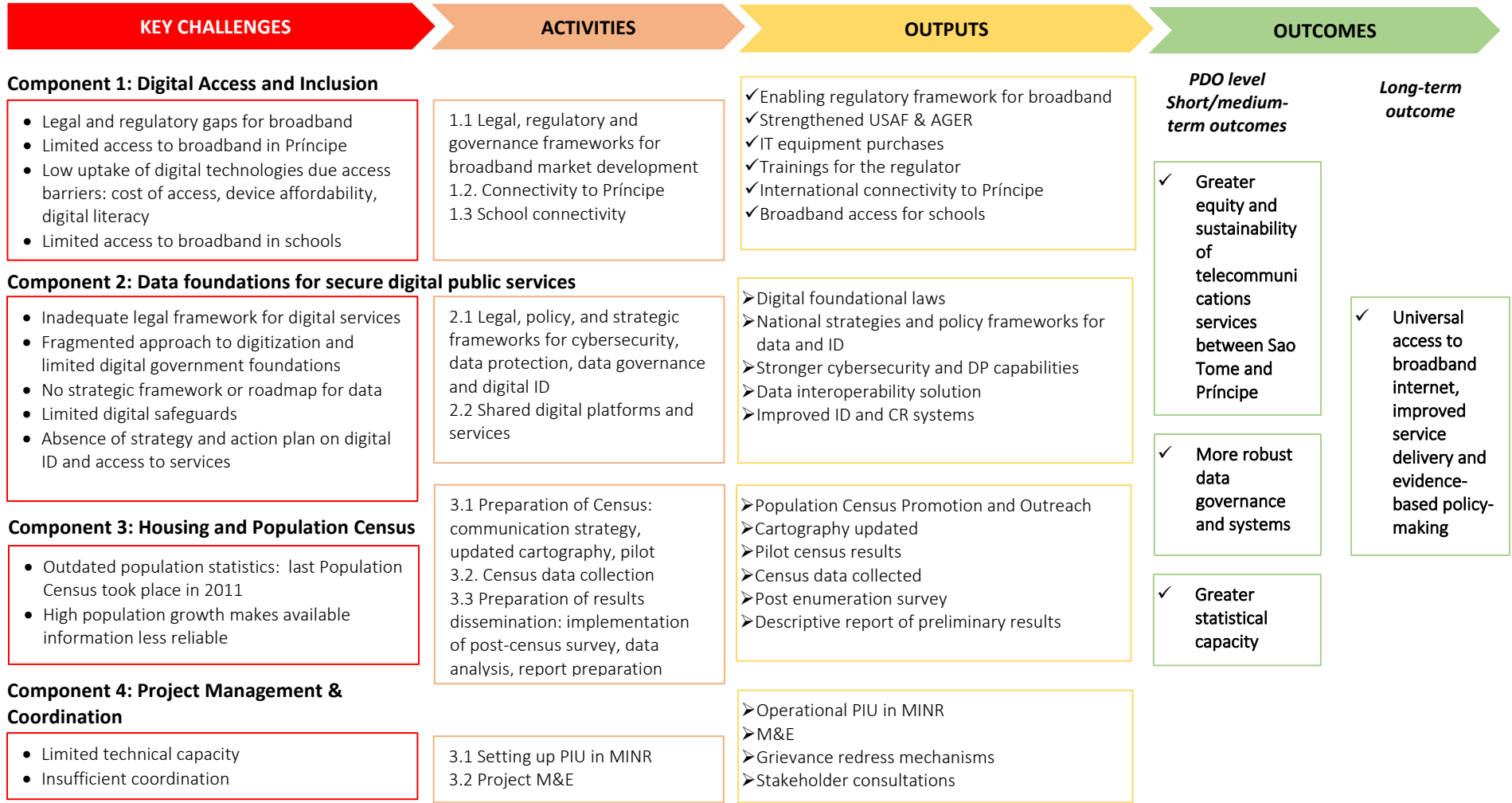
- (c) **Private sector.** The telecommunications sector will broadly benefit because the project will enable a reduction in the costs of network deployment in challenging areas and promote a more competitive market, and a secure environment for online operations. The tourism sector in Príncipe will also indirectly benefit as connectivity services to the sector will be improved over the long term, aligning with the sector's strategy for high-end eco-tourism on the island. The census is also an invaluable resource for private sector providing the basic data they need to appraise and address demand for goods and services as well as supply of labor.

#### D. Results Chain

55. **The project's theory of change reflects the key assumptions, challenges and solutions captured in the proposed project design.** Component 1 responds to constrained access to broadband in Príncipe and limited school connectivity by investing in a submarine cable and broadband capacity for schools. Component 2 finances hardware, software, and TA to help lay the data foundations for digital government and establish a trusted framework for digital platforms and services. Component 3 supports the development of statistical capacity and the production of up-to-date socio-economic data through the financing of a National Population Census. Component 4 will finance project management, develop capacity within MINR, and ensure that coordination with the public institutions involved in the project and ensure coordination to ensure sustainability of project outputs. Together, the proposed activities lead to a series of outputs that contribute to achieving the PDO. This is based on key assumptions that no dramatic shocks will change the economic environment, that the private sector incentives are sufficient to motivate investment in connectivity to Príncipe, and that Government will remain committed to enacting legal and regulatory changes.



**Figure 2: Theory of Change**



**Critical assumptions: (a) private sector incentives are sufficient to motivate investment in connectivity to Príncipe, (b) Government is committed to enacting legal and regulatory changes**



## E. Rationale for Bank Involvement and Role of Partners

56. **The World Bank is well positioned to support this sector, given past analytical work conducted, and its track-record of implementing similar operations in STP and elsewhere.** The operation builds on previous World Bank investment lending implemented through the CAB-2 project (P117652) that financed the ACE cable and enabled the introduction of competition in the provision of data and voices services in the islands. This was possible with the entrance of a new mobile network operator to compete with the incumbent. Moreover, the World Bank has a track-record of implementing similar operations in the region, as well as other small island states in the Pacific and the Caribbean and is thus able to leverage global expertise in areas spanning broadband market development and e-government. Moreover, as noted above, project design has been informed by recent global and country analytical work. This work has provided the World Bank with a solid understanding of key technical challenges and the development of an effective working relationship with the key stakeholders, positioning the World Bank to act as a strong ecosystem convener.

57. **Public sector financing is an appropriate mechanism to support the deployment of digital infrastructure, specifically supporting investments in the submarine fiber cable that will connect Príncipe to Sao Tome and the broader international broadband networks.** It will support a public good and improve equity in the provision of broadband services in both islands. Furthermore, financing from the public sector is designed to mobilize private sector financing in the sector. Private sector financing is being sought as a contribution to the infrastructure component of the project, specifically to the connection to Príncipe. However, in view of the small population and low potential return, the full capital need for this will not be met by private sector investment. The connection to Príncipe, however, is a structuring and transformative infrastructure for the island, as it will be an instrument for addressing the double insularity of this autonomous region. The improved connectivity will enable the citizens of Príncipe to continue to enjoy uninterrupted and quality communications. It will also enable the deployment of improved public services in the fields of remote education, telehealth, and digital government services, which further justifies higher public expenditure. In this regard, public financing will be required to address most of the capital requirements under a PPP structure. Secondly, the project will focus on digital public goods and public services, for which it is difficult to attract PCM but would enable it down the road. This includes key digital foundations like shared digital services, which are designed to stimulate private sector development in areas such as digital financial services and digital platform services.

58. **The World Bank is uniquely placed to support the GoSTP in the implementation of the Population Census 2023.** The World Bank has been actively working with INE to support statistical capacity building in recent years, particularly under São Tomé and Príncipe: Institutional Capacity Building Project (P162129). Under this project, the World Bank has financed and provided TA of recent surveys such as the IOF 2017, the 2020/21 COVID-19 telephone surveys, and the 2020/21 enterprise census, as well as capacity building activities. As such, it has a strong dialogue and significant insight in how best to support INE and the GoSTP in this agenda. The World Bank has also considerable experience in supporting census work in other countries, including current TA in the Bahamas and financing of the 2019 Belarus census. More broadly, the World Bank's engagement in data and statistics is well articulated in the 2018 World Development Report Data for Better Lives<sup>40</sup>, and the 2019 review of completed projects aimed at building statistical capacity<sup>41</sup>. The population census is the backbone of any statistical system. Because of their importance in updating the master sampling frames and population estimates,

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<sup>40</sup> World Bank. 2018. World Development Report WDR. Data for Development: An Evaluation of World Bank Support for Data and Statistical Capacity. Independent Evaluation Group, Washington, DC: World Bank.

<sup>41</sup> World Bank. 2019. A Review of ICRs and ICRRs of a Selected Sample of Statistical Capacity Building Operations.



outdated population census affects much of the statistical system and reduces the credibility of development planning, monitoring, and management. Without regularly updated master sampling frames derived from a population census, the accuracy of statistics that incorporate population dimensions and those based on household sample surveys will be undermined, including macroeconomic statistics (such as GDP per capita), service access, and poverty measurements. It is important to note that this project is being coordinated with UNFPA, who will provide technical support and guidance to INE throughout the design and implementation of the census.

59. **The World Bank is coordinating closely with development partners including UNFPA, UNDP, and UNICEF.** As mentioned above, the World Bank will be coordinating with UNFPA on the census. Under Component 2, the World Bank will be working with UNDP that is supporting the government on various digitization initiatives, including data interoperability. For school connectivity activities, the World Bank will ensure coordination with UNICEF, who are advising the government on a digital education strategy and financing digital skills initiatives through its Giga initiative. The World Bank has consulted with partners throughout project preparation and will continue to do so through implementation. None of the partners will be financed by the project.

#### F. Lessons Learned and Reflected in Project Design

60. **The project focuses on long-term, sustainable connectivity solutions that are fit-for-purpose for a small island developing state environment.** This design has considered lessons learned in implementing connectivity improvement in similar small island environments that the World Bank has operated in, such as countries in the Pacific region including Samoa, Kiribati and the Marshall Islands<sup>42</sup>. This includes ensuring financial and technical sustainability for the long term in a small market with limited capital and operational flows, using solutions designed for climate-vulnerable remote environments that may have reduced technical capacity for operation.

61. **The project pairs interventions that support a whole-of-government approach to government digitization with investments that mitigate risks associated with increasing digital adoption.** The project benefits from lessons learned from many countries<sup>43</sup> on broad e-governance policy and institutional reforms with the goal of improving delivery of services and particularly coordinated management of digital infrastructure and platforms at all levels of government. It draws on the findings of the WDR 2021 and several case studies on data governance.<sup>44</sup> The learnings are reflected in the support to improving legal and regulatory frameworks, emphasis on data interoperability, data governance, and change management. These were learned through experience with World Bank-financed investments focused on both digital foundations and digital transformation of government. The cybersecurity and data protection activities benefited from previous designs of projects in Uganda, Rwanda, Somalia, Mozambique and the Eastern Caribbean<sup>45</sup>, and reflect international good practices in implementing digital guardrails.

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<sup>42</sup> These include the Pacific Regional Connectivity Program: Phase 3 - Samoa (P128904), Kiribati Digital Government Project (P176108), and Digital Republic of the Marshall Islands Project (P171517).

<sup>43</sup> These include the Armenia Public Sector Modernization Project II (P117384), Bangladesh Leveraging ICT Growth, Employment and Governance Project (P122201), eGhana Project (P093610) and Moldova Governance eTransformation Project (P121231).

<sup>44</sup> World Bank (2020). Unravelling Data's Gordian Knot.

<sup>45</sup> These include the Uganda Digital Acceleration Project - GovNet (P171305); Rwanda Digital Acceleration Project (P173373); Somalia Capacity Advancement, Livelihoods and Entrepreneurship, through Digital Uplift Project (SCALED-UP) (P168115); Mozambique Digital Governance and Economy Project (P172350); and Caribbean Digital Transformation Project (P171528).



62. **Lessons learnt from the CAB-2 project inform the project design and risk mitigation.** The Implementation Completion and Results report<sup>46</sup> noted (a) the importance of supporting the Government with sufficient TA resources to manage and design the Cable investment due to lack of existing internal expertise in managing complex transactions, (b) the need of a high-level steering committee to provide guidance in the implementation of the project and coordination amongst different beneficiaries (i.e. Ministry of Education for connectivity, Ministry of Infrastructure for Digital infrastructure investments, the Government of Príncipe, and INIC), and (c) that connectivity to school programs may need to consider the provision of associated infrastructure (i.e. reliable energy) to assure the sustainability of the investments. The project has been designed to adopt the above recommendations specifically including sufficient technical assistance to support the Government in negotiating and managing the PPP for the cable investment and future operation and maintenance, hiring an international transaction advisor, and setting up a high-level steering committee including not only participation from the central Government but also from RAP as a key element of the implementation arrangements.

63. **Lessons from previous World Bank work with INE will help mitigate the risk associated with the census operation.** These include the need for close TA and automation of quality control tools as technical limitations have undermined the quality of recent data collection operations. The census plan and implementation will reflect on these lessons to improve field work and identify and solve problems while it is possible to go to the field and fix them. A strong community-level outreach campaign will address respondent concerns to ensure high coverage rates. Experience with previous projects also anticipates that project implementation can be complex in STP, and unexpected delays are frequent due to challenges in procurement (this includes issues of small market and delayed deliveries). As such and given that the census needs to happen in a rather short period of time, the principal consultant for the census will also act as Liaison with the PIU to avoid delays in procurement.

### III. IMPLEMENTATION ARRANGEMENTS

#### A. Institutional and Implementation Arrangements

64. **A Project Implementation Unit (PIU) will be established within the Ministry of Infrastructure and Natural Resources (MINR).** It will be responsible for the overall management of the project, as well as the implementation of activities under components 1,2, 4 and 5. The PIU will oversee the overall implementation of the project, including procurement, project-related M&E and E&S commitments. The PIU will be comprised of, *inter alia*, a project coordinator, technical advisor, RAP liaison, procurement specialist, environmental specialist, and social specialist. The Principal Technical consultant for the census will be mapped to the census office and serve as liaison and technical representative of the census activities within the PIU. See Figure 2 for the overall institutional arrangements for the Project.

65. **The fiduciary agency of STP, Agência Fiduciária de Administração de Projectos (AFAP) will be responsible for financial management of the project.** AFAP, which manages fiduciary aspects of many World Bank-financed projects, is familiar with World Bank FM procedures. In line with these responsibilities, the project will finance the recruitment of a dedicated accountant within AFAP. Additional information about the implementation arrangement and the FM assessment are detailed in Annex 1.

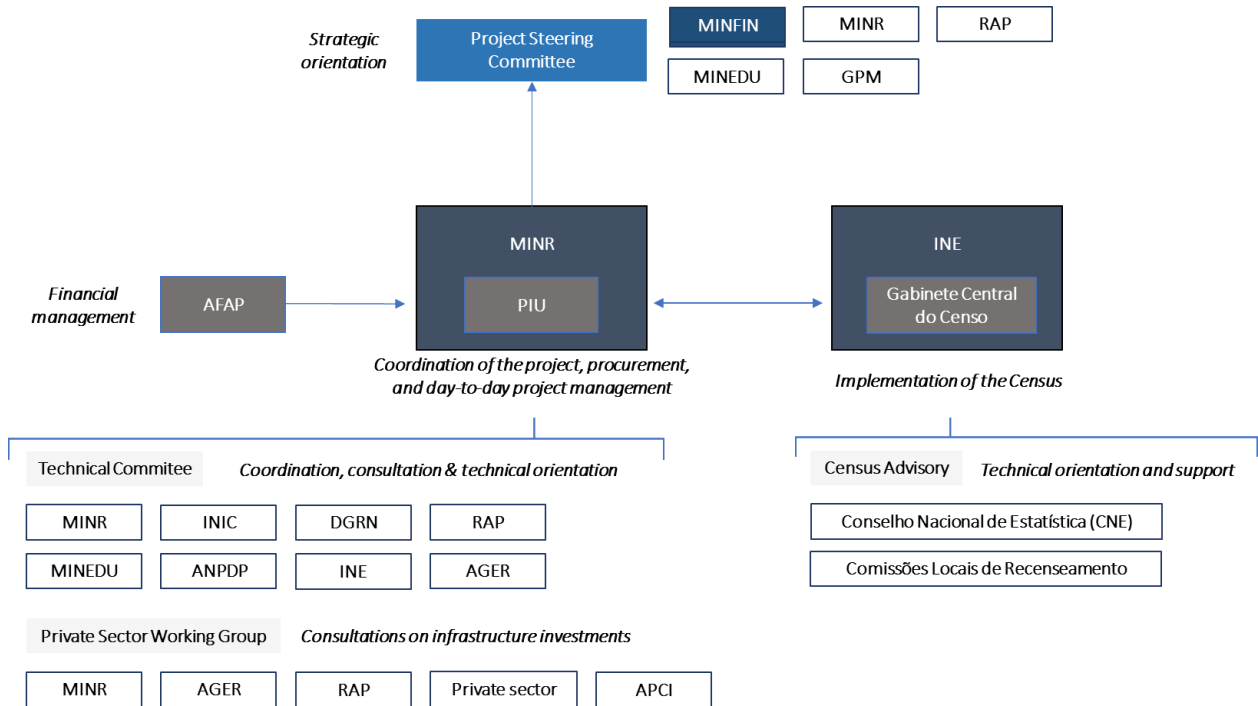
66. **A Project Steering Committee (PSC) chaired by the Minister of Planning, Finance and Blue Economy, and co-chaired by the MINR will be formed to provide strategic guidance, ensure coordination and ownership as well as to facilitate implementation of the project across government.** It will also include representatives from

<sup>46</sup> CAB Program (APL2). Implementation and Completion Results Report: ICR00003141



the Ministry of Education, the Office of the Prime Minister, and the President of RAP. The mandate of the PSC will include (a) approval of annual budgets and work plans; (b) semesterly review of project progress and (c) provision of strategic guidance and recommendations to the PIU related to project implementation and/or any restructuring needed. The Terms of Reference (TOR) for the PSC will be detailed further in the project implementation manual (PIM), to be prepared by project effectiveness.

Figure 2. Institutional Arrangements



67. A dedicated census office, the *Gabinete Central do Censo*, will be established within INE and will be responsible for technical implementation of activities under component 3. It will be critical for the PIU and census office to have close coordination. The Principal Technical Consultant will be hired to support the overall implementation of the census and act as a liaison with the PIU. The National Council of Statistics (*Conselho Nacional de Estatística, CNE*), an intergovernmental commission responsible for guiding and coordinating statistical production and chaired by the Minister of Planning and Finance, will be responsible for guiding and coordinating the activities of the census.<sup>47</sup> A local census commission will be created in each of the six districts of São Tomé and in the RAP to support the INE in sensitizing the populations through local outreach and securing field staff. They will coordinate all the activities of the census at the district level, ensuring the involvement and collaboration of all the decentralized structures. In parallel to the project financing, the World Bank and UNFPA will provide additional TA to the census office.

<sup>47</sup> The local census commissions will include members of the government, representatives of public administrations, representatives of the different categories of users of statistical information, including civil society, and specialists in areas related to statistics, communications, communication and information technology, and census operations.



68. **Given the significant involvement and need for buy-in from various government agencies, inter-agency project Technical Committees will be established to ensure coordination amongst different stakeholders, chaired by the MINR.** The committees will advise on technical matters arising from all project components that pertain to Government beneficiaries. In addition, the Private Sector Working Group (PSWG) established with membership from stakeholders [i.e., MINR, AGER, operators, RAP, the Investment and Trade Promotion Agency, (*Agência de Promoção do Comércio e Investimentos*, APCI), and other relevant members of the private sector] to coordinate on matters related to telecommunications investments, primarily the submarine cable. This will also be chaired by the MINR. The PIM will detail composition and terms of reference for technical committees and the PSWG.

**B. Results Monitoring and Evaluation Arrangements**

69. **A results framework has been developed to track progress towards the PDO, and the PIU will be responsible for reporting metrics.** The PIU, in consultation with focal points at partner MDAs, AFAP and INE as needed, will prepare progress reports every semester, for submission to the World Bank no later than 45 days after the end of each calendar semester, in accordance with the agreed format. Reports will cover: (a) physical and financial progress achieved against agreed implementation and disbursement indicators; (b) issues and problem areas, including comments on actions to address identified problems; (c) work programs and budget, including forward-looking estimates and (d) progress in respect to PDO and intermediary indicators.

**C. Sustainability**

70. **Sustainability will primarily be ensured through (a) use of private sector-led and market-based mechanisms for resource allocation and investments in digital infrastructure to expand broadband access and (b) investment in shared public infrastructure, platforms and services that can be reused and reduce the long-run costs of public service delivery.** The population census should itself be considered public infrastructure due to the centrality of the census to all socioeconomic data gathering in the country. This sustainability of capacity to collect better socioeconomic data is the reason behind the PDO indicator being the preparation of the master sampling frame. See Table 2 for details.

**Table 2. Sustainability Mechanisms by Component**

Component	Sustainability Mechanisms
Component 1: Digital access	<ul style="list-style-type: none"> <li>• The new/revised telecommunications policy, legal and regulatory frameworks introduced through TA to the regulator AGER will have a lasting impact on the enabling environment for related market development, and capacity building will support their continued application.</li> <li>• Investments in connectivity for Príncipe will be on an open access basis and will focus on long-term solutions that present lower operational cost and are operated by the private sector to ensure financial sustainability in a small market, and do not constrain additional entrants from accessing those connectivity services at market rates.</li> <li>• Connectivity capacity purchased for schools will be based on a 5-year horizon, and sustainable models will be assessed to ensure that this capacity remains for the long-term following project close.</li> </ul>
Component 2: Data foundations for digital public service delivery	<ul style="list-style-type: none"> <li>• The new/revised policy, legal and regulatory frameworks introduced for e-services will have a lasting impact on the enabling environment, and sensitization of high-level government officials and capacity building through the TA provided will support their continued application.</li> <li>• Investment in foundational digital government platforms will ensure the sustainable development of future services that utilize those platforms for efficiency and effectiveness of service delivery.</li> </ul>





Component	Sustainability Mechanisms
	<ul style="list-style-type: none"> <li>• TA and capacity building in the areas of cybersecurity and data protection will also be retained after project closing. Sustainable models for building capability in areas such as incident response will be considered to ensure that such services continue following project close.</li> </ul>
Component 3: Housing and population census	<ul style="list-style-type: none"> <li>• Population estimates will be used to update population weights and increase representativeness of socioeconomic information published by INE and other partners in STP. This is done through the updating of master sampling frame, which will be used to select samples for future household surveys until the next census.</li> <li>• Population and housing tabulations and reports will be published and widely disseminated for broad use. These will lead to updates in all population-based statistics, such as GDP per capita, and population projections.</li> <li>• Detailed tabulations will be used for cross-validation of existing civil registries to identify areas and groups of low coverage of the registries to target outreach.</li> </ul>
Component 4: Project management and coordination	<ul style="list-style-type: none"> <li>• Implementation will leverage existing structures/teams/processes wherever possible to avoid creating an additional burden on the government.</li> <li>• Technical support to select MDAs within the government will allow for sustainable continuation of the activities beyond the project lifecycle.</li> </ul>

#### IV. PROJECT APPRAISAL SUMMARY

##### A. Technical, Economic and Financial Analysis

71. **The Project is expected to offer multiple social and economic benefits<sup>48</sup> and build the country’s resilience to shocks, driven by increased digital adoption, expected efficiency and productivity gains.<sup>49</sup>** The project will help the country become more adaptive to shocks, whether economic, health, or climatic, by building foundations for digital service delivery. The positive impacts of increased broadband uptake on economic growth, poverty reduction and employment are widely documented. Increased broadband adoption is estimated to stimulate GDP and job growth.<sup>50</sup> It will facilitate the provision of remote education, contribute to adoption of DFS, and the development of telehealth services, and reduce the need to travel between islands to access certain services. Greater technology adoption across all sectors and skill categories, particularly for unskilled and lower-educated workers, can lead also to substantial potential for job creation.<sup>51</sup> Increased application of digital platforms and tools in the public sector are expected to yield substantial efficiency-gains and cost-savings, as well as enhance the quality of and access to key public services.

72. **Improvement of digital connectivity to Príncipe is key to ensuring that a digital divide does not develop between São Tomé and Príncipe.** Long term, sustainable broadband capacity between the islands is key to ensure that telecommunications services can meet the projected future demand from the population, and to assist STP in delivering its economic development goals around high-end eco-tourism in Príncipe. It will enable the provision of improved public services through digital platforms to Príncipe, allowing the country to address disparity between education, health, and government services quality levels between the two islands. Whilst the existing connection has provided enough capacity until this point, it will not be able to service demand within the next three years and is not able to provide a reliable connection for Príncipe during adverse weather events. An alternative option that provides reliable, low-cost, high-performance capacity to Príncipe for the 25+ year time

<sup>48</sup> Full Economic and Financial Analysis is part of the project file.

<sup>49</sup> World Bank (2016), World Development Report, Digital Dividends

<sup>50</sup> World Bank (2010), Building broadband: Strategies and policies for the developing world. Washington DC: World Bank.

<sup>51</sup> World Bank (2020), The Future of Jobs Report.



horizon, such as a submarine cable, is imperative to ensuring that STP can continue to provide equity of services to populations on both islands.

73. **A technical options analysis<sup>52</sup> has shown that a submarine cable connection to Príncipe is the preferred financial option over the long term when compared with other options.** The 25-year cost of a submarine cable for Príncipe has been estimated to be lower when compared with other alternative options such as satellite, while providing higher performance and reliability. The total capital cost of the submarine cable has been estimated at US\$13.9 million, with an annual operational cost of US\$213,000 per annum. This will be funded through a mixture of public and private financing sources. This equates to a net present value (NPV) of project costs US\$15.8 million over 25 years. In comparison, due to the higher annual operating and capacity costs of satellite, the NPV of satellite options costs over 25 years is US\$39 million.

74. **The investment into the submarine cable will utilize a PPP mechanism to own and operate the infrastructure asset.** This will not only enable private sector investment participation in the project but will ensure that management and operation of the cable asset is sustainable and efficient in the long term, by bringing in experienced telecommunications operators. It is anticipated that the current telecommunications wholesale PPP that owns and manages the international cable connection to the ACE system, STP Cabo, will be used as the vehicle to manage and operate the inter-island cable connection. A full assessment of the structuring options will be completed to confirm the final PPP structure, including a review of the impact to the existing shareholdings from additional investment levels and the terms for accessing and managing capacity on the inter-island cable alongside the current international cable connection, so as to provide incentives for the private sector to invest.

75. **Telecommunications operators in STP have previously invested alongside public financing into an international submarine cable through a PPP mechanism.** In 2011, the World Bank supported the CAB-2 project, through which the GoSTP and private sector partners invested US\$25 million to become a member of the ACE cable consortium, of which US\$13.3 million was from World Bank funding and US\$11.9 million from the operator CST. This was invested via STP Cabo as the PPP mechanism for the investment. The GoSTP subsequently sold their share in STP Cabo to operator Unitel as part of the sale of the second license for telecommunications services, further maximizing the private sector investment levels in the international cable. Whilst the lower commercial feasibility of the inter-island cable will mean that a higher level of public financing will be required, this project will extend the submarine cable network to connect all citizens in the country and enable the private sector to invest at viable levels through a PPP in similar circumstances to the CAB project.

76. **Financial analysis supports the business case for private sector investment into the submarine cable, alongside public financing sources.** The submarine cable has been shown to provide additional economic benefit to operators when compared to the existing microwave link over the 25-year lifetime modelled and would replace the investment required from operators to continue to operate the existing connection over that term. This includes an additional revenue for operators of an NPV of US\$6.7 million over the 25-year life of the cable compared to the existing connection. This supports the case for a smaller private sector contribution to the cable as presented, with most of the capital financing from public sources to ensure that the private funding component is commercially feasible. Discussions with potential investment partners indicate that there is both interest from telecommunications operators who traditionally would be anchor investors in cable infrastructure, but also from other parties in sectors such as tourism, seeing the potential of improved connectivity aligning with their strategies to develop Príncipe further as a tourism destination. Different options for investment will also be explored with

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<sup>52</sup> Full analysis is part of the project files.



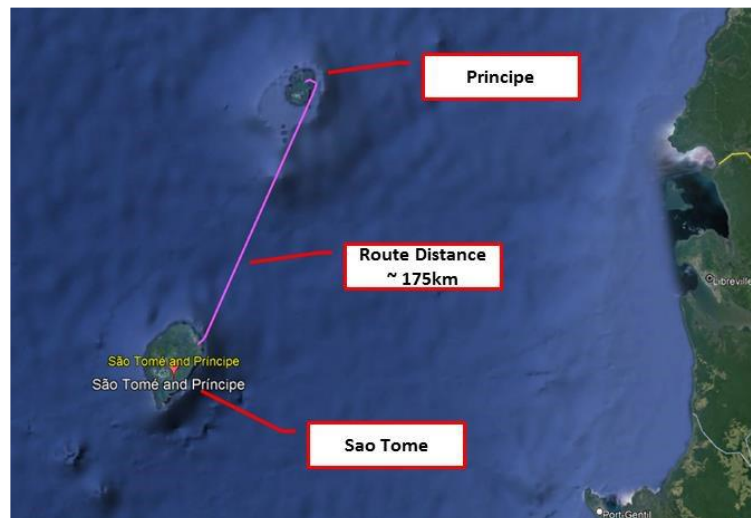
potential partners to enable a broader engagement, such as the possibility of upfront capacity purchase agreements in addition to direct equity investment.

77. **Regional cable options for connecting Príncipe have also been explored and may provide an opportunity to enhance the commercial viability for private sector investment.** Several larger multi-country cable systems are actively underway in design and construction in the West Africa region, including systems such as Facebook 2Africa and Google Equiano, which will bring significant additional capacity to cable hubs in the region connecting into Europe. This has meant that smaller regional systems also present opportunity for interconnection between these larger transcontinental systems, allowing countries such as STP to interconnect between existing systems such as the current ACE international connection and other large systems. This may improve the viability of an additional cable connection to the country which could incentivize private investment from sources offshore and could also connect Príncipe at the same time.

78. **The proposed submarine cable will also contribute to both climate adaptation and mitigation goals for STP.** The current inter-island connection, comprising of two microwave links, is vulnerable to significant degradation during adverse weather events, the frequency of which are expected to increase because of climate change. The submarine cable will contribute to climate adaptation by providing significant resilience to such events and will improve the stability of services through the annual rainy season from September to March.

79. **The design of the submarine cable will focus on keeping operational costs and power consumption to a minimum.** Due to the short length of the proposed cable route (~175km), a design that does not require power along the submarine section of the cable system can be implemented, to both lower operational cost and reduce overall power consumption. This will reduce the carbon footprint of the cable system over the long term when compared with other options, contributing to climate mitigation in STP.

Figure 3. Proposed Submarine Cable Route



Source: Google Maps.



## B. Fiduciary

### (i) Financial Management

80. **Assessment undertaken.** The overall FM arrangements of the project were assessed as adequate, with substantial residual risk. An FM assessment was conducted to evaluate whether the project meets the World Bank's minimum FM requirements in Directives and Policy for Investment Project Financing (IPF). The assessment was conducted for AFAP, which has been implementing many World Bank-financed operations in São Tomé and Príncipe. AFAP's current arrangements on budgeting, accounting, internal control, and financial reporting arrangements were found overall acceptable and will apply to this project. However, AFAP's portfolio of projects has been increasing recently, thus increasing its burden and workload.

81. **The FM Risk is Substantial. The key risks identified during the assessment, included the potential lack of coordination between the PIU in the MINR and AFAP.** The following measures will be taken to mitigate this risk - developing a detailed section in AFAP's operation manual which includes the FM procedures that reflect processes and activities related to this specific operation. The existing accounting packages will be upgraded to include the proposed project. To increase the capacity of AFAP's FM staff, one project accountant will be recruited to support the existing FM team. The following are the proposed project FM arrangements which have been agreed upon; (a) AFAP will be responsible for implementing project fiduciary activities, (b) the project funds, expenditures, and resources will be accounted for by AFAP using the existing accounting arrangements, and (c) the current manuals used for the implementation of the ongoing projects will serve as the basis for updating the PIM to include processes and activities related to this project. The IDA funds will be disbursed on a transaction basis: (a) reimbursement; (b) advances; (c) direct payments; and (d) special commitments. AFAP will prepare a quarterly unaudited interim financial report (IFRs) and provide such reports to the World Bank within 45 days at the end of each quarter. Project financial statements will be audited annually by a private audit firm that will be recruited, as the current arrangements with the existing auditor, hired by AFAP to audit all World Bank projects under their management, will expire this year. The Project Preparation Advance (PPA) is currently under implementation by AFAP. The short list of audit firms as well as the TORs will be submitted to the World Bank for review. The audit report together with Management Letter will be submitted to the World Bank no later than six months after the end of each fiscal year.

### (ii) Procurement

82. **Procurement will be carried out in accordance with the 'World Bank Procurement Regulations for IPF Borrowers'**, dated November 2020 and as amended over time, and the provisions stipulated in the Financing Agreement. In addition, the 'Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants', dated October 15, 2006, and revised in January 2011 and July 2016, will apply.

83. **Assessment undertaken.** Procurement activities will be carried out by a new PIU that will be established under MINR. A procurement specialist will be recruited to be dedicated to the Project. Considering the lack of experience of the MINR in managing procurement activities according to World Bank's procedures, specific procurement training should be carried out to all individuals from the PIU and MINR involved in the overall project management.



84. **The procurement risk is rated High.** MINR has no experience with implementing procurement activities according to World Bank procedures, and the difficulty recruiting qualified staff, delays during the evaluation of bids and proposals, the capacity of the market and supply chain to meet the demand, due to the global nature of COVID-19 pandemic, are risks being closely monitored as they can adversely impact project implementation. The risk assessment will continue to be carried out during project implementation and adapted accordingly.

**C. Legal Operational Policies**

	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Areas OP 7.60	No

**D. Environmental and Social**

85. **The environmental risk at this stage is considered Substantial based of the project’s likely environmental risks and impacts combined with the current borrower’s capacity in E&S risk management.** The potential environmental risks are mainly related to connectivity solutions under component 1, including the deployment of a submarine cable to connect São Tomé Island to Príncipe Island and the respective landing sites (cable trenches and a cable station). The construction of the submarine cable landing sites may also generate some impacts on sensitive coastal and marine habitats and species. The construction footprint is relatively small and is unlikely to affect built heritage, intangible heritage, or natural heritage. No significant risks and impacts are expected during the implementation phase. In addition, consideration is given to the status of the Island of Príncipe as United Nations Educational, Scientific and Cultural Organization Biosphere Reserve. A specific survey to determine existence of turtle nesting sites in potential cable landing areas will be conducted to make sure that natural habitats for turtle nesting will be protected.

86. **The social risk is classified as Moderate based on the nature of its planned activities.** While the overall social benefits of the project are expected to be positive, connectivity works could result in social risks and potential impacts including: (a) small scale negative impacts related to involuntary resettlement due to land acquisition, physical and economic displacement; (b) potential Occupational Health and Safety (OHS) and Community Health and Safety risks; (c) possible SEA/SH risks resulting from works; (d) minor labor influx risks, including sexually transmitted infections (STIs), teenage pregnancy, early marriage and child labor; (e) social inclusion negative impacts, such as issues related to new digital services accessibility, especially for disabled, elderly, illiterate and the poor; (f) mismanagement of digitalized citizen data in the creation of a Digital ID service, such as privacy concerns, discrimination, and possibility for abuse; and (g) risks related to security concerns for the marine operation, including low piracy risks. The country-wide data collection efforts of the census could result in the following social risks: (a) potential OHS and Community Health and Safety risks including propagation of COVID-19; (b) possible low SEA/SH risks resulting from project activities; and (c) mismanagement of digitalized data, such as privacy concerns, discrimination, and possibility for abuse. The social risks are expected to be low in magnitude, site-specific, predictable, and temporary. Appropriate E&S mitigation measures will be outlined in the project’s E&S instruments as specified under the Environmental and Social section.

87. **Environmental and Social Framework (ESF) instruments.** Based on the project scope and financed activities, the GoSTP has finalized and disclosed an Environmental and Social Commitment Plan (ESCP); and



Stakeholder Engagement Plan (SEP) on the website of AFAP and the World Bank Website on May 6, 2022. A first draft of the Environmental and Social Management Framework (ESMF) and of the resettlement Policy Framework (RPF) has been reviewed during Appraisal. The final ESMF<sup>53</sup>, including Labor Management Procedures (LMP), gender-based violence (GBV)/sexual exploitation and abuse (SEA)/ sexual harassment (SH) Assessment and related GBV/SEA/SH Action Plan, Code of Practice for e-Waste Management, Security Risk Assessment and Biodiversity Management Plan; and the final RPF will be consulted and disclosed by effectiveness. The ESCP covers all measures and actions needed to ensure ESF compliance. The ESMF will look at potential gender impacts and recommendations to increase social and gender inclusion across project activities, which will be developed and disclosed during project implementation. Regarding E&S risks management, the PIU will be responsible for E&S management of the project and will recruit an Environmental and a Social Specialist who will coordinate and supervise E&S aspects related to the project.

88. **Citizen engagement.** The project will integrate citizen engagement mechanisms such as direct consultations with beneficiaries and multi-level grievance mechanisms procedures for uptake and resolution of complaints. Citizen engagement through an effective GRM will also be tracked: “percentage of grievances registered that received an adequate response within 30 days”. Consultations with MDAs, representatives of potential project-affected communities, and industry operators were conducted during preparation, and will continue during implementation.

89. **GRM.** The project will set up three GRMs: one generic project-level GRM, a dedicated GRM for labor disputes of project workers, and a specific GRM for the census activities. The GRMs will be outlined in the SEP and serve as a platform for continuous citizen feedback from project-affected communities, and other interested stakeholders. The GRMs will pay particular attention to confidentiality, appropriate cultural sensitivities and allow for anonymous complaints. GRM will be sensitive to sexual exploitation and abuse / sexual harassment incidents and include procedures for the treatment and resolution of complaints in an ethical, proportionate, and confidential manner, taking a human and survivor-centered approach. The PIM will fully detail the GRM system.

## V. GRIEVANCE REDRESS SERVICES

90. Communities and individuals who believe that they are adversely affected by a World Bank supported project may submit complaints to existing project-level grievance redress mechanisms or the World Bank’s Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed to address project-related concerns. Project affected communities and individuals may submit their complaint to the World Bank’s independent Inspection Panel which determines whether harm occurred, or could occur, as a result of World Bank non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank’s attention, and World Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank’s corporate Grievance Redress Service (GRS), please visit <http://www.worldbank.org/en/projects->

<sup>53</sup> The ESMF provides an E&S baseline of the project; review of relevant national policies, institutional and regulatory frameworks, analysis of E&S risks with mitigation measures; plans for capacity building and training; description of E&S screening process; a Sexual Exploitation and Abuse and Sexual Harassment (SEAH) Action Plan designed to address related risks of the project; TOR for the preparation of E&S Management Plan/Impact Assessment; an E-waste Management Plan; and relevant guidelines (such as Environmental, Health, and Safety General guidelines).



operations/products-and-services/grievance-redress-service. For information on how to submit complaints to the World Bank Inspection Panel, please visit [www.inspectionpanel.org](http://www.inspectionpanel.org)

## VI. KEY RISKS

91. **Overall project risk is rated as Substantial, after mitigating measures**, based on the following factors:

- (a) **Macroeconomic risks are rated as Substantial.** The inherent macroeconomic risk is high, due to the reliance of government finances on external grants, uncertainty related to the exchange rate, risk exposure of the financial sector and a fragile energy sector. Government's budget remains highly dependent on external grants. The country's exchange rate arrangement, while appropriate given STP's structural characteristics, could come under pressure in the context of a prolonged decline in external receipts. The financial sector is also exposed to significant sovereign and currency risks. These conditions can generate further pressure on the mobile network operators (MNOs) expected to contribute private sector resources to the project. Thus, if the current weak economic outlook remains, the MNOs may not be able to commit funding to the project. The small size of the economy also means that the ability to attract large-scale private sector financing is also constrained. The fragile power sector continues to pose risks to the recovery of growth and macro-stability. Power outages have the potential to depress growth (as seen in 2019 and in 2021) and delayed reforms of the water and electricity company (*Empresa de Água e Electricidade, EMAE*), São Tomé Water and Electricity Company) could exacerbate fiscal and balance of payments pressures. EMAE's high debt to the fuel supplier and continued losses pose risks to fiscal sustainability. The continued prevalence of COVID-19 and its economic impacts could affect already low household expenditure, widening demand-side barriers to digital access and affordability of service. The Ukraine-Russia conflict, if it deepens further, could lower travel, threaten the recovery of the tourism sector, continue to exercise pressure in oil and gas prices (STP is a net importer) and increase pressures on food security requiring the Government to dedicate limited resources to mitigate impacts. Mitigation measures will include provision for remote and virtual delivery of workshops and services where possible. Macro-economic risks are however mitigated by the government's strong commitment to sound policies and structural reforms, backed by an active International Monetary Fund program and multi-faceted support by the World Bank and other partners. The project envelope includes sufficient contingency resources embedded to absorb higher project costs. This includes a focus on the transition to renewable sources such as solar. The residual risk is therefore considered to be Substantial.
- (b) **Institutional capacity for implementation and sustainability risks are rated as Substantial.** Experience across the World Bank STP portfolio suggests that ensuring adequate institutional capacity, coordination, and sustainability is a major challenge. However, successful implementation of now-closed World Bank-funded projects in the sector suggests that it can be overcome. To mitigate risks associated with coordination challenges, a technical committee composed of all government stakeholders will be set up. In addition, the Principal Technical Consultant for the PIU will represent INE as the beneficiary for the census activities. For the census, lessons from previous World Bank-financed data collection, especially the 2017 IOF, indicate that adequate TA is needed to support INE in successfully conducting data collection activities. For ID-related activities, additional support will be provided through the Identification



for Development (ID4D) Trust Fund resources. The project will place a focus on training and capacity building to ensure that related risks are mitigated, however residual risk remains Substantial.

- (c) **Fiduciary risks are rated as Substantial.** Government capacity for FM and procurement is currently primarily being provided by AFAP, which is supporting the implementation of seven World Bank-financed operations, including one regional integration project, with total commitment amounting to US\$96.5 million. Whilst FM for the project will be provided by AFAP, procurement will be conducted by MINR. A review of the AFAP's FM arrangements concluded that it continues to maintain acceptable FM arrangements, but that the residual FM risk remains substantial. Inherent procurement risk has been rated as High given the complexity of the procurements and the number of activities that need to be initiated in the first year of implementation. A dedicated procurement specialist will therefore be recruited for the project within MINR. Additional mitigation measures are outlined in Annex 1.
- (d) **Environmental and social risks are rated as Substantial.** The project activities entail large-scale infrastructure investment, i.e., deployment of a submarine cable to connect São Tomé and Príncipe Islands, which is likely to have significant environmental risks and impacts, including: a) destruction and degradation of coastal and marine biodiversity and ecosystems, b) occupational and community health and safety issues; and c) use of security personnel to protect marine assets used in surveying and laying activities. Other risks include waste generation (including debris and hazardous e-waste) from construction of cable landing sites and financing of hardware. The project also includes TA activities (for example, capacity building) that include face-to-face trainings that could lead to transmission of COVID-19. Social risks are expected to be low in magnitude, site-specific, predictable, and temporary. To manage the above risks and impacts, the Borrower has prepared and submitted to the World Bank a first draft of the ESMF and RPF, and by effectiveness, the final ESMF, including LMP, Labor Code of Practice for e-Waste Management, GBV/SEA/SH risk assessment and SEA/SH Action Plan, and Security Risk Assessment and Biodiversity Management Plan; and the final RPF will be prepared and disclosed.
- (e) **Other risks related to the financial closure of the PPP for the submarine cable are rated as Substantial.** The proposed World Bank funding for the submarine cable connectivity under subcomponent 1.2 constitutes a significant share of public funding but will seek to mobilize private sector financing. There is a substantial risk that in a small market such as STP, it will not be possible to confirm private sector funding for this project. Other factors such as increased inflation and supply chain issues may also contribute to higher costs than estimated. Private sector partners have indicated interest in the investment and the final amount will be confirmed before any disbursements on the submarine cable are made. To mitigate the risks, a transaction advisor will support the Government in the design and negotiation of the PPP. It is expected that this will happen before the end of 2023. Other options such as participating in a regional cable consortium are also being considered. These options carry higher commercial viability and may broaden private sector investment interest in regional markets. However, should this risk become an issue, reallocation of funding under the project or additional financing will be required.





VII. RESULTS FRAMEWORK AND MONITORING

Results Framework

COUNTRY: Sao Tome and Principe

Digital Sao Tome and Principe

Project Development Objectives(s)

To improve equity and sustainability of telecommunications services between the islands of São Tomé and Príncipe, and strengthen data governance, data systems and statistical capacity.

Project Development Objective Indicators

Indicator Name	PBC	Baseline	End Target
<b>To improve equity and sustainability of telecommunications services between São Tomé and Príncipe</b>			
Average speed of fixed broadband service (Number)		3.42	10.00
Reduction in difference in average speed of fixed broadband service between São Tomé and Príncipe (percentage decrease) (Number)		0.00	50.00
Average speed of fixed broadband service in São Tomé. (Number)		16.80	30.00
Average speed of fixed broadband service in Príncipe (Number)		8.30	20.00
Reduction in hours lost per year on inter-island connection due to climate events (Percentage)		0.00	10.00
<b>To strengthen data governance, data systems and statistical capacity</b>			
Number of new or revised regulations and policies related to		0.00	7.00



Indicator Name	PBC	Baseline	End Target
digital infrastructure and data exchange (Number)			
Number of government digital systems connected to the interoperability platform (Number)		0.00	5.00
Preparation of an updated master sampling frame to be used for all official socioeconomic surveys in STP (Yes/No)		No	Yes

**Intermediate Results Indicators by Components**

Indicator Name	PBC	Baseline	End Target
<b>1- Digital access</b>			
ITU Regulatory Tracker Overall Score (total 100) (Number)		78.67	84.00
Value of private sector investment leveraged under project (Amount(USD))		0.00	2,100,000.00
Public-Private Partnership mechanism agreed and parties committed to funding (Yes/No)		No	Yes
Submarine cable supply contract signed and in force (Yes/No)		No	Yes
Submarine cable operational (Yes/No)		No	Yes
Mobile broadband data usage per month per user in Principe (Number)		0.00	0.00
Educational institutions benefitting from new or improved access to broadband. (Number)		0.00	70.00
<b>2- Data foundations for digital service delivery</b>			
Publication of a data strategy and action plan (Yes/No)		No	Yes
Publication of an ID strategy and modernization roadmap		No	Yes



Indicator Name	PBC	Baseline	End Target
(Yes/No)			
Interoperability solution operational (Yes/No)		No	Yes
CERT established and operational (Yes/No)		No	Yes
<b>3- Housing and population census</b>			
Quarterly census implementation report (Number)		0.00	10.00
Census piloted (Yes/No)		No	Yes
Up to date digitized map of STP housing stock crossed with climate hazards (Yes/No)		No	Yes
Indicators in the Minimum Set of Gender Indicators that are updated based on Population Census 2023 data (Number) (Number)		0.00	18.00
Publication of updated population counts, disaggregated by gender, age, and municipality (Yes/No)		No	Yes
<b>4- Project management &amp; coordination</b>			
Grievances registered that receive a response within 30 days (Percentage)		0.00	100.00

**Monitoring & Evaluation Plan: PDO Indicators**

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
Average speed of fixed broadband service	This indicator will measure in Mbps the average speed of broadband services in São	Annual	Internet Services Providers	Data collected by regulator	PIU



	Tomé and Príncipe. This will be used to understand the impact that regulatory strengthening and reform will have on service quality during the project lifetime.				
Reduction in difference in average speed of fixed broadband service between São Tomé and Príncipe (percentage decrease)	This indicator will calculate the percentage difference in the speed of broadband services between São Tomé and Príncipe, to show the impact of improved inter-island connectivity on the service levels in Príncipe compared with São Tomé.	Annual	Internet service providers	Data collected by regulator	PIU
Average speed of fixed broadband service in São Tomé.	This indicator will measure in Mbps the average speed of broadband services from operator CST in São Tomé. This will be used as the comparative baseline to understand the impact from improvement to inter-island connectivity on services in Príncipe when compared with São Tomé.	Annual	Internet service providers	Data collected by regulator	PIU
Average speed of fixed broadband service in Príncipe	This indicator will measure in Mbps the average speed of broadband services from operator CST in Príncipe. This will be used as the	Annual	Internet service providers	Data collected by regulator	PIU



	comparative baseline to understand the impact from improvement to inter-island connectivity on services in Príncipe when compared with São Tomé.				
Reduction in hours lost per year on inter-island connection due to climate events	This indicator will monitor hours lost per year on the inter-island connection due to climate events. The existing inter-island connection is vulnerable to adverse weather events that reduce service levels. The Project supports climate-resilient telecoms infrastructure as a replacement to the existing connection. This indicator is intended to ensure new infrastructure is more resilient to climate events than the existing connection.	Annual	Regulator	Data from operator	PIU
Number of new or revised regulations and policies related to digital infrastructure and data exchange	These include policies and regulations related to open data, e-transaction, data portability, data protection, cybersecurity, digital ID and authentication, and statistics, among others.	Annual	Project reporting and online verification	PIU progress reports	PIU



Number of government digital systems connected to the interoperability platform	The number of government digital systems that are connected to the national data exchange layer implemented under the project	Annual	Project reporting	PIU progress reports	PIU
Preparation of an updated master sampling frame to be used for all official socioeconomic surveys in STP	Preparation of an updated master sampling frame to be used for all official socioeconomic surveys in STP	Annually	INE	PIU progress reports	PIU

**Monitoring & Evaluation Plan: Intermediate Results Indicators**

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
ITU Regulatory Tracker Overall Score (total 100)	The ICT Regulatory Tracker pinpoints the changes taking place in the ICT regulatory environment, facilitates benchmarking and the identification of trends in ICT legal and regulatory frameworks. The Tracker does not measure the quality, the level of implementation or the performance of regulatory frameworks in place, but records their existence and	Annual	ITU	Self-reported information gathered via official ITU Surveys to Member States Administrations	PIU



	features, making the case for further regulatory reform.				
Value of private sector investment leveraged under project	The amount of private financing invested in the submarine cable component of the project.	Annual	MINR	PIU progress reports	PIU
Public-Private Partnership mechanism agreed and parties committed to funding	The amount of private financing invested in the submarine cable component of the project.	Annual	MINR	PIU progress reports	PIU
Submarine cable supply contract signed and in force	The submarine cable procurement has been completed and a contract for supply has been signed and entered into force.	Annual	MINR	PIU progress reports	PIU
Submarine cable operational	The submarine cable has entered operations and is providing wholesale capacity to operators.	Annual	MINR	PIU progress reports	PIU
Mobile broadband data usage per month per user in Principe	Amount of mobile data consumed in a month, per customer, in Principe. Measured in megabytes (MB). Baseline and target data will be collected on first supervision mission. The baseline and target will be determined during the first implementation review mission.	Annual	Internet service providers	Data collected by regulator	PIU



Educational institutions benefitting from new or improved access to broadband.	This indicator measures the number of educational institutions provided with broadband internet access.	Annual	Ministry of Education	Counting education institutions supported under the project	PIU
Publication of a data strategy and action plan	A strategy and roadmap has been published in a format that is available to the public on the relevant government website.	Annual	Project reporting and online verification	PIU progress reports	PIU
Publication of an ID strategy and modernization roadmap	A strategy has been published in a format that is available to the public on the relevant government website.	Annual	Project reporting and online verification	PIU progress reports	PIU
Interoperability solution operational	The government has implemented an interoperability solution allowing for data exchange.	Annual	Monitoring and project documents	Reporting by PIU on activities delivered under the project	PIU
CERT established and operational	The Computer Emergency Response Team (CERT) has been created and operationalised.	Annual	Project reporting	PIU progress reports	PIU
Quarterly census implementation report	Quarterly report on census activities (technical and fiduciary), prepared and presented to CNE	Quarterly	PIU	PIU will collect updates from technical and fiduciary team and compile report	PIU
Census piloted	Results of pilot, including digital option, with recommendations for census implementation	Once	PIU	Reporting by INE	PIU





	prepared and presented to CNE				
Up to date digitized map of STP housing stock crossed with climate hazards	As a result of the cartography exercise, a digital map of STP housing will be produced and crossed with relevant information to target climate change mitigation/adaptation	End of project	Project reporting		
Indicators in the Minimum Set of Gender Indicators that are updated based on Population Census 2023 data (Number)	The Minimum Set of Gender Indicators is a collection of 52 quantitative indicators and 11 qualitative indicators covering national norms and laws on gender equality. It was agreed by the United Nations Statistical Commission in 2013 as a guide for national production and international compilation of gender statistics.	Annual	INE	Project reporting	PIU
Publication of updated population counts, disaggregated by gender, age, and municipality	Publication of updated population counts, disaggregated by gender, age, and municipality	Annual	INE	Project reporting	PIU
Grievances registered that receive a response within 30 days	Percentage of grievances received during the life of the project and addressed within a time period of 30	Annual	PIU	Monitoring of date of receipt and date of formal response	PIU



	days, including response to citizen feedback.				
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## ANNEX 1: Implementation Arrangements and Support Plan

### Financial Management

1. **Assessment undertaken.** The FM responsibility of the project will be vested with the Administrative and Fiduciary Agency (AFAP), an already established Fiduciary Agent in charge of the FM activities of most World Bank-financed projects. A Financial Management Assessment was undertaken to evaluate the adequacy of the proposed project FM arrangements. The assessment was conducted at AFAP, and it was carried out in accordance with the Directives and Policy for Investment Project Financing (IPF) and the World Bank Guidance on FM in World Bank IPF Operations issued on February 28, 2017.

2. **FM risks and mitigation measures.** The overall FM risk is ‘substantial’. The institutional capacity for public financial and fiscal management in the country is weak. The main challenges include a lack of resources, low technical capacity, a lack of coordination and political economy factors which prevent prudent fiscal management. Some Public Financial Management (PFM) practices are reinforcing fiscal fragility instead of supporting fiscal discipline. Previous assessments, including a 2013 Public Expenditure Financial Assessment, have identified the need for improvements in areas of budget preparation and execution (including public procurement and public investment), accounting, treasury, banking payments and reconciliation, payroll control, and internal control, external auditing and follow-up and implementation of audit findings. Given the fact that capacity is weak in the country the World Bank will rely on AFAP to handle the project fiduciary aspects; however, the residual risk remains ‘substantial’.

**Table 1.1. FM Risks and Mitigating Measures**

Risk factors/Description of Risk	Risk Rating	Risk Mitigating Measures Incorporated into the Project Design	Conditions of Negotiations, Board or Effectiveness (Yes or No)	Residual Risk Rating
<b>Inherent Risk:</b>				
<b>Country level:</b> The country faces human resource constraints; outdated legal framework on budgeting, internal and external auditing functions; limited coverage of the Integrated Financial Management Information System (IFMIS) and Single Treasury Account.	H	The GoSTP is committed to implementing reforms of the country’s PFM with support of the development partners. These include Implementation of IFMIS, expansion of the Single Treasury Account, and capacity building to key PFM institutions. The World Bank is supporting PFM reform initiatives through Institutional Capacity Building Project (P162129).	No	H
<b>Entity level:</b> MINR limited experience in managing World Bank operations and may not be able to meet the World Bank FM requirements.	H	Existing arrangements with AFAP to manage World Bank operation will apply for this project. FM capacity at the PIU to be strengthened with coordination and knowledge sharing together with AFAP.	No	S



Risk factors/Description of Risk	Risk Rating	Risk Mitigating Measures Incorporated into the Project Design	Conditions of Negotiations, Board or Effectiveness (Yes or No)	Residual Risk Rating
<b>Project level:</b> MINR and AFAP may have challenges in monitoring and coordinating various project activities as the project involves multiple beneficiaries.	S	A detailed PIM to be prepared that clarifies roles, responsibilities, and authority of all stakeholders in the project shall provide overall leadership and oversight. MINR will benefit from existing FM expertise within AFAP.	No	M

Risk factors/Description of Risk	Risk Rating	Risk Mitigating Measures Incorporated into the Project Design	Conditions of Negotiations, Board or Effectiveness (Yes or No)	Residual Risk Rating
<b>Control Risk:</b>				
<b>Budgeting:</b> AFAP may not be able to produce a realistic and comprehensive budget in case the project beneficiaries (MINR, AGER, INIC, ANPDP and DGRN) have limited capacity to produce reliable information.  AFAP handling fiduciary activities of many projects may not be able to produce and monitor on time the budget of the project.	S	The PIM will define the role and responsibilities of the beneficiary agencies.  AFAP to engage all project stakeholders early during the planning and budgeting process and ensure that annual work plans, and budgets are in line with Procurement Plan to prevent any delays.  AFAP will recruit an additional accountant.  Projects' technical advisors at AFAP oversee monitoring budget variances. The World Bank will review the draft budget as well as the quarterly IFR and provide comments.	No	S
<b>Accounting:</b> Project funds, expenditures, and resources may not be properly recorded since AFAP is accounting for other projects and may be confused in handling record of the project transactions.	S	The Accounting package (Tom2pro) will be customized for separate record of the project transactions to be able to generate the project financial reports. The AFAP FM staffing capacity will also be strengthened by recruiting one project accountant.	No	M
<b>Internal control:</b> Noncompliance with internal control activities and safeguards of assets (especially for the census component) given the numbers of projects currently handled by the team.	S	AFAP internal auditor, will conduct regular ex-post review of the project transactions  The World Bank shall review the effectiveness of the internal control arrangements through implementation support supervision missions and technical reviews.  The PIM will include procedures for	No	S



Risk factors/Description of Risk	Risk Rating	Risk Mitigating Measures Incorporated into the Project Design	Conditions of Negotiations, Board or Effectiveness (Yes or No)	Residual Risk Rating
		administrative expenses incurred during the census and how project assets will be appropriately safeguarded.		
<b>Fund’s flow:</b> Delays in funds flow may affect project activities. Commercial holding the designated account inability to timely make payments in foreign currency may negatively impact the implementation of project critical activities.	S	AFAP is familiar with World Bank’s disbursement procedures and the ceiling for Direct Payment (DP) will be lowered to allow flexibility for DP The designated account will be opened at a bank acceptable to IDA	No	M
<b>Financial reporting:</b> Delay may be noted in the submission of project IFRs produced by AFAP due to several IFRs to be produced at the same time.	S	Additional staff will be recruited to strengthen AFAP capacity.  AFAP existing automated accounting system enables generation of reliable and timely financial information and can accommodate up to ten projects.	No	S
<b>Auditing:</b> AFAP not being able to prepare several financial statements and plan for the audit adequately to ensure all audit reports are submitted on time  Poor quality audit  Lack of follow-up of the auditor recommendations	S	AFAP FM unit has enough staff to prepare financial statements on time, and an additional accountant will be recruited.  AFAP is currently in the process of hiring a new external auditor and should ensure that the audit firm has experience and qualification to provide acceptable quality audit	No	S
<b>Governance and Accountability:</b> Possibility of corrupt practices, including bribes, abuse of administrative and political	H	FM arrangements including internal control systems at AFAP are acceptable to mitigate such risk.  Implementation of external audit, and the World Bank Fiduciary implementation missions’ recommendations.	No	S
<b>OVERALL FM RISK</b>	S			S

Note: H = Higher; S = Substantial; and M = Moderate

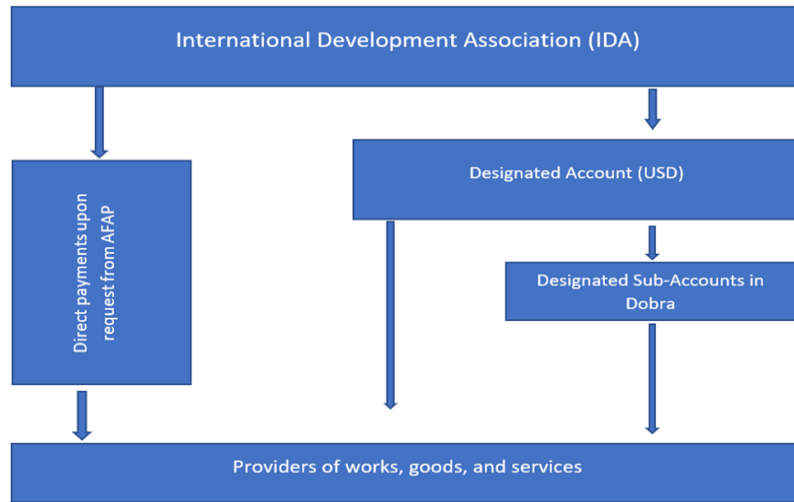
3. **Staffing.** AFAP is equipped with experienced finance team with skills and experiences in managing World Bank financed operations. The FM team be supported by one Project Accountant who should be recruited within 60 days after project effectiveness.



4. **Planning budgeting, and accounting arrangements.** AFAP's current Budgeting, accounting, internal control, and financial reporting arrangements will apply to the project. AFAP's current policies and procedures used under the existing projects will also be applied for the current project. There is currently an internal auditor in charge of the review of AFAP internal processes and currently issuing biannual reports. AFAP will produce and submit to the World Bank quarterly IFRs within 45 days after the end of the calendar quarter.
5. **Internal control and internal auditing arrangements.** The General Inspectorate of Finance (*Inspecção Geral das Finanças*, IGF) which has the mandate to carry out internal audit reviews of the entire government entities would also review this operation. However, the project activities may not be subject to internal audit review by IGF due to its limited capacity and some constraints on their work program. AFAP has an experienced internal auditor with a defined work plan in place. The project will be audited annually by a private qualified audit firm on a basis of ToR acceptable to the World Bank. The report should be submitted to the World Bank within six months following the end of the fiscal year. The audit will be conducted in accordance with International Standards on Auditing (ISA) as issued by the International Auditing and Assurance Standards Board.
6. **External auditing arrangement.** A single private audit firm is being used for all World Bank-financed operations handled by AFAP. The TOR as well as the short list of the audit firms will be reviewed by the Bank FM specialist. In case the audit firm is already recruited, the contract will be adjusted to include the audit of the project's financial statements. AFAP will be required to submit, not later than June 30 of each fiscal year, the annual financial statement audit report. In line with the new access to information policy, the project will comply with the disclosure policy of the World Bank of audit reports (for instance making available to the public without delay after receipt of all final financial audit reports, including audit reports with qualifications).
7. **Governance and accountability.** AFAP is developing an internal regulation to fight corruption although further efforts are necessary to ensure that those measures are implemented effectively. Project clearly defined procurement procedures will be documented in the PIM and annual financial audits will be conducted.
8. **Funds flow and disbursement arrangements.** AFAP will open a Designated Account (DA) in U.S. dollars at commercial bank under terms and conditions acceptable to the World Bank to receive advances from IDA. In addition, a sub-account will be established and maintained at the same commercial bank for the DA to facilitate payments in local currency. Funds in the DA and sub-account will be used to finance the project's eligible expenditure in accordance with the Financing Agreement and the Disbursement and Financial Information Letter. The figure below depicts the funds flow mechanism for the project activities to be financed by IDA funds.



Figure 1.1. Fund Flow



9. **Disbursement arrangements.** Disbursements of IDA funds will be done on a transaction basis (Statement of Expenditures, SOEs). An initial advance will be made into DA upon the effectiveness of the Financing Agreement in accordance with the ceiling mentioned in the Disbursement and Financial Information Letter. The option of disbursing the IDA funds through direct payment, reimbursement, and special commitment will also be available. To facilitate the payments of contractors, suppliers, and consultants a lower minimum threshold for the use of direct payment and reimbursement methods of disbursement will be applied for this operation due to challenges of commercial banks to make payments to foreign providers of goods and services and contractors.

Table 1.2. Key FM Actions Required

No.	Action	Responsible	Due by
1.	Develop Project Implementation Manual (PIM) including FM procedures to reflect processes and activities related to this operation.	MINR	Within 60 days after effectiveness
2.	Recruit an External Auditor	AFAP	Within 90 days after effectiveness
3.	Customize the accounting packages by creating codes to maintain separate records and ledger accounts for the project.	AFAP	Within 60 days after effectiveness
4.	Recruit one project Accountant	AFAP	Within 60 days after effectiveness

Procurement

10. **Applicable procedures.** Procurement will be carried out in accordance with the ‘World Bank Procurement Regulations for IPF Borrowers’, dated November 2020 and as amended over time, and the provisions stipulated in the Financing Agreement. In addition, the ‘Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants’, dated October 15, 2006, and revised in January 2011 and July 2016, will apply.



11. **Procurement Strategy for the Project.** The Project Procurement Strategy for Development (PPSD) draft has been reviewed at appraisal. The PPSD captures the key contracts to be financed by the project, for the initial 18 months and recommends the most suited approaches for the Agencies to implement a fit-for-purpose procurement, achieving value for money with efficiency. Recommendations of the PPSD will be incorporated in the Procurement section of the PIM. These will guide both Agencies in carrying out procurement in accordance with World Bank Procurement Regulations. The PPSD, in addition to informing the initial Procurement Plan, will enable AFAP and implementing agencies to create the activities in the World Bank's Systematic Tracking of Exchanges in Procurement (STEP) system and initiate procurement implementation.
12. **The Procurement activities for the project will be managed by a new PIU to be established under the MINR.** Adequate support is required to have a procurement specialist fully dedicated to this Project. Considering the lack of experience of the MINR in the management of procurement activities according to the World Bank's procedures, specific procurement training shall be organized on a regular basis for all individuals involved in project implementation. Specific procedures for the project will be detailed in the PIM, which will be prepared and adopted. A key factor for good procurement performance will be the ability of the beneficiaries' entities to work in close collaboration, as the beneficiaries will have to provide inputs for the preparation of the Procurement Plan and provide all required information (TOR and technical specifications).
13. **The Procurement Plan for the activities will be managed through the World Bank's tracking system, STEP.** A Procurement Plan covering at least the first 18 months of project implementation, as informed by the PPSD, and agreed between the recipient and the World Bank has been prepared and will be updated from time to time to guide the implementation of procurable components of the project. The processing of these activities will be done in real time through STEP.
14. **World Bank support and additional implementation arrangements.** The World Bank, as part of the implementation support, will carefully monitor the implementation of the project and provide support and guidance, as required, throughout its implementation. Prior to project disbursements, AFAP will develop the PIM which will include a section on procurement, the Procurement Manual. The Procurement Manual will detail the applicable procurement arrangements for the project and help both agencies and Project beneficiaries to carry out procurement in accordance with the World Bank Procurement Regulations, in addition provide a clear division of roles throughout the procurement processing and management. The World Bank will continue to offer support to ensure adequate and timely implementation of agreed activities and will encourage the implementing agencies to leverage the use of technology, while limitations are being imposed by COVID-19, through promoting streaming of opening of bids and proposals and the possibility of submission of bids/proposals through electronic means.
15. **Procedures for goods and non-consulting services.** The market approach would be an open international market approach, post-qualification and Request for Bids selection method is recommended. The World Bank Standard Procurement Documents will be used for all the procurements.
16. **Procedures for selection of consultants.** Competitive selection methods through request for expression of interest followed by request for proposals are recommended. Least Cost Selection are recommended for the audit contract through open international market approach using request for expressions of interest. The World Bank Standard Procurement Documents will be used for all the procurements.
17. **Use of Technology.** With the limitations being imposed by COVID-19 and with the aim of fostering competition, AFAP and the World Bank will assess and consider the use of virtual tools (such as Skype, Zoom,





Webex) to increase the participation of bidders in bid opening and pre-bid meetings or site visits, as required, and allow the electronic submission (e-mail) of Bid/Proposals.

18. **Review by the World Bank of procurement decisions.** Table 1.3 indicates the initial values for prior review by the World Bank. All activities estimated to cost below these amounts shall be treated as post review and will be reviewed by the World Bank during implementation support missions under a post procurement review exercise. Direct Contracting/Single-Source Selection will be subject to prior review only for contracts estimated to cost equal to or more than the amounts indicated in the table below. The World Bank may, from time to time, review the amounts, based on the performance of the implementing agencies.

Table 1.3 . Value Thresholds for Prior Review

Procurement Type	Prior Review (US\$) for MGCAS/INAS
	5,000,000
Goods and Non-Consulting Services	1,500,000
Consulting Services (Firms)	500,000
Individual Consultants	200,000

19. **Approach to market.** Based on the size of the contracts under this project and granted the procurement risk profiles, open international bidding will be followed. However, generally, the thresholds shown in table 1.4 will be used for an open national/international market approach and Request for Bids/Quotations procurement methods under this project.

Table 1.4. Thresholds for Procurement Approaches and Method (US\$, thousands)

Category	Works			Goods, IT, and Non-Consulting Services			Shortlist of National Consultants	
	Open International ≥	Open National <	Request for Quotation ≤	Open International ≥	Open National <	Request for Quotation ≤	Consulting Services ≤	Engineering and Construction Supervision ≤
São Tomé e Príncipe	3,000	3,000	200	500	500	100	100	300

20. **Bidding process.** The Request for Bids/Request for Proposals document shall require that bidders/proposers present a signed acceptance at the time of bidding, to be incorporated in any resulting contracts, confirming application of, and compliance with, the World Bank’s Anti-Corruption Guidelines, including without limitation the World Bank’s right to sanction and the World Bank’s inspection and audit rights.

21. **Procurement information and documentation - filing and database.** Procurement information will be recorded and made available in the physical archive and filed and/or uploaded in the STEP for audit and/or post-procurement review carried out by the World Bank.



22. **Advertising procedures will include the following:**

- General Procurement Notice, Specific Procurement Notices, Requests for Expression of Interest, and results of the evaluation and award of contracts should be published in accordance with the advertising provisions in the Procurement Regulations.
- Requests for Bids and Request for Proposals that involve international consultants, and contract awards, shall be published in United Nations Development Business in line with the provisions of the Procurement Regulations.

23. **For goods and works, information to be published shall specify** (a) the name of each bidder who submitted a bid; (b) bid prices as read out at bid opening; (c) the name and evaluated prices of each bid that was evaluated; (d) the name of bidders whose bids were rejected and the reasons for their rejection; and (e) the name of the winning bidder, and the price it offered, as well as the duration and summary scope of the contract awarded.

24. **For consultants, the following information must be published:** (a) the names of all consultants who submitted proposals; (b) technical points assigned to each consultant; (c) the evaluated prices of each consultant; (d) the final point ranking of consultants; and (e) the name of the winning consultant and the price, duration, and summary scope of the contract. The same information will be sent to all consultants who submitted proposals. For other contracts, the information should be published in the national gazette periodically (at least quarterly) and in the format of a summarized table covering the previous period with the following information: (a) name of the consultant to whom the contract was awarded, (b) price, (c) duration, and (d) scope of the contract.

25. **Use of local procedures.** The country's regulations are consistent with international best practices. However, standard bidding documents are not used consistently and capacity in the country is limited to the public sector (ministries, institutes). Therefore, and considering AFAP's experience in using World Bank's procedures, procurement activities under this project will be implemented using the World Bank's Procurement Regulations.

26. **Training, workshops, and conferences.** Training (including training material and support), workshops, and **conference** attendance will be carried out based on an approved annual training and workshop/conference plan. A detailed plan providing the nature of training/workshop, number of trainees/participants, duration, staff months, timing, and estimated cost will be submitted to the World Bank for review and approval before initiating the process. The appropriate methods of selection will be derived from the detailed schedule. After the training, beneficiaries will be requested to submit a brief report indicating what skills have been acquired and how these skills will contribute to enhance his/her performance and contribute to the attainment of the project objective.

27. **Operational costs.** Operating costs financed by the project are incremental expenses, including office supplies, vehicles operation and maintenance, maintenance of equipment, communication costs, and supervision costs (that is, transport, accommodation and per diem). They will be procured using the procurement procedures specified in the Procedures Manual (administration, finance, and accounting).

28. **Project risks affecting procurement.** The PIU under the MINR has no experience in managing procurement activities and a procurement specialist shall be recruited to support the project, and regular training in procurement shall be delivered to all individuals. Moreover, the other risks that may impact implementation of the project are summarized below, including the proposed mitigation measures:



Table 1.5. Procurement Risk Assessment and Mitigation Measures

No.	Risk	Inherent Risk	Mitigation Measure	Time Frame	Responsible Agency
1	Difficulty recruiting qualified staff	H	Ensure that qualified staff are retained to ensure long-term sustainability of the institution.	During project implementation	PIU
2	Delays during the evaluation of bids and proposals.	H	Ensure the evaluation panel members nominated are available and have the required technical and language expertise to perform the work required.	During project implementation	PIU
3	Adequate use of the STEP. Activities flagged as delayed or pending implementation.	H	Ensure that STEP is properly handled, uploading the required documentation once the stages of the processes are completed.	During project implementation	PIU
4	Capacity of the market and supply chain to meet the demand, due to the global nature of COVID-19 pandemic.	H	PIU will apply COVID-19 flexibilities in the bidding process in accordance with emergency operations norms to mitigate the impact of the COVID-19 pandemic including the use of direct contracting where appropriate.	During project implementation	PIU
7	Challenges of bids submission due to COVID-19 movement restrictions imposed by many countries worldwide.	H	PIU project implementation teams will closely monitor country restrictions, and promptly propose more efficient procurement approaches and methods based on flexibilities provided for in the Procurement Regulations and flexibilities granted by SIP to mitigate the impact of the COVID-19 pandemic.	During project implementation	PIU

29. **The procurement risk associated with the project is rated High**, in view of the lack of experience of the implementing agency in the use of procurement regulations associated to the other risk as described above. With the mitigation measures mentioned above, and the recruitment of dedicated procurement specialist to the project, the residual risk is rated ‘Substantial’. These risks should be closely monitored as they can adversely impact project implementation. The risk assessment will continue to be carried out during project implementation and adapted accordingly.

### Implementation Support Plan

30. **The proposed strategy and approach for Implementation Support has been tailored to strengthen the capacity of MINR, INIC, INE and other supporting MDAs.** There will be strong coordination between the World Bank and the PIU in relation to the day-to-day administrative management and implementation of the project. Formal implementation support missions and field visits will be carried out, jointly with the Government, every three to six months. Initially, these missions will focus on strengthening project management, development of operational guidelines and preparation of the first phase of activities planned. Later, missions will focus on reviewing implementation progress, achievement of results and sustainability. A mid-term review will be carried out 18 months after project effectiveness to take stock of progress and make any needed adjustments to project design. Targeted technical, FM and procurement-related review missions will be undertaken, which initially will feature training for related PIU staff. Ongoing dialogue, including through video-conferences and e-mail, will ensure continuous support and monitoring. The implementation support plan will be reviewed on an annual basis



to ensure that it is adequately aligned with support needs. The World Bank team will include a task team leader, technical specialists in areas like Infrastructure, Cybersecurity, Digital Identification, Census and Statistics. In addition, fiduciary, environment and social specialist will support the technical team. It is expected that during the first 12 months of implementation the estimated level of annual support required by the World Bank team is higher than in subsequent years.

### Phased Implementation and Support

31. **In view of the complexity of the project, the 5-year implementation period will be phased to better manage key linkages and synergies between activities and subcomponents.** The phasing will aim to (a) ensure completion of the required studies prior to infrastructure investments; (b) create efficiency gains by reducing project complexity at any one-time during implementation. In doing so, the project has been designed to be implemented in three different phases. Table 1.7 provides a flexible and non-exhaustive sequential overview of project activities.

- (a) **Phase 1 (Year 1):** For the Digital Access component year 1 will include work to design and establish the PPP mechanism, and the drafting of any tender documentation for the submarine cable. This work will inform any potential need to reallocate funds to finance the submarine cable. Regulatory assistance activities will be procured and initiated. The assessment of connectivity needs in schools will also be launched. For the data foundations component, the first year will include legal advisory services, provision of TA, equipment and software for ANPDP and DGRN, and the implementation of the interoperability platform solution. Year 1 activities for the collection of the census includes hiring of key staff, purchases of equipment, preparation and roll out of the communication and consultation strategy, and the design and codification of the data collection programs needed for both the cartographic update and the census itself. It will include cartographic update (pilot, data collection, and data processing) and the pilot of the census.
- (b) **Phase 2 (Year 2-3):** Years 2-3 activities for the Digital Access component will include the launch of the submarine cable tender if required, and the completion of the establishment of the PPP mechanism and funding commitments. The appointment of the cable supplier and the contract-in-force to begin the cable design and build will also be reached. The school's connectivity subcomponent will complete activities to connect those schools without connectivity, and to operationalize new connectivity contracts for the Ministry of Education. For the data foundations component, this will include the development of the data and ID strategies, training and outreach on data protection, and implementation of the CERT. Year 2 activities include the collection of the census, data processing, and early phases of the preparation of the output reports. It will also include the design and collection of the post-enumeration survey. The reports will be finished and disseminated in year 3 and the master sampling frame will be created and validated.
- (c) **Phase 3 (year 4-5):** Years 4-5 activities for the digital access component will see the completion of the build and testing phase of the submarine cable, and the launch into service.



Table 1.6. Sequential Overview of Project Activities and Select Milestones

Components / Subcomponents / Select Milestones		FY22 (PPA)	FY23	FY24	FY25	FY26	FY27
<b>1</b>	<b>Digital access</b>						
<b>1.1</b>	<b>Enabling environment for broadband market development and digital access</b>						
	<i>New regulatory frameworks</i>		x				
	<i>Framework for resilience of connectivity infrastructure</i>		x				
<b>1.2</b>	<b>Connectivity to Príncipe</b>						
	<i>PPP established</i>		x				
	<i>Submarine cable tender launched</i>			x			
	<i>Submarine cable contract in force</i>			x			
	<i>Submarine cable ready for service</i>						x
<b>1.3</b>	<b>School connectivity</b>						
	<i>School connectivity assessment</i>		x				
	<i>School connectivity operational</i>			x			
<b>2</b>	<b>Data foundations for secure digital public service delivery</b>						
<b>2.1</b>	<b>Legal, strategic and policy frameworks</b>						
	<i>National data strategy</i>			x			
	<i>National ID strategy</i>			x			
<b>2.2</b>	<b>Shared digital government platforms and services</b>						
	<i>Interoperability platform</i>		x				
	<i>CERT operational</i>			x			
	<i>Data protection outreach and trainings</i>			x			
<b>3</b>	<b>Housing and population census</b>						
<b>3.1</b>	<b>Preparation of the census</b>						
	<i>Setup of organizational structures, staffing, and equipment</i>		x				
	<i>Outreach, communication, and awareness strategy</i>		x	x			
	<i>Update of cartography</i>		x				
	<i>Pilot completed</i>		x				
<b>3.2</b>	<b>Census data collection</b>						
	<i>Data collection</i>			x			
	<i>Post enumeration survey</i>			x			
<b>3.3</b>	<b>Analysis of results and dissemination</b>						
	<i>Data analysis</i>		x	x	x		
	<i>Publication of results and dissemination</i>				x		
<b>4</b>	<b>Project management and coordination</b>						
	<i>PIU recruitments</i>	x					

Note: This table provides a flexible overview of general guidance but is not a strict implementation timeline.



## ANNEX 2: Support for Climate Change Adaptation and Mitigation

### A. Climate Vulnerability Context

1. **As a remote, small island state, STP is also one of the most vulnerable countries to climate change and rising sea levels.** Geographical characteristics, including populations largely concentrated around the low-lying coastlines of the two main islands, make the country extremely vulnerable to natural and climate related disasters. Climate change imposes high costs and may even threaten the physical viability of some areas of both islands of STP. STP is especially vulnerable to adverse weather events, with a prolonged rainy season that exposes the country to increasing risk of storm surge, flooding, king tide ingress and extreme coastal erosion that will increase in frequency because of climate change.

2. **The current digital connectivity service between the islands of São Tomé and Príncipe is highly vulnerable to the effects of adverse weather events,** which significantly reduce the service levels at such a time when connectivity and communication is paramount. Increasing frequency of adverse weather events from the impacts of climate change further increases the vulnerability of communications during natural disasters.

### B. Plan for Addressing Climate Vulnerability

3. **STP is committed to ensuring its future stability and prosperity through mainstreaming climate change into all sectors of the economy, to achieve climate resilience and reduce the carbon footprint.** Investment proposed in climate-smart infrastructure and expansions of digital services will be critical to related efforts. Digitization of STP's economy and government operations presents an opportunity to significantly strengthen the country's resilience and ability to adapt to climate change and recover more quickly from climate-related natural disasters and shocks. It can also help the country contribute toward mitigation of greenhouse gas emissions.

4. **STP carries a significant climate vulnerability risk associated with its inter-island communications infrastructure.** The current solution for digital connectivity between São Tomé and Príncipe, a microwave link, is extremely vulnerable to climate-induced adverse weather events. This includes significantly reduced reliability and performance of communications during adverse weather. The solution proposed under Component 1 of the project, an undersea cable, is significantly more resilient to these types of events due to the nature of the technology and will help address the vulnerability risk highlighted above. This will provide resilient services that will contribute to STP's climate adaptation over the long term as the frequency of adverse weather events increases due to the impact of climate change. It will also contribute to STP's mitigation approach by lowering the power consumption of inter-island communications services, resulting in carbon saving over the long term.

5. **It will also contribute to STP's mitigation approach by lowering power consumption and demand for inter-island communications services, resulting in carbon saving over the long term.** The new Housing and Population Census will result in updated mapping of housing and the population across both islands, allowing for better targeting of mitigation measures (such as location of precarious housing in high flood-risk zones).

6. **This assessment elaborates on climate change considerations which have been incorporated under the Digital STP Project.** Table 2.1 elaborates on specific design considerations that will be included in the project, organized by component, to enhance climate change adaptation and mitigation in the STP context.



**Table 2.1. Project Climate Adaptation and Mitigation Measures.**

<b>Component 1: Digital access (US\$13.35 million, of which US\$11.0 million IDA equivalent, US\$0.8 million GIF with expected additional private capital of US\$2.1 million)</b>			
<b>Subcomponents / Activity</b>	<b>IDA Financing (US\$ million)</b>	<b>Adaptation Measures</b>	<b>Mitigation Measures</b>
Digital connectivity to Príncipe	8.0	This activity will replace the current climate-vulnerable microwave communications link between São Tomé and Príncipe with an undersea cable, providing significant resiliency to disaster and climate-induced weather events. Undersea cables are the most resilient of communications technologies due to their lower exposure to the elements and physical method of data transport, which is unaffected by rainfall and adverse weather like other technologies such as microwave or satellite.	Under this activity, the investments in new digital infrastructure, and especially the migration from a high-power microwave link to a low-power submarine cable, will significantly reduce energy consumption and CO <sub>2</sub> emissions.  The project will support the decommissioning of inefficient legacy equipment. For new equipment, best practices for energy efficiency and international standards, such as ITU-T recommendations with respect to energy efficiency, will be followed.
School connectivity	1.35	n/a	Under this activity, new investments in connectivity for schools will result in the decommissioning of existing legacy equipment, replaced with high efficiency, low energy connectivity equipment that adheres to international standards and best practices.
<b>Component 2: Data foundations for secure digital public service delivery (US\$2.65 million IDA equivalent).</b>			
Shared digital infrastructure and services	1.65	The development of digital ID would enable relief and strengthen disaster response during climate disasters and events. For instance, digital ID will enable citizens to access disaster relief services and programs in the aftermath of a disaster, and authentication for financial services would allow to transfer funds to areas affected and inaccessible in the event of a climate disaster. In addition, a Digital ID can enable accurate identification of and access to patient healthcare records by emergency responders and healthcare workers.  Under this activity, the project will also finance design and procurement of Digital Government infrastructure that will take into consideration climate change impacts, disaster risks, and	This activity will finance the consolidation of disparate legacy government IT infrastructure into a centralized, shared, single infrastructure. This will significantly lower the energy consumption of government digital infrastructure through the reduction of duplicate systems and the decommissioning of inefficient legacy infrastructure.



		improve continuity of business operations.	
<b>Component 3: Housing and population census (US\$3.0 million IDA equivalent).</b>			
Updated cartography and census	\$3.0	<p>The resulting information on housing and population will be mapped and allow for small area estimates. The results are detailed maps and tabulations that allow for improved risk assessments across communities in the country, considering precarious housing, households without access to running water or improved sanitation, and other key characteristics that, combined with geocoded hazard maps, will lead to improved targeting of mitigation measures as well as emergency response in cases of weather shocks such as localized flooding.</p> <p>Census data will be used for preparation of a climate change hazard map combining existing data from MINR.</p>	