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Report No: ICR00005105

**IMPLEMENTATION COMPLETION AND RESULTS REPORT**

(IBRD 8150-GA, IBRD 8629-GA)

ON A

IBRD LOAN

IN THE AMOUNT OF US\$ 58 MILLION

IBRD LOAN

IN THE AMOUNT OF EUR 20.2 MILLION

(US\$ 23 MILLION EQUIVALENT)

TO THE

GABONESE REPUBLIC

FOR THE

FOURTH PHASE OF THE CENTRAL AFRICAN BACKBONE PROGRAM – GABON PROJECT

April 9, 2021

Digital Development Global Practice  
Africa West Region

## CURRENCY EQUIVALENTS

(Exchange Rate Effective April 8, 2021)

Currency Unit = Central African CFA franc (XAF)

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XAF 552.680 = US\$1

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XAF 656.450 = EUR 1

FISCAL YEAR

July 1 - June 30

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Country Director: Abdoulaye Seck

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## ABBREVIATIONS AND ACRONYMS

ACE	Africa Coast to Europe
AM	Aide-Mémoire
ANINF	National Agency for Digital Infrastructure and Frequencies ( <i>Agence nationale des infrastructures numériques et des fréquences</i> )
APL	Adaptable Program Loan
ARAP	Abbreviated Resettlement Action Plan
ARCEP	Regulatory Authority for Electronic Communications and Postal Services ( <i>Autorité de régulation des communications électroniques et des postes</i> )
CAB	Central African Backbone
CAB3	Central African Backbone Program: The Republic of Congo Project
CAB4	Central African Backbone Program: Gabon Project
CEMAC	Central African Economic and Monetary Community ( <i>Communauté économique et monétaire de l'Afrique centrale</i> )
CMU	Country Management Unit
CN-TIPPEE	National Commission for Works of Public Interest for the Promotion of Entrepreneurship and Employment ( <i>Commission Nationale des Travaux d'intérêt public pour la promotion de l'entrepreneuriat et de l'emploi</i> )
COVID-19	Coronavirus Disease 2019
CPF	Country Partnership Framework
CPS	Country Partnership Strategy
E&S	Environmental and Social
ECCAS	Economic Community of Central African States
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FM	Financial Management
FY	Fiscal Year
GABIX	Gabon Internet Exchange
GDP	Gross Domestic Product
GoG	Government of Gabon
GRM	Grievance Redress Mechanism
IBRD	International Bank for Reconstruction and Development
ICR	Implementation Completion and Results Report
ICT	Information and Communications Technology
IPP	Indigenous Peoples Plan
IPPF	Indigenous Peoples Planning Framework
IRR	Internal Rate of Return
ISP	Internet Service Provider
ISR	Implementation Status and Results Report
ITU	International Telecommunication Union
IXP	Internet Exchange Point
M&E	Monitoring and Evaluation

MCPEN <sup>1</sup>	Ministry of Communication, Postal Services and Digital Economy ( <i>Ministère de la communication, de la poste et de l'économie numérique</i> )
MOU	Memorandum of Understanding
MTR	Midterm Review
NPV	Net Present Value
PAD	Project Appraisal Document
PDO	Project Development Objective
PIU	Project Implementation Unit
POM	Project Operations Manual
PPA	Project Preparation Advance
PPP	Public-Private Partnership
PSGE	Emerging Gabon Strategic Plan ( <i>Plan stratégique Gabon émergent</i> )
RAP	Resettlement Action Plan
RPF	Resettlement Plan Framework
SCD	Systematic Country Diagnostic
SETRAG	Trans-Gabonese Railway Operating Company ( <i>Société d'exploitation du Transgabonais</i> )
TA	Technical Assistance
TTL	Task Team Leader
WB	World Bank
XAF	Central African CFA Franc ( <i>Franc CFA</i> )

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<sup>1</sup> Renamed to MENP : Ministry of Digital Economy and Postal Services (*Ministère de l'économie numérique et de la poste*)

## TABLE OF CONTENTS

<b>DATA SHEET</b> .....	<b>1</b>
<b>I. PROJECT CONTEXT AND DEVELOPMENT OBJECTIVES</b> .....	<b>6</b>
<b>A. CONTEXT AT APPRAISAL</b> .....	<b>6</b>
<b>B. SIGNIFICANT CHANGES DURING IMPLEMENTATION</b> .....	<b>10</b>
<b>II. OUTCOME</b> .....	<b>14</b>
<b>A. RELEVANCE OF PDOs</b> .....	<b>14</b>
<b>B. ACHIEVEMENT OF PDOs (EFFICACY)</b> .....	<b>15</b>
<b>C. EFFICIENCY</b> .....	<b>19</b>
<b>D. JUSTIFICATION OF OVERALL OUTCOME RATING</b> .....	<b>20</b>
<b>E. OTHER OUTCOMES AND IMPACTS</b> .....	<b>20</b>
<b>III. KEY FACTORS THAT AFFECTED IMPLEMENTATION AND OUTCOME</b> .....	<b>22</b>
<b>A. KEY FACTORS DURING PREPARATION</b> .....	<b>22</b>
<b>B. KEY FACTORS DURING IMPLEMENTATION</b> .....	<b>23</b>
<b>IV. BANK’S PERFORMANCE, COMPLIANCE ISSUES, AND RISK TO DEVELOPMENT OUTCOME</b> <b>25</b>	
<b>A. QUALITY OF MONITORING AND EVALUATION (M&amp;E)</b> .....	<b>25</b>
<b>B. ENVIRONMENTAL, SOCIAL, AND FIDUCIARY COMPLIANCE</b> .....	<b>26</b>
<b>C. BANK’S PERFORMANCE</b> .....	<b>28</b>
<b>D. RISK TO DEVELOPMENT OUTCOME</b> .....	<b>31</b>
<b>V. LESSONS AND RECOMMENDATIONS</b> .....	<b>32</b>
<b>ANNEX 1. RESULTS FRAMEWORK AND KEY OUTPUTS</b> .....	<b>34</b>
<b>ANNEX 2. BANK LENDING AND IMPLEMENTATION SUPPORT/SUPERVISION</b> .....	<b>41</b>
<b>ANNEX 3. PROJECT COST BY COMPONENT</b> .....	<b>43</b>
<b>ANNEX 4. EFFICIENCY ANALYSIS</b> .....	<b>44</b>
<b>ANNEX 5. BORROWER, CO-FINANCIER AND OTHER PARTNER/STAKEHOLDER COMMENTS</b> ....	<b>45</b>
<b>ANNEX 6. SUPPORTING DOCUMENTS</b> .....	<b>48</b>



**DATA SHEET**

**BASIC INFORMATION**

**Product Information**

Project ID	Project Name
P122776	Central African Backbone - APL4 - Gabon
Country	Financing Instrument
Gabon	Investment Project Financing
Original EA Category	Revised EA Category

**Organizations**

Borrower	Implementing Agency
Gabonese Republic	CN-TIPPEE

**Project Development Objective (PDO)**

Original PDO

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



**FINANCING**

	Original Amount (US\$)	Revised Amount (US\$)	Actual Disbursed (US\$)
<b>World Bank Financing</b>			
IBRD-81500	58,000,000	55,739,093	55,739,093
IBRD-86290	23,000,000	23,000,000	23,195,506
<b>Total</b>	<b>81,000,000</b>	<b>78,739,093</b>	<b>78,934,599</b>
<b>Non-World Bank Financing</b>			
Borrower/Recipient	51,000,000	0	0
<b>Total</b>	<b>51,000,000</b>	<b>0</b>	<b>0</b>
<b>Total Project Cost</b>	<b>132,000,000</b>	<b>78,739,093</b>	<b>78,934,599</b>

**KEY DATES**

Approval	Effectiveness	MTR Review	Original Closing	Actual Closing
28-Mar-2012	06-Mar-2013	30-Jan-2015	31-Dec-2016	31-Oct-2020

**RESTRUCTURING AND/OR ADDITIONAL FINANCING**

Date(s)	Amount Disbursed (US\$M)	Key Revisions
22-Nov-2016	37.65	Change in Components and Cost Change in Procurement
16-May-2018	55.04	Change in Loan Closing Date(s)
11-Apr-2019	72.56	Change in Loan Closing Date(s)
04-Mar-2020	74.22	Change in Loan Closing Date(s)
26-Jun-2020	78.75	Change in Results Framework Change in Loan Closing Date(s) Change in Implementation Schedule Other Change(s)

**KEY RATINGS**

Outcome	Bank Performance	M&E Quality
Satisfactory	Moderately Satisfactory	Substantial

**RATINGS OF PROJECT PERFORMANCE IN ISRs**

<b>No.</b>	<b>Date ISR Archived</b>	<b>DO Rating</b>	<b>IP Rating</b>	<b>Actual Disbursements (US\$M)</b>
01	16-Oct-2012	Satisfactory	Moderately Satisfactory	2.74
02	26-Apr-2013	Moderately Satisfactory	Moderately Unsatisfactory	3.88
03	20-Jul-2013	Moderately Satisfactory	Moderately Unsatisfactory	4.17
04	23-Nov-2013	Moderately Satisfactory	Moderately Unsatisfactory	4.60
05	05-Apr-2014	Moderately Satisfactory	Moderately Unsatisfactory	5.16
06	17-Jun-2014	Moderately Satisfactory	Moderately Satisfactory	5.57
07	25-Dec-2014	Moderately Satisfactory	Moderately Satisfactory	6.21
08	16-Jun-2015	Satisfactory	Moderately Satisfactory	10.42
09	25-Jan-2016	Satisfactory	Satisfactory	26.91
10	29-Apr-2016	Satisfactory	Satisfactory	29.81
11	15-Nov-2016	Satisfactory	Satisfactory	37.65
12	30-Jun-2017	Satisfactory	Satisfactory	46.88
13	15-Jan-2018	Satisfactory	Satisfactory	51.53
14	10-Aug-2018	Satisfactory	Moderately Satisfactory	68.86
15	20-Feb-2019	Satisfactory	Moderately Satisfactory	72.56
16	29-Aug-2019	Satisfactory	Moderately Satisfactory	72.96
17	09-Mar-2020	Satisfactory	Moderately Satisfactory	74.22
18	10-Nov-2020	Satisfactory	Moderately Satisfactory	78.92





**SECTORS AND THEMES**

**Sectors**

Major Sector/Sector (%)

**Information and Communications Technologies 100**

Public Administration - Information and Communications Technologies 30

ICT Infrastructure 70

**Themes**

Major Theme/ Theme (Level 2)/ Theme (Level 3) (%)

**Private Sector Development 83**

Business Enabling Environment 10

Regulation and Competition Policy 10

Jobs 13

Job Creation 13

Public Private Partnerships 10

Regional Integration 50

**Urban and Rural Development 26**

Urban Development 13

Urban Infrastructure and Service Delivery 13

Rural Development 13

Rural Infrastructure and service delivery 13

**ADM STAFF**

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## I. PROJECT CONTEXT AND DEVELOPMENT OBJECTIVES

### A. CONTEXT AT APPRAISAL

#### Context

1. At appraisal (2012), Gabon was one of Africa's few middle-income countries, with a US\$9,814 Gross Domestic Product (GDP) per capita and an 86.7 percent urban population<sup>2</sup>. The country was highly dependent on oil, which accounted for 45 percent of GDP and 55 percent of budgetary resources, and the economy was expected to continue to benefit from high commodity prices and the Government's expansionary fiscal policy. While medium-term economic prospects were broadly favorable, efforts to diversify the economy away from oil had not yet succeeded. In addition, poor governance and weak institutional capacity continued to present considerable challenges to Gabon's development, despite a series of promising reforms and initiatives. Gabon's human development outcomes compared favorably with Sub-Saharan Africa's, but lagged those of countries with similar per-capita income levels. Despite non-oil annual growth averaging about 5 percent during 2005–11, Gabon's economic growth had not been inclusive, leaving one third of its population in poverty and leading to an overall unemployment rate of 20 percent, and an estimated 36 percent for the youth.<sup>3</sup> Against this backdrop, the development of the telecom sector was an opportunity for Gabon to boost economic growth, increase human development, and improve society's inclusiveness.
2. The mobile telecom sector was already dynamic and competitive with four operators and a penetration rate<sup>4</sup> of 145% for voice telephony, but mobile data penetration was 13.5%<sup>5</sup> and fixed broadband penetration only 0.5%, due to very high prices<sup>6</sup> that stemmed from incumbent Gabon Telecom's monopoly on international connectivity through the country's only submarine cable (SAT3-WASC). That monopoly<sup>7</sup> ended in February 2012, and an independent sector regulator (ARCEP) was created to promote competition and ensure public access to telecom services. In this context, Gabon developed in July 2012 under its Emerging Gabon Strategic Plan (PSGE) a three-year strategy called "Gabon Numérique" (*Digital Gabon*), whose aim was to increase the geographical reach, usage, and affordability of broadband services through the provision of new international and national connectivity. The Ministry of Communication, Post and Digital Economy (MCPEN) acted as a policymaker for the telecom sector, while the National Agency for Digital Infrastructure and Frequencies (ANINF), an auxiliary state body attached to the Presidency, was tasked with building and expanding the shared national infrastructure.
3. Launched in 2009, the World Bank's Central African Backbone (CAB) program was designed to be a regional, fully integrated, end-to-end backbone infrastructure network that links seven Central African countries<sup>8</sup> and provides

<sup>2</sup> World Bank indicators, 2012.

<sup>3</sup> UNDP Human Development Report 2011 and International Monetary Fund Country Report, March 2013.

<sup>4</sup> Number of active subscriptions divided by total population.

<sup>5</sup> On Edge-GPRS (3G was rolled out in 2014).

<sup>6</sup> Most residential customers had very slow 128 Kbits/second access, for which they paid an exorbitant \$US 175 per month.

<sup>7</sup> On the provision of international long-distance, domestic long-distance, and local fixed telephony.

<sup>8</sup> Cameroon, Central African Republic, Chad, São Tomé and Príncipe, Republic of the Congo, Gabon, Democratic Republic of the Congo.



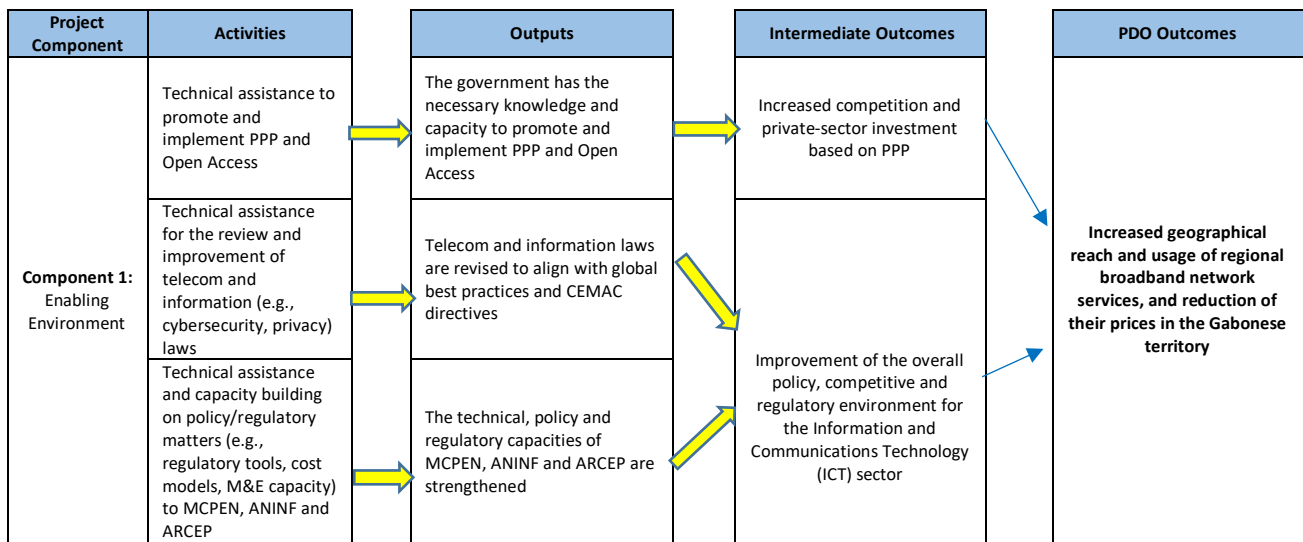
broadband access to the global network. The Government of Gabon expressed strong interest in joining the CAB program to finance some of the objectives of “Gabon Numérique”, and committed to the CAB program’s key founding principles of leveraging private-sector investment, promoting competition between operators, facilitating open access to digital infrastructure for all market players, and developing wholesale markets<sup>9</sup> to reduce wholesale prices and ultimately the retail prices of digital services. The main rationale for the World Bank’s involvement was to provide financing in the early stages of the “Gabon Numérique” connectivity project<sup>10</sup>, in order to safeguard Open Access<sup>11</sup> and Public-Private Partnership (PPP) principles in this digital infrastructure and support the Gabonese Government’s commitment to competition for international connectivity and the development of broadband access. The World Bank’s involvement also leveraged the interest expressed by private operators and Internet Service Providers (ISPs) to participate in the project.

- 4. CAB4 Gabon was fully consistent with the digital component of Gabon’s FY12-16 Country Partnership Strategy (CPS) and the 2011 progress report on the Regional Integration Assistance Strategy, and it was aligned with CEMAC’s and ECCAS’s objective of creating an integrated and competitive economic space in Central Africa. It also contributed towards the realization of the United Nations’ Millennium Development Goals<sup>12</sup> by supporting economic growth and making available the benefits of digital technologies.

Theory of Change (Results Chain)

- 5. A Theory of Change was not a requirement of the Project Appraisal Document (PAD), and it was developed below for the purpose of this Implementation Completion and Results (ICR) report.

Figure 1: Results chain for CAB4 Gabon (parent project)

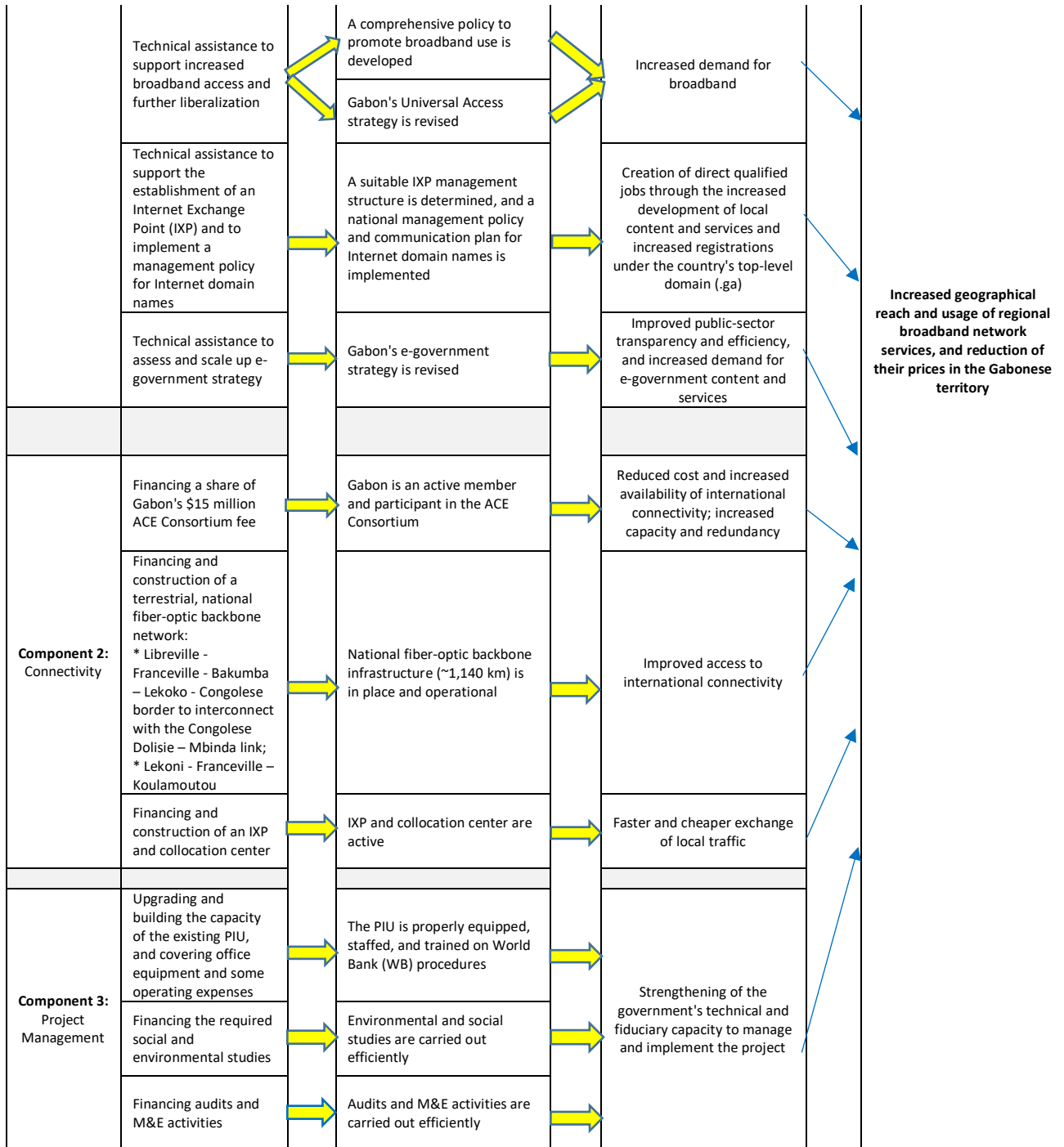


<sup>9</sup> Services provided between operators, such as interconnection of networks, exchange of traffic, collocation of equipment, and sharing of infrastructure.

<sup>10</sup> Focused on developing international and national fiber connectivity.

<sup>11</sup> An arrangement through which one network is open to independent service providers to offer services. The open-access model enables service providers to reach subscribers without having to deploy an entirely new infrastructure themselves.

<sup>12</sup> [https://www.undp.org/content/undp/en/home/sdgoverview/mdg\\_goals.html](https://www.undp.org/content/undp/en/home/sdgoverview/mdg_goals.html).



6. This Theory of Change includes the following assumptions:

- The Gabonese Government supports the liberalization of the telecom sector and the establishment of PPP;
- The sector's regulator (ARCEP) can fulfill its duties independently, impartially, and effectively;
- The Government's investment in the telecom sector encourages further openness and competition;



- Broadband connectivity and cost are the main drivers of user demand;
- The Congolese Government and sector’s regulator authorize the interconnection across the border.

### Project Development Objectives (PDOs)

- The Project Development Objective stated in the Financing Agreement for IBRD Loan 8150-GA (Schedule 1, page 6) was “to contribute to increase the geographical reach and usage of regional broadband network services and to reduce their prices in the territory of the Gabonese Republic.”
- The PDO statement contained three separate development objectives:
  - PDO 1: To contribute to increase the geographical reach of regional broadband network services;
  - PDO 2: To contribute to increase the usage of regional broadband network services;
  - PDO 3: To contribute to reduce the prices of regional broadband network services.

### Key Expected Outcomes and Outcome Indicators

- The achievement of the PDO was measured by progress on four outcome indicators that are consistent across CAB projects. The key monitoring indicators are summarized in the table below.

*Table 1: PDO-level results indicators for CAB4 Gabon*

PDO-level results indicator	Unit of measure
<b>Volume of international traffic [PDO 1]:</b> <ul style="list-style-type: none"> <li>• International Internet bandwidth</li> </ul>	Bits per second per person
<b>Volume of national traffic [PDO 2]:</b> <ul style="list-style-type: none"> <li>• Access to Internet services: number of Internet subscribers per 100 people.</li> <li>• Access to telephone services: number of fixed mainline and cellular phone subscribers per 100 people.</li> </ul>	Ratio
<b>Average price of international communications [PDO 3]:</b> <ul style="list-style-type: none"> <li>• Average monthly price of wholesale international E1 capacity link from the capital city to Europe.</li> </ul>	US\$/month/2 Mbps
<b>Project beneficiaries [PDO 2]:</b> <ul style="list-style-type: none"> <li>• Number of direct project beneficiaries (and percentage of female)</li> </ul>	Number (%)

### Components

- The parent project had three main components with a total estimated IBRD financing of US\$58 million and counterpart funding of US\$51 million. Component costs added up to total project costs.

#### **Component 1: Enabling Environment (IBRD: US\$6.05 million – 10.4% of total)**

Technical assistance to:



- a) Promote and implement Open Access and PPP for international and national connectivity;
- b) Review, improve, and develop Gabon's telecom and information laws to align them with regional directives and international best practices;
- c) Strengthen the policy regulatory capacity of MCPEN, ANINF and ARCEP (e.g., regulatory tools, interconnection cost models, M&E capacity);
- d) Support increased broadband access and liberalization, in light of improved access to connectivity;
- e) Support the establishment of an Internet Exchange Point (IXP)<sup>13</sup> and the implementation of a management policy for the ".ga" domain name<sup>14</sup>;
- f) Assess Gabon's e-government strategy and develop an action plan to scale it up by leveraging new connectivity.

**Component 2: Connectivity (IBRD: US\$48.5 million – 83.6% of total)**

- a) Financing a share of Gabon's \$15 million ACE<sup>15</sup> Consortium fee;
- b) Financing and construction of terrestrial fiber backbone links:
  - Libreville - Franceville - Bakumba – Lekoko - Congolese border (~800 km) to interconnect with the Congolese Dolisie – Mbinda link financed under the CAB3 project;
  - Lekoni - Franceville – Koulamoutou (~ 340 km)
- c) Financing and construction of an IXP and collocation center<sup>16</sup> to access the national backbone capacity.

**Component 3: Project Management (IBRD: US\$3.45 million – 6% of total)**

- a) Upgrading and building the capacity of the existing PIU;
- b) Financing the required social and environmental studies;
- c) Financing audits and M&E, including support for efficient data collection and communication.

## B. SIGNIFICANT CHANGES DURING IMPLEMENTATION

### Revised PDOs and Outcome Targets

11. The PDO was not revised. The outcome targets were revised in the first restructuring/Additional Financing (AF, detailed below) when the parent loan's closing date was extended to June 30, 2018, and they were then maintained until the AF's closing date of October 31, 2020.

**Table 2: Revised outcome targets (parent project and AF)**

<sup>13</sup> A physical location through which Internet infrastructure companies such as Internet Service Providers (ISPs) and Content Delivery Networks (CDNs) connect with each other to reduce latency (network delay) and costs.

<sup>14</sup> Websites under the country code for Gabon (.ga), for example [www.primature.gouv.ga](http://www.primature.gouv.ga)

<sup>15</sup> ACE is an optical-fiber submarine cable system that connects to 24 countries on the west coast of Africa and Europe. It is managed by a consortium of 19 members.

<sup>16</sup> A type of data center where equipment, space, and bandwidth are available for rental.



PDO Indicator	Baseline (December 31, 2010)	Parent Project's End Target (December 31, 2016)	Revised AF End Target (June 30, 2018)
International Internet bandwidth (bits/second per person)	4,620	14,712	14,712 <sup>17</sup>
Number of Internet subscribers per 100 people	14	28	67 <sup>18</sup>
Number of fixed mainline and cellular phone subscribers per 100 people	147	125 <sup>19</sup>	147
Average monthly price of wholesale international E1 capacity from the capital city to Europe (USD/2 Mbps)	10,500	500	235 <sup>20</sup>
Number of direct project beneficiaries	1,545,255 / 0 <sup>21</sup>	1,740,208	1,448,410 <sup>22</sup>
Percentage of female beneficiaries	51	51	51

### Revised PDO Indicators

12. PDO indicators remained the same throughout the project. Only one new intermediate indicator (“Citizen perception of the affordability of broadband services (including perception by women)”) was added in the first restructuring<sup>23</sup>. This indicator tracked beneficiaries’ satisfaction with the retail price and quality of broadband services under the CAB4 project, ensuring citizens inform project implementation directly.

### Revised Components

13. The parent project’s three components were revised in the first restructuring (detailed below) as follows:

- Component 1 (Enabling Environment) was scaled up to accommodate technical assistance and training to strengthen and deepen legal and regulatory reforms in the digital sector, and to ensure the sustainability of impacts already achieved under the parent project;
- Component 2 (Connectivity) was scaled up to extend the existing backbone network, finance the strategic terrestrial fiber link between two additional provincial capitals (Lambaréné and Oyem) and Gabon’s

<sup>17</sup> The target achieved at the time of AF appraisal (June 2016) was 13,152. No justification was provided for keeping the original target of 14,712 unchanged.

<sup>18</sup> Revised to reflect stronger than expected broadband growth and customer base consolidation between 2015 and 2018.

<sup>19</sup> Reflects the expected decrease between 2015 and 2018 caused by (i) the clean-up of client databases following the merger of Gabon Telecom and Moov and (ii) the registration of all SIM card owners by mobile operators.

<sup>20</sup> Revised to reflect larger international capacity and strong take-up of national and cross-border broadband demand.

<sup>21</sup> The baseline mentioned in the parent PAD was 1,545,255. That baseline was changed to 0 in the AF’s results framework with the justification that “no one has benefitted from the project prior to its start date”.

<sup>22</sup> The definition of this indicator in the parent PAD was “the number of active fixed and mobile subscribers”. In the AF’s PAD, it became “the number of people with access to telephone services, correcting for the multi-SIM card effect”.

<sup>23</sup> But not used; details in paragraph 68.





remaining two borders (Cameroon and Equatorial Guinea), and purchase ducts and chambers to be maintained as a reserve for the Recipient;

- Component 3 (Project Management) was revised to strengthen the client’s capacity to implement the AF.

14. As a result of the AF (detailed below), the costs associated with the three components were revised as follows:

**Table 3: Additional Financing - revised financing by component**

Component	IBRD Funding (US\$ million)		
	Parent (PAD)	AF (PAD)	Total after AF
1. Enabling environment	6.05	4.85	10.90
2. Connectivity	48.50	16.50	65.00
3. Project Management	3.45	1.59	5.04
<b>Total</b>	58.00	22.94	80.94

**Other Changes**

15. Procurement under the restructured project and AF was to be carried out in accordance with the Bank's most recent version (2014) of the Procurement Guidelines.

16. The implementation schedule was adjusted to reflect the AF’s scaled up activities and the revised closing date. In addition, disbursement estimates were revised to reflect the current project status and scale-up of the project’s activities in the AF.

**Rationale for Changes and Their Implication on the Original Theory of Change**

17. The parent project (P122776; Loan IBRD 8150-GA) was approved on March 28, 2012, became effective on March 6, 2013, and had an official closing date of December 31, 2016. The project underwent an Additional Financing (AF) and five restructurings, as outlined below. The final closing date for the project was October 31, 2020.

18. **Additional Financing (2016):** An Additional Financing (P158299; Loan IBRD 8629-GA) of EUR 20.2 million was approved on June 29, 2016, with an official closing date of June 30, 2018. The activities funded through the AF addressed the key sectoral challenge of boosting the adoption of broadband by the bottom 40 percent, and the AF was driven by two main objectives: (a) deepening sectoral reforms, and (b) addressing connectivity gaps to increase geographic coverage and regional integration (see paragraph 13). The AF added supplemental interventions to Components 1, 2 and 3 to enhance the project’s impact, but the outputs, intermediate outcomes, and PDO-level outcomes were unaffected. Outcome targets were revised as shown in Table 2 above.



19. **Restructuring #1 (2016):** Since the AF was not expected to be effective before December 2016<sup>24</sup>, the Gabonese authorities expressed their willingness to immediately engage some of the activities already planned in the AF, using the remaining funds of the parent project<sup>25</sup>. The rationale was that by implementing these activities earlier through a restructuring, the CAB4 project would be able to secure PDO achievement by the closing date and ensure the quick implementation and disbursement of the AF. The restructuring envisaged the purchase of the active equipment for the new links planned in the AF and the completion of feasibility and safeguards studies for these extension links, as well as the installation of dedicated water and power supplies in several technical centers that operate the terrestrial fiber optic links. This restructuring involved:
- (a) Changes to the project's components to expand the scope and include additional activities;
  - (b) The extension of the parent project's closing date to match the closing date of the AF (June 30, 2018) and allow for the implementation of additional activities;
  - (c) Changes to the results framework, including a revision of the end target values for PDO-level and intermediate indicators and the addition of a new intermediate indicator around citizens' perception of the affordability of broadband services;
  - (d) The application of the most recent procurement guidelines dated January 2011 and revised July 2014.
20. **Restructuring #2 (2018):** On May 16, 2018, the parent project's closing date was extended by four months to November 30, 2018 and that of the AF by one year to June 30, 2019. The parent project's extension was required for the completion of the remaining infrastructural activities pertaining to the first phase of the fiber optic backbone<sup>26</sup>. The AF's extension was driven by the significant procurement delay caused by the Government's decision to relaunch a tender for the construction of the second phase of the fiber-optic backbone infrastructure under Component 2, as opposed to the initial decision to amend the contract of the constructor of the first phase in the parent project<sup>27</sup>.
21. **Restructuring #3 (2019):** On April 22, 2019, the AF's closing date was extended by nine months to March 31, 2020 due to procurement delays in launching priority studies<sup>28</sup> under Component 1, as well as to significant delays with the arrival from abroad of the passive equipment that was required to complete the construction of the second phase of the fiber-optic backbone under Component 2.
22. **Restructuring #4 (March 2020):** On March 2, 2020, the AF's closing date was extended by three months to June 29, 2020 to give the constructor enough time to test and operationalize the fiber-optic infrastructure built under Component 2 and to put in place a ten-year warranty for it. The extension was also granted to give the authorities enough time to finalize ongoing PPP negotiations for the new infrastructure as well as interconnection discussions with Cameroon and Equatorial Guinea – all under Component 2.

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<sup>24</sup> The AF's actual effectiveness date was July 12, 2017.

<sup>25</sup> The savings came from the large contract for the active equipment planned under CAB4, which was signed for an amount significantly lower than expected at project appraisal (around US\$6 million in savings).

<sup>26</sup> Mainly the installation of active equipment in the technical centers whose construction would require four months.

<sup>27</sup> The contract with the new constructor was signed in December 2017, a delay of around a year with respect to the initial timeline. The decision was driven by the unsatisfactory performance of the constructor (CCSI) of the first phase of the backbone.

<sup>28</sup> Related to the national strategy for the promotion of broadband usage in Gabon.



23. **Restructuring #5 (June 2020):** On June 29, 2020, the AF's closing date was extended by four months to October 31, 2020 in order to allow enough time for the completion of the ongoing Component 2 activities listed under Restructuring #4, and whose progress had been severely impacted by the COVID-19 pandemic.
24. None of the restructurings had implications on the Theory of Change developed above.

## II. OUTCOME

### A. RELEVANCE OF PDOs

#### Assessment of Relevance of PDOs and Rating

25. The relevance of the PDO is rated **High**. At appraisal and throughout the project, the PDO strategically articulated Gabon's critical needs and addressed the country's ambitious development goals related to the reach, usage, and price of regional broadband services, in line with its "Gabon Numérique" (*Digital Gabon*) strategy. Today, the PDO remains aligned with the national, regional, and World Bank's development strategies in Gabon.
26. Since 2012, the Government has been implementing its Emerging Gabon Strategic Plan 2025 (PSGE)<sup>29</sup>, whose strategic objectives include legal reforms for PPP and telecom/ICT, the promotion of the digital economy, and the construction of a world-class digital infrastructure<sup>30</sup> to increase network coverage and bandwidth, improve service quality, and reduce retail costs. The project was fully aligned with these strategic objectives, and the PDO is still very relevant to Gabon's 2025 vision outlined in the PSGE and reinforced in January 2021 through the Plan for the Acceleration of Transformation (*Plan d'accélération de la transformation*)<sup>31</sup>.
27. In addition, the PDO remains relevant to the most recent (FY18–FY23) Regional Integration and Cooperation Assistance Strategy for Africa<sup>32</sup>, whose second strategic priority includes expanding telecom/ICT access, reducing costs to consumers, and promoting regional digital connectivity. The PDO is also aligned with the 2019-2025 Central African Regional Integration Strategy<sup>33</sup> and the African Union's Agenda 2063<sup>34</sup>, whose goals include the development of national and cross-border broadband networks to connect more people.
28. Furthermore, the PDO is fully aligned with the World Bank's latest (FY12-16) Country Partnership Strategy (CPS) for Gabon, whose second outcome revolves around increasing the geographical reach and usage of regional broadband network services and the reduction of their prices. The PDO is also aligned with the priorities listed in

<sup>29</sup> <http://extwprlegs1.fao.org/docs/pdf/gab149803.pdf>.

<sup>30</sup> Objective 4 (actions 36 and 40); Objective 17 (actions 20 and 130); Objective 9.

<sup>31</sup> This plan is based on the PSGE and the 2021-2023 governmental strategy. The project is fully aligned with the plan's "battles" 9 (improving the business environment), 10 (strategic investments and PPP), and 11 (digital economy).

<sup>32</sup> <http://documents1.worldbank.org/curated/en/700111528428661825/pdf/REGIONAL-INTEGRATION-CAS-AFRICA-05112018.pdf>.

<sup>33</sup> [https://www.afdb.org/sites/default/files/documents/strategy-documents/afrique\\_centrale\\_fr\\_250619\\_0.pdf](https://www.afdb.org/sites/default/files/documents/strategy-documents/afrique_centrale_fr_250619_0.pdf).

<sup>34</sup> <https://au.int/en/agenda2063/overview>.



the latest Systematic Country Diagnostic (SCD) for Gabon<sup>35</sup>, specifically job creation, economic diversification, and expanded service delivery and connectivity. Lastly, the PDO continues to be relevant to the new Country Partnership Framework (CPF) for Gabon that is still under preparation – specifically, its third and fourth objectives of “further diversification of the economy” and “increased public-service digitization and connectivity”.

29. Lastly, the ongoing COVID-19 pandemic has underscored the importance of connectivity to manage and respond to the crisis, with evidence showing that countries with advanced digital connectivity can better mitigate the negative impacts of the pandemic. The World Bank Group’s COVID-19 Crisis Response Approach Paper<sup>36</sup> views digital connectivity as an enabler of the response to and recovery from the pandemic, and the project’s objectives are well aligned with the paper’s Pillar 4 (“*Strengthening Policies, Institutions and Investments for Rebuilding Better*”). There is no evidence the Government took concrete steps (such as the extension of emergency connectivity to hospitals and communities) to leverage the infrastructure built through CAB4, but the increased capacity and redundancy afforded by the project have likely helped Gabon cope with shifting Internet traffic patterns and ensure Internet service continuity during the COVID-19 pandemic.

## B. ACHIEVEMENT OF PDOs (EFFICACY)

### Assessment of Achievement of Each Objective/Outcome

30. The overall efficacy of the project is rated **Substantial**, which is in line with the rating for PDO achievement (Satisfactory) and that for overall implementation progress (Moderately Satisfactory) in the last ISR<sup>37</sup>. The rationale for the efficacy assessment is outlined below.

*PDO 1: To contribute to increase geographical coverage of regional broadband network services.*

31. The achievement of PDO 1 is rated **Substantial**.

32. All regulatory activities and studies related to this outcome were completed, including technical assistance for the promotion and implementation of PPP and Open Access, the review of telecom and information laws, the study on Gabon’s universal access strategy, and the building of the capacity of MCPEN, ANINF and ARCEP on policy and regulatory matters. These and other activities under Component 1 have created an enabling environment that is conducive to private-sector-led development of the digital sector<sup>38</sup>, and they were a key driver for the increased geographical coverage of regional broadband network services in Gabon. It is worth noting that Gabon’s overall rating in ITU’s independent Regulatory Tracker Index increased significantly (from 50.5 to 64) between 2012 and

<sup>35</sup> The World Bank Group. *Gabon: Systematic Country Diagnostic*, June 26, 2020. Retrieved from <https://elibrary.worldbank.org/doi/abs/10.1596/34108>.

<sup>36</sup> <http://documents1.worldbank.org/curated/en/136631594937150795/pdf/World-Bank-Group-COVID-19-Crisis-Response-Approach-Paper-Saving-Lives-Scaling-up-Impact-and-Getting-Back-on-Track.pdf>.

<sup>37</sup> The last ISR (#18) was filed post-closing, and it reflects the findings of an implementation support mission conducted October 7-15, 2020.

<sup>38</sup> For instance, the licensing and wholesale regimes in place made possible the market entry of GVA Gabon to deploy fiber-to-the-home broadband services. See paragraph 54.



2019 due in large part to the project, with the sub-ratings for regulatory regime and competition framework increasing by 58% and 50%, respectively<sup>39</sup>.

33. Gabon became an active member in the Africa Coast to Europe (ACE) Consortium thanks to the project's co-financing of the \$15-million membership fee to connect Gabon to the global Internet through the ACE submarine cable. The full 1,760-km fiber-optic terrestrial backbone constructed under the parent project and AF connects 26 cities to the capital Libreville, and reaches the borders of Congo, Cameroon, and Equatorial Guinea – a dramatic increase in geographical coverage in only eight years.
34. The first 1,140 km ("Phase 1") of this fiber-optic backbone financed by the parent project has been in commercial operation since February 2019 under a PPP with private wholesale operator Axione<sup>40</sup>, and national accessibility and quality of service are generally satisfactory, with a number of outages repaired promptly and certain infrastructural defects revealed in a February 2020 technical audit<sup>41</sup> addressed by the authorities through the AF (see next paragraph). The performance of the PPP established under the parent project has produced particularly positive results. The parent project also delivered on the MOU and physical interconnection with Congo, with traffic being exchanged between operators across the border as of December 2020 after long-running infrastructural issues on the Congolese side were fixed.
35. The 620-km extension of this fiber-optic backbone ("Phase 2") financed through the AF was fully completed in March 2020 but was not commercialized as of the project's closing date, due to long delays in the renegotiation of the terms of the original PPP<sup>42</sup> between the Gabonese authorities and Axione. Negotiations around the network extension's PPP concluded successfully in October 2020, and the revised PPP agreement was signed in March 2021, ensuring the overall continuity of the PPP after the project's closing date. This revised PPP agreement is expected to pre-finance the repair of infrastructural defects revealed in the February 2020 technical audit of "Phase 1". The AF delivered partially on interconnections with Cameroon and Equatorial Guinea, which still require the following before Internet traffic can be exchanged: (i) the finalization of the physical interconnection on the Cameroonian side, knowing that an MOU between the two countries was signed in 2019, and (ii) the signature of an MOU with Equatorial Guinea prior to the installation of the physical interconnection across the border, noting that the final draft of the MOU was finalized in September 2020 but its signature delayed due to COVID-19.
36. As a direct result of Gabon's ACE connection to the global Internet and the construction and commercialization of the fiber-optic backbone, the PDO-level indicator on international Internet bandwidth increased significantly from 4,620 bps at baseline (2010) to 35,321 bps at project closing (2020)<sup>43</sup>, exceeding the 14,712 bps end target by 140%. Intermediate indicators associated with this outcome also witnessed a large jump: the bandwidth for

<sup>39</sup> ITU, 2019 and ITU, 2012. Retrieved from <https://www.itu.int/net4/itu-d/irt/#/tracker-by-country/regulatory-tracker/>.

<sup>40</sup> A subsidiary of France's Bouygues Energies & Services.

<sup>41</sup> The audit revealed technical nonconformities in the construction process, with repairs estimated to cost around \$US 2.8 million to be assumed by the constructor (CCSI). The Gabonese authorities and CCSI entered a dispute (still ongoing), and the amount required for repairs might have to be borne by the Gabonese authorities.

<sup>42</sup> Including the extension of the duration of the PPP, financial arrangements, and inclusion of the new Phase 2 links in the PPP.

<sup>43</sup> In January 2021, ARCEP informed the Bank's team that the actual end value was 26,397 bps, not 35,321 bps. The discrepancy was due to a data update by two operators.



international communications increased to 48.8 Gbps from a baseline of 1.2 Gbps (end target: 37 Gbps), and the number of localities with broadband access was a remarkable 225 at closing (baseline: 3, end target: 30) – due in large part to the effective implementation of the universal service fund under Component 1.

*PDO 2: To contribute to increase the usage of regional broadband network services.*

37. The achievement of PDO 2 is rated **High**.

38. All regulatory activities and studies related to this outcome were completed, including technical assistance for the review of Gabon’s universal access strategy, the development of a strategy for the promotion of broadband usage, and the revision and adoption of laws on electronic transactions, electronic communications, privacy and data protection, and cybersecurity and cybercrime. In addition, the implementation of a management policy for .ga domain names led to the development of local websites and the creation of local content that users could access easier and faster than content hosted under other domain extensions (such as .com, .net, and .org).

39. As a direct result of the commercialization of Gabon’s new connectivity, the dramatic drop in broadband retail prices (see *PDO3* below), and the new laws, regulations and policies that were introduced through the project to increase access, boost demand, and facilitate and secure online transactions, the project contributed to the substantial increase in the usage of regional broadband network services in Gabon – making the country the sixth most connected in Africa<sup>44</sup>. The targets for PDO-level indicators were all surpassed: the number of direct project beneficiaries increased to 1,706,086 (end target: 1,448,410), access to Internet services per 100 people was 112 at closing thanks to the massive adoption of 3G and 4G (baseline: 14, end target: 67), and access to telephony services<sup>45</sup> per 100 people increased to 167 (baseline and end target: 147). In addition, the intermediate indicator’s target for the number of operators and ISPs buying capacity from the regional infrastructure deployed was 16 at closing (baseline: 0, end target: 10), and is expected to increase further after the recent commercialization of the backbone’s extension.

40. The significant increase in the usage of regional broadband network services in Gabon – largely attributable to the project – is also reflected in independent indicators: the ITU’s “international Internet bandwidth per Internet user” more than doubled from 5.8 kb/s in 2012 to 11.84 kb/s in 2017, and the ITU’s “percentage of individuals using the Internet” indicator jumped from 24% in 2012 to 62% in 2019<sup>46</sup>.

*PDO3: To contribute to reduce the prices of regional broadband network services.*

41. The achievement of PDO 3 is rated **Substantial**.

42. Gabon’s connection to the ACE submarine cable has boosted the availability of international connectivity, contributing to a significant decrease in retail prices. In addition, the adoption of an Open-Access regime, as a result of project-financed technical assistance, fostered competition in the broadband wholesale market, also

<sup>44</sup> According to the International Telecommunication Union (ITU).

<sup>45</sup> Fixed mainlines and cellular phones.

<sup>46</sup> International Telecommunication Union (ITU), *World Telecommunication/ICT Indicators Database 2020*, January 2021.



triggering a reduction in prices. The Gabon Internet Exchange (GABIX) has been operational since 2014 and has contributed to lowering prices by circumventing the use of international capacity for domestic traffic.

- 43. As a result of the above project-financed interventions, the PDO-level indicator for the average monthly price of a wholesale international E1 link from the capital city to Europe decreased dramatically by 3,746 % from a baseline of \$10,500 to \$273, closely missing the very ambitious end target of \$235. The two intermediate indicators also fared very well: the retail price of Internet services decreased sharply by 3,533% to \$6/Mbps/month from a baseline of \$218 (end target: \$15/Mbps/month), and the average cost of a three-minute mobile call decreased to \$0.47 from a baseline of \$0.71, missing the end target of \$0.30 due mainly to a new excise tax on operators<sup>47</sup>.

### Justification of Overall Efficacy Rating

- 44. The overall efficacy of the project is rated **Substantial**. CAB4 was the main financial and technical assistance instrument used by the Gabonese Government to jumpstart the digital sector’s development between 2011 and 2020, and CAB4-financed activities had a clear, direct, and causable contribution to the achievement of the PDO. The project had a transformational effect on the telecom sector, as evidenced by a dramatic increase in the geographical reach, usage, and affordability of regional broadband network services. PDO outcome targets were revised at the AF’s appraisal, and a split rating was not used because the project’s scope expanded, and the operation was assessed based on the more ambitious outcome targets<sup>48</sup>. As reflected in the last ISR<sup>49</sup>, four out of five PDO-level targets and six out of seven intermediate indicator targets were achieved or surpassed<sup>50</sup>. The core pillars of the CAB regional program – namely the PPP arrangement to maintain the regional infrastructure and the establishment of an Open-Access regime – were realized successfully, ensuring the benefits of the project are sustainable after its completion.

*Table 4: PDO indicators and results achieved (parent project + AF)*

PDO	Baseline	End target	Actual achieved (2020)
<b>PDO 1 (geographical reach)</b>			
International Internet bandwidth	4,620	14,712	35,321 <sup>51</sup>
<b>PDO 2 (usage)</b>			
Internet subscribers per 100 people	14	67	112
Fixed mainline and cellular phone subscribers per 100 people	147	147	167

<sup>47</sup> The average cost of a 3-minute mobile call was \$0.36 between 2017 and 2019 but increased to \$0.47 in late 2019 due to the imposition of an excise tax on operators. It might have been possible – though not guaranteed – to reach the \$0.30 end target by the October 2020 closing date had this excise tax not been imposed.

<sup>48</sup> Bank Guidance on ICR for IPF Operations (March 2020), Section E.

<sup>49</sup> The last ISR (#18) was filed post-closing, so the final values for indicators may not be reflected in the ICR data sheet. This final ISR reflects the findings of an implementation support mission conducted between October 7 and 15, 2020.

<sup>50</sup> Exceptions are the price of a wholesale E1 link (PDO-level) and the average cost of a 3-minute mobile call (intermediate). The indicator on citizens’ perception of the affordability of broadband services was added in the AF with an end target of 75%, but it wasn’t included in the internal portal and no values were ever reported for it (details in the M&E section).

<sup>51</sup> In January 2021, ARCEP informed the Bank’s team that the actual end value was 26,397 bps, not 35,321 bps. The discrepancy was due to a data update by two operators.



Direct project beneficiaries (% female)	0	1,448,410 (51%)	1,706,086 (51%)
<b>PDO 3 (price)</b>			
Average monthly price of wholesale international E1 capacity	10,500	235	273
	<b>Targets achieved</b>	<b>Targets missed</b>	
Outcome indicators (PDO 1)	1	---	
Outcome indicators (PDO 2)	3	---	
Outcome indicators (PDO 3)	0	1	
Intermediate indicators (PDO 1)	3	---	
Intermediate indicators (PDO 2)	1	---	
Intermediate indicators (PDO 3)	1	1	
Intermediate indicators (cross-cutting)	1	---	
<b>Total</b>	<b>10</b>	<b>2</b>	

## C. EFFICIENCY

### Assessment of Efficiency and Rating

45. The overall efficiency is rated **Substantial**.
46. A financial analysis was performed in 2012 during the preparation of the parent project. The analysis considered several radio wave, satellite, and fiber optic options, and concluded that given pent-up Internet demand in Gabon<sup>52</sup>, terrestrial fiber links were the best overall option in terms of long-term cost effectiveness and bandwidth availability. All scenarios showed a positive internal rate of return (IRR) after 15 years, even in adverse conditions caused by higher-than-budgeted project costs or lower-than-expected demand. Using a discount rate of 15%, the base case scenario put the project’s net present value (NPV) at US\$8 million and the IRR at 26%, with the break-even point occurring in 2014. The financial analysis of the parent project was revised in 2016 to simulate the impact of the additional fiber links financed under the AF and to reflect higher-than-expected Internet penetration and a small increase in international traffic through the new link with Cameroon. Using a discount rate of 15%, the base case scenario for the scaled-up project (parent + AF) was estimated to have an NPV of US\$2.2 million and an IRR of 16% percent, with the break-even point occurring in 2019. In other words, despite the lower economic return of the additional links, the stronger-than-expected demand for Internet would still allow for an acceptable economic return for all terrestrial links financed under the scaled-up project.
47. It was not possible to update the financial analysis for the purposes of this ICR, as no business plan or financial model has been received for the operationalization of the “Phase 2” network constructed by the project. However, the team learned from the Government in November 2020 that the PPP revenue-sharing agreement for “Phase 1” was providing recurring positive returns to the Government – meaning the project had already reached sustainability. In addition, high-level data provided by the private operator Axione in April 2021 reveal that revenues generated through the PPP were 20% higher than those expected at the time of signature (after 5

<sup>52</sup> This pent-up demand was confirmed during implementation.





years). Given these better-than-expected results, the fee paid to the Government was increased by 70.8% while wholesale prices dropped by 60%-85% (depending on the type of service) during the same period. No quantitative economic analysis was conducted at appraisal of the parent project or AF, and although the parent project's PAD suggests a link between increased broadband penetration and GDP growth<sup>53</sup>, the volatile trajectory of Gabon's GDP between 2012 and 2020<sup>54</sup> makes it very difficult to establish causality between the dramatic increase in broadband penetration and changes to GDP.

48. The project did not experience any cost overruns, but suffered from process inefficiencies that caused time overruns: slow initial implementation due to client-side delays in the national procedure for the approval of the loan agreement (paragraph 60), five restructurings (paragraphs 19-23), procurement delays (paragraphs 20-21), and lengthy PPP negotiations during the AF (paragraph 35). However, these issues did not impact the achievement of the PDO. Project management (Component 3) costs were 4.7 percent of total project costs<sup>55</sup>, lower than the ratios in comparable projects<sup>56</sup>, suggesting the CAB4 project benefited from efficient project management.

#### D. JUSTIFICATION OF OVERALL OUTCOME RATING

49. The overall outcome rating for this project is **Satisfactory**, as derived from the combination of the ratings for relevance (High), efficacy (Substantial), and efficiency (Substantial)<sup>57</sup>. The operation remains highly relevant to Gabon's development objectives and the World Bank's strategy in Gabon and Africa, the PDOs were substantially achieved and most indicator targets surpassed, and the efficiency is rated Substantial.

#### E. OTHER OUTCOMES AND IMPACTS

##### Gender

50. The project was not classified as gender-informed because its main activity (the construction of the fiber-optic backbone) was "gender-neutral", meaning direct beneficiaries of the project included all people connected to the broadband communications network in Gabon. The project attempted to capture insights into how the affordability of broadband services impacted women's access and usage by introducing an indicator on citizen engagement activities in the AF to survey women based in the provincial capitals covered by the project<sup>58</sup>. Given gender inequalities in Gabon, the project could have supplemented supply-side infrastructural activities with demand-side interventions to reduce the gender gap in the access to and use of broadband services.

##### Climate

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<sup>53</sup> "World Bank research on the economic multiplier effect of increased broadband penetration rates indicates that each 10% increase in broadband penetration increases overall GDP growth in developing countries by 1.38%."

<sup>54</sup> See <https://data.worldbank.org/country/GA>.

<sup>55</sup> See Annex 3.

<sup>56</sup> Congo (CAB3): 7.6%, Liberia (WARCIP): 6.5%, Benin (WARCIP): 5.1%.

<sup>57</sup> Bank Guidance on ICR for IPF Operations (March 2020), Appendix H.

<sup>58</sup> As mentioned earlier, this indicator was not added to the results framework, and its values were never reported.



51. Although climate was not a corporate requirement at the time of appraisal, the project's implementation was environmentally friendly. First, the fiber-optic cables used to build the backbone consume much less energy than copper wire cables, leading to lower carbon dioxide emissions and less heat generation. Second, unlike copper whose extraction is highly contaminating to the environment, optical fiber is composed of silicon dioxide – an abundant element whose extraction is environmentally-friendly. Third, the burial of fiber optic cables underground reduces their susceptibility to the degradation caused by moisture, heat, and electrical interference. Fourth, the sensitive ecological sites along the path of construction in the open countryside were spared during the construction phase, with positive effects on flora and fauna. Lastly, all technical centers built across the path of the backbone network were equipped with solar panels, helping reduce greenhouse gas emissions.

### **Institutional Strengthening**

52. Through Component 1, the project contributed to the institutional strengthening of the Ministry of Digital Economy, the sector's regulator ARCEP and the National Agency for Digital Infrastructure and Frequencies (ANINF) through the provision of technical assistance, strategic support, and policy and regulatory capacity building on crucial topics such as the implementation of PPP and Open Access, regulatory tools, cost models, and monitoring and evaluation. As a result, the Government implemented the PPP successfully for the first phase of the backbone network and concluded negotiations to include the second phase of the network into the original PPP agreement. In addition, quarterly reports about CAB4 are still being produced by an observatory that was put in place (before the CAB4 project started) to monitor the telecom industry's development.

53. In addition, the project established a high-level supervisory body (the Fiber Optic Commission) with representatives from line ministries, ANINF and ARCEP. The Fiber Optic Commission provided technical and operative guidance, direction, and coordination, and it had fiduciary, governance, and safeguards oversight. This arrangement greatly improved the project's implementation and strengthened Gabon's institutions by improving the coordination of private-sector development.

### **Mobilizing Private-Sector Financing**

54. To leverage international expertise and ensure operational and investment decisions are made on a sound commercial basis, the project spurred private participation in the management, maintenance, and commercialization of the CAB4 infrastructure under an open-access, public-private partnership (PPP) model between the public-asset company owning the network (SPIN) and the private operator managing the network (Axione). Under this 'management contract' PPP scheme, Axione manages and operates the network during the contract's finite period, and core assets remain the property of the Gabonese State. Shortly before the AF's closing, SPIN and Axione concluded negotiations to modify the PPP agreement to incorporate the additional "Phase 2" fiber backbone into the agreement, and the revised PPP agreement was signed in March 2021. The availability of abundant and affordable international broadband capacity – largely attributable to the project's outcomes – spurred new private investments in the sector, such as the deployment of a fiber-to-the-home (FTTH) infrastructure by Group Vivendi Africa (GVA) in 2017. The entry of GVA significantly contributed to the dynamism



and competitiveness of the fixed broadband market, leading to increased innovation (e.g., FTTH, triple play<sup>59</sup>), a price decrease of more than 30% compared to existing Gabon Telecom FTTH subscription prices<sup>60</sup>, and an improvement in the service quality of retail broadband services.

### Poverty Reduction and Shared Prosperity

55. The project brought pervasive and affordable broadband Internet to Gabon, leading to an impressive increase in demand<sup>61</sup> and to the reduction of the digital divide. However, it is difficult to quantify the project's impact on poverty reduction and shared prosperity in Gabon, due to the lack of data and to the country's high dependence on volatile oil prices that make GDP and poverty outcome attributions tenuous. However, evidence from recent studies in Senegal<sup>62</sup> and Nigeria<sup>63</sup> points to a positive correlation between broadband infrastructure development and poverty reduction, and it is plausible to expect that the increased reach, usage and affordability of broadband services in Gabon will help reduce poverty and increase shared prosperity.

### Other Unintended Outcomes and Impacts

56. There were no unintended outcomes and impacts.

## III. KEY FACTORS THAT AFFECTED IMPLEMENTATION AND OUTCOME

### A. KEY FACTORS DURING PREPARATION

57. CAB4 was designed as a country-level project under the regional CAB umbrella, and it addressed regional and national priorities. The World Bank had extensive experience in the sector and the region, and the project's technical design incorporated lessons from past and ongoing telecom infrastructure and regulatory reform projects<sup>64</sup>, as well as emerging best practices on PPP structures for high-capacity broadband backbone networks. Based on these elements, an open-access PPP model was selected, according to which Gabon would maintain ownership of its digital infrastructure while delegating its management to an experienced wholesale private operator. A robust economic analysis was performed during preparation that showed the project's expected financial return and positive economic impact on Gabon.

<sup>59</sup> A service that provides Internet, television, and telephone for a single payment each month.

<sup>60</sup> <https://www.jeuneafrique.com/mag/762110/economie/telecoms-gva-secoue-le-marche-de-linternet-fixe-a-tres-haut-debit/>.

<sup>61</sup> Internet penetration was 112 percent at closing (up from a baseline of 14), thanks to the massive adoption of 3G and 4G.

<sup>62</sup> Masaki, Ochoa, and Rodríguez-Castelán, "Broadband Internet and Household Welfare in Senegal", September 2020. Retrieved from <https://openknowledge.worldbank.org/bitstream/handle/10986/34472/Broadband-Internet-and-Household-Welfare-in-Senegal.pdf?sequence=1&isAllowed=y>.

<sup>63</sup> GSMA and the World Bank, "The poverty reduction effects of mobile broadband in Africa: Evidence from Nigeria", December 2020. Retrieved from <https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2020/12/The-Poverty-Reduction-Effects-of-Mobile-Broadband-in-Africa-Evidence-from-Nigeria.pdf>.

<sup>64</sup> including regional connectivity projects such as CAB, WARCIP, and RCIP.



58. The parent project's and AF's components were clearly structured, objectives were ambitious yet realistic, and the results indicators aligned with these objectives. The results framework was clear, except for inconsistency around the PDO indicator "number of direct project beneficiaries"<sup>65</sup>. With the exception of the risk of infrastructure construction delays, the key risks – such as weak implementation capacity and difficulty structuring PPP negotiations – were clearly identified and mitigated through a Project Preparation Advance (PPA) of US\$3 million that became effective in May 2011 – almost two years before the parent project's effectiveness. The PPA financed the initial ACE membership fee payments; technical assistance to introduce policy reforms and design and structure PPP and Open Access; environmental and social studies; and capacity building to the PIU and all key stakeholders (MCPEN, ARCEP and ANINF). It also served as a proof of concept for implementation arrangements that were carried throughout the project, and that leveraged an established and experienced PIU (CN-TIPPEE) that was already familiar with the Bank's internal policies and procedures. In the context of its market oversight duties, ARCEP was responsible for collecting the relevant data throughout the project's implementation<sup>66</sup>.

## B. KEY FACTORS DURING IMPLEMENTATION

59. There were several positive factors during the project's implementation that led to successful outcomes. The Gabonese Government understood the project's importance for the operationalization of "Gabon Numérique" and was involved in its implementation and strategic oversight at the level of the Presidency from concept to completion. There was good coordination among the various ministries and agencies involved (e.g., MCPEN, ARCEP, ANINF, SPIN, railway operator SETRAG, local governments) through a high-level supervisory structure, and the steering committee conducted regular meetings to follow up on progress and resolve pending issues. In addition, the Government did a very good job at building citizens' awareness and securing their buy-in for the project through a sustained communications campaign. On the Bank's side, there was minimal staff turnover, handover between the project's two task team leaders (TTLs) was smooth<sup>67</sup>, and technical assistance and capacity building were adequately provided to the PIU and all key stakeholders (MCPEN, ARCEP and ANINF).

60. Initial implementation was slow. The loan agreement was signed on May 21, 2012, but the project did not become effective until March 6, 2013 due to repeated delays in the national procedure for the approval of the loan agreement – a matter outside the Bank team's purview<sup>68</sup>. There were also several delays in the availability of counterpart funding for 2012, 2013, and 2014 that threatened the ability of the PIU to perform its procurement and fiduciary activities. As an emergency stopgap measure, the Bank covered some of the operating costs of the PIU with PPA funds from October 2012 till February 2013. After several

<sup>65</sup> Detailed below in paragraphs 65-66 (M&E Design).

<sup>66</sup> Paragraphs 65-66 (M&E Design).

<sup>67</sup> The first TTL was in charge until mid-2016, before handing the project over to another TTL who stayed on till the closing date.

<sup>68</sup> One of the effectiveness conditions was a legal opinion to be provided by the GoG pursuant to the provisions of Section 9.02 of the General Conditions. This legal opinion was first delayed due to the non-completion of the national procedure of approval of the loan agreement during the 2012 summer break. It was delayed a second time when a new step was added to the national procedure in the form of an opportunity visa to be obtained from the President's office prior to parliamentary approval, and again a third time after the Government decided to conduct the national procedure during parliamentary recess (January 2013), causing a delay in the approval, signature and publication of the presidential ordinance.



delays with the Government's submission of legal opinions and the signature of the contract with the private wholesale operator, the disbursement conditions for the Connectivity component were fulfilled in April 2015 (national backbone) and November 2015 (international ACE connectivity), resulting in the acceleration of implementation and a significant increase in the disbursement rate – from 18% in May 2015 to 46% in January 2016.

61. The political instability and civil unrest linked to the August 2016 presidential election caused the execution of several technical assistance activities – namely, the creation of a national broadband stimulation strategy and the revision of telecom and ICT laws – to be put on hold for several months, and induced delays in the preparation of the terms of reference for studies and work planned under the AF. However, they did not significantly delay the ongoing “Phase 1” infrastructural works.
62. An independent technical audit of the “Phase 1” (parent) backbone network financed by the project and completed in February 2020 revealed technical nonconformities in the construction process, and important repairs were estimated to cost around \$US 2.8 million. The Bank's team recommended that the authorities fully enforce the contractual guarantees with the vendor (CCSI) to proceed with these repairs as soon as possible, since they were needed to ensure the resilience and service quality of commercial operations in the long run. However, the Gabonese authorities and CCSI entered a dispute (still ongoing), and the amount required for repairs might have to be borne by the Gabonese authorities<sup>69</sup>.
63. The implementation of the AF faced several challenges that required four extension requests. First, the construction of the second phase's network links diverged from the planned approach of contract extension with the original constructor (CCSI) due to the latter's unsatisfactory performance. As a result, the contract for the construction of this network was opened to tender, and a different supplier (KT) was selected around a year later – a significant procurement delay. Second, construction delays led to disputes between the Gabonese authorities and KT regarding late-payment penalties, though the certificate of completion of works could be signed successfully<sup>70</sup>. Third, negotiations between SPIN and Axione to incorporate “Phase 2” links into the PPP agreement suffered from long delays and were concluded only a week before the closing date<sup>71</sup>, and the final contract between both parties signed in March 2021. Lastly, despite the Gabonese authorities' best efforts and the Bank team's follow-up, cross-border traffic was still not being exchanged by the closing date due to factors that were largely outside the Gabonese Government's control: infrastructural issues on the Congolese side (resolved in December 2020), construction delays on the Cameroonian side, and an unsigned interconnection MOU with Equatorial Guinea due to COVID-19 restrictions<sup>72</sup>.
64. The Gabonese Government implemented stringent measures to combat the COVID-19 pandemic since reporting its first case in March 2020 – including border closures, restrictions on public gatherings, and a

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<sup>69</sup> The Government also signed an agreement with the private partner of the PPP to prefinance the realization of these repairs.

<sup>70</sup> With reservations.

<sup>71</sup> Informal discussions were engaged in early 2019, and official negotiations started in June 2019.

<sup>72</sup> Although it could be argued that discussions between the two countries should have been initiated earlier than 2020 and/or done virtually.



partial then full confinement of the Libreville conglomeration. These measures caused the project to postpone all Component 2 activities that involved interventions outside Libreville (i.e., those required for the finalization and operationalization of the “Phase 2” fiber backbone), as well as travels or large meetings (i.e., those required for the finalization of interconnection agreements and PPP negotiations for “Phase 2”) until June 2020, when restrictions were eased.

## IV. BANK’S PERFORMANCE, COMPLIANCE ISSUES, AND RISK TO DEVELOPMENT OUTCOME

### A. QUALITY OF MONITORING AND EVALUATION (M&E)

#### M&E Design

65. The outcome indicators for this project were the same as those used for the regional CAB program, and were standard, quantitative ones that encompassed key aspects related to the geographical reach, usage, and prices of regional broadband network services. Except for the indicator on project beneficiaries (see paragraph below), these PDO indicators were specific, relevant, measurable, with baseline figures and clear targets against which progress toward objectives could be assessed. The results framework was clear, and intermediate indicators adequately captured the contribution of the project’s activities and outputs toward achieving PDO-level outcomes. The sector’s regulator ARCEP was the entity designated to perform data collection, before compiling the results and transmitting them to the project’s team.

66. M&E design could have been improved in two ways. First, the PDO indicator “Number of direct project beneficiaries” was defined in the parent PAD as “*people who are connected to the communications network (including telecom services and Internet users), to be measured as the number of active fixed and mobile subscribers*”, and assigned a baseline value of 1,545,2555 – equivalent to the entire Gabonese population. In the AF’s PAD, the definition of the indicator was revised to designate “*the number of people having access to telephone services, correcting for the multi-SIM card effect*”, and the baseline value revised down to 0, with the justification that “no one has benefitted from the project prior to start date”. While the latter is a plausible justification because the indicator is supposed to measure the project’s contribution only, it is not straightforward to establish causation between the project and the number of telecom subscribers (1,706,086) at closing. Second, it is unclear why at the time of the AF’s appraisal, the target value for PDO indicator “International Internet bandwidth” remained unchanged at 14,712 when the achieved target was already 13,152. The client and Bank’s team should have been more ambitious, as evidenced by the final achieved value that exceeded the target by 140%.

#### M&E Implementation

67. M&E data (baseline and actual values) were collected and analyzed in a methodologically-sound manner. ARCEP collected the relevant data in the context of its market oversight duties by getting reliable information directly from the operators, ISPs, and ANINF, and by conducting surveys as appropriate. ARCEP then provided the PIU, on a biannual basis, the monitoring and evaluation indicator values it collected. The established M&E processes have



persisted after the project's closing. The line ministry, ANINF, ARCEP, and CN-TIPPEE all benefited from capacity building and technical assistance on efficient data collection.

68. The project verifiably achieved 10 out of 12 outcome and intermediate indicators. For reasons unknown, the thirteenth indicator, "Citizen perception of the affordability of broadband services (including perception by women)" was added in the AF PAD but not included in the project's internal portal or ISRs' results framework; it was also never reported by the Borrower. As mentioned above, the team adequately revised the definition and baseline for the PDO indicator on beneficiaries during implementation but failed to adjust the end target for the "International Internet bandwidth" one.

### M&E Utilization

69. M&E data was used to monitor performance throughout the implementation phase and to adjust indicator targets during the AF and first restructuring in 2016. M&E findings were disseminated by the PIU to all stakeholders, and ARCEP has continued to collect data beyond the project's closing date. The data collected were used during the Bank team's dialogue on pricing and interconnection cost models and tariffs with the regulator, and to inform the CAB-Gabon project under preparation by the African Development Bank. As mentioned in the Efficiency discussion, the project's outcomes reflected in M&E data cannot be directly linked to GDP changes seen since 2012.

### Justification of Overall Rating of Quality of M&E

70. Based on the above assessments of M&E design, implementation, and utilization, the overall quality of M&E is rated **Substantial** due to moderate shortcomings in the M&E system's design and implementation.

## B. ENVIRONMENTAL, SOCIAL, AND FIDUCIARY COMPLIANCE

71. **Environmental and Social.** CAB4 was classified as a Category B project under the World Bank's safeguards policies, and the environmental and social impacts were expected to be site-specific and manageable. Five safeguard policies were triggered at appraisal: Environmental Assessment (OP 4.01), Natural Habitats (OP 4.04), Indigenous Peoples Policy (OP 4.10), Physical Cultural Resources (OP 4.11), and Involuntary Resettlement (OP 4.12). For the ACE component, an Environmental and Social Impact Assessment (ESIA), Environmental and Social Management Plan (ESMP) and Abbreviated Resettlement Action Plan (ARAP) were prepared and publicly disclosed at appraisal. For the terrestrial backbone, an Environmental and Social Management Framework (ESMF), Resettlement Plan Framework (RPF) and Indigenous Peoples Planning Framework (IPPF) were prepared and publicly disclosed at appraisal, while an Environmental and Social Management Plan (ESMP), Indigenous Peoples Plan (IPP) and Resettlement Action Plan (RAP)<sup>73</sup> were to be prepared during implementation.

72. Final safeguards documents were published in November 2013. The project was generally compliant with the applicable environmental and social safeguards during implementation, but the overall safeguards

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<sup>73</sup> Or abbreviated RAP.



rating was lowered to Moderately Satisfactory in the final ISR<sup>74</sup> for the following reasons: (a) delays in conducting the safeguards audit; (b) social risks associated with non-compensation for the accidental destruction of assets during fieldwork in Lalara (Ogooué-Ivindo Province)<sup>75</sup>; and (c) incomplete implementation of the Indigenous Peoples Plan (IPP) in the field<sup>76</sup>. A Grievance Redress Mechanism (GRM) was operational at the closing date and compliant with the procedures established by the two ESMPs, but it did not include gender-based violence in its last revised version. The number of complaints received was 168, 41% of which were related to loss of revenue and stalls. 129 complaints have been resolved so far<sup>77</sup>, and the pending ones are being processed in compliance with the GRM guidelines that were put in place under the project.

73. **Financial management (FM).** Based on an assessment conducted at appraisal, the FM risk was rated Moderate because the implementing agency (CN-TIPPEE) was an experienced and adequately-performing PIU endowed with all fiduciary requirements. Mitigation measures incorporated at appraisal and applied during implementation included recruiting a consultant to prepare the Project Implementation Manual and amending the contract of the then-current external auditor to include the proposed project. A financial management plan was prepared at appraisal, and compliance with FM measures during implementation was satisfactory until the December 2016 mission when the rating was downgraded. The final FM rating was Moderately Satisfactory and FM risk rating Substantial, as the last FM mission at closing<sup>78</sup> revealed the persistence of old debt and the presence of old, unjustified mission advances<sup>79</sup> that could lead to ineligible expenditures. The final financial audit report for the parent project was submitted by the project's team 13 months late (in July 2020) and deemed generally acceptable by the Bank<sup>80</sup>. The last annual audit report for the AF (covering the year 2019) was transmitted on time and deemed acceptable by the Bank.
74. **Procurement.** A pre-appraisal assessment concluded that the CN-TIPPEE had the adequate capacity and experience to carry out procurement activities related to the project. Procurement risk was rated Moderate at appraisal, and the following mitigations measures were agreed upon and applied during implementation: (a) the PIU undergoes specialized procurement training; and (b) staff from beneficiary institutions (e.g., MCPEN, ANINF, ARCEP) are involved in procurement procedures, especially the preparation of technical specifications and terms of reference and participation in selection committees. A procurement plan for the first 18 months was prepared at appraisal and was updated at least once yearly to respond to the project's implementation needs. The annual work plan and budget were prepared in accordance with the Financial Management Manual and successfully revised by PIU, in collaboration with the Bank's team. The project complied with procurement management guidelines during implementation, and procurement was satisfactory up till the December 2016 mission, when the rating was downgraded to

<sup>74</sup> The last ISR (#18) was filed post-closing, and it reflects the findings of a mission conducted between October 7 and 15, 2020.

<sup>75</sup> Construction operators were requested to compensate these destructions, but this had not been done by the closing date, raising the prospects of complaints from people whose assets were destroyed.

<sup>76</sup> Some field activities were still not implemented, and the situation could trigger complaints from indigenous populations.

<sup>77</sup> According to a report submitted by the PIU on March 11, 2021.

<sup>78</sup> October 27-28, 2020.

<sup>79</sup> Of 21 million FCFA (approximately \$US 39,000).

<sup>80</sup> The Bank team requested additional information pertaining to the designated and escrow accounts, fixed assets, the funds used to pay for the audit report, and a missing annex.





Moderately Satisfactory (MS) due to procurement delays related to the choice of constructor for the backbone's extension<sup>81</sup>, and was maintained at MS till the project's official closing date. The rating was justified in the final ISR<sup>82</sup> by the inefficient management of large contracts and the inconsistent usage of STEP<sup>83</sup>. There were no reported cases of misprocurement.

## C. BANK'S PERFORMANCE

### Quality at Entry

75. Quality at entry was **Satisfactory**.
76. Strategic relevance and approach were Highly Satisfactory. Through CAB4, the World Bank was a ready and willing partner to support development objectives that were strategic to the Gabonese Government, and preparation was done based on a comprehensive digital policy dialogue with Gabonese authorities and in strong alignment with national, regional, and Bank priorities.
77. Technical, financial, and economic aspects were Highly Satisfactory. The Bank's team leveraged its technical expertise and engaged in an extensive review of the lessons learned from the regional CAB and other infrastructural projects, informing the preparation of CAB4 and allowing for the anticipation of implementation risks and the identification of adequate mitigation measures. A robust financial analysis was performed during the preparation of the parent project and revised in 2016 to simulate the impact of the additional fiber links financed under the AF. See Section II-C and Annex 3 for more details.
78. Policy and institutional aspects were Highly Satisfactory. The project dedicated an entire component (Component 1) and around \$US 11 million to strengthen the enabling environment for the successful deployment and operation of the fiber-optic backbone. The planned regulatory activities and studies included PPP, Open Access, universal access, broadband usage, e-transactions, electronic communications, privacy and data protection, and cybersecurity and cybercrime. See Section I for more details.
79. Risk assessment was Satisfactory. The risks identified at the parent project's appraisal included the lack of private-sector interest in the project, insufficient coordination between key stakeholders, limited regulatory expertise, and difficulty structuring PPP negotiations. To mitigate these risks and expedite implementation, a PPA was provided in 2011 that included workshops to improve interaction with the private sector, technical assistance to the regulator, support for a detailed economic analysis, and extensive support for PPP negotiations. The team could have added construction delays as a likely risk and proposed mitigation measures for it.
80. Implementation arrangements were Satisfactory. The Bank's team advocated for efficient implementation arrangements that included a high-level supervisory body<sup>84</sup> with representatives from key public entities to provide strategic guidance and ensure efficient coordination and strong project ownership by the Government.

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<sup>81</sup> Paragraph 63 explains the procurement delays involved with the choice of constructor for the second phase of the backbone.

<sup>82</sup> ISR #18, procurement risk assessment dated October 3, 2020.

<sup>83</sup> An online system that helps the Bank and borrowers plan and track procurement activities under Bank-financed projects.

<sup>84</sup> « Commission chargée du suivi des projets de fibre optique au Gabon » ("Fiber Option Commission").



81. Bank inputs and processes were Satisfactory. In addition to stipulating the creation of the Fiber Optic Commission prior to effectiveness, the Bank's team added other disbursement conditions to ensure that the special-purpose vehicle (SPIN) and its ACE subsidiary were duly created, registered and made operational prior to effectiveness, and that the private wholesale operator was selected in accordance with PPP guidelines and in a manner satisfactory to the Bank.
82. Environmental and social aspects were Satisfactory, as evidenced by the appropriate arrangements for safeguards that were made at appraisal. See paragraphs 71-72 for more details.
83. Fiduciary aspects were Satisfactory. The Bank assessed procurement and financial management prior to the appraisal of the parent project and AF, adequately identified potential risks, and proposed suitable mitigation measures. See paragraphs 73-74 for more details.
84. M&E arrangements were Satisfactory. M&E design adequately captured the contribution of the project's activities and outputs toward achieving PDO-level outcomes, and the regulator was tasked with data collection. See paragraphs 65-66 for more details.
85. Poverty, gender, and social development aspects were Unsatisfactory. The project did not focus on gender or plan interventions to increase girls' and women's use of broadband, although it tried to incorporate the gender dimension in two indicators. Poverty alleviation and social development were not explicit goals of the project, but a correlation with increased broadband usage is expected. See paragraphs 50 and 55 for more details.

### Quality of Supervision

86. Quality of supervision was **Moderately Satisfactory**.
87. The focus on development impact was Satisfactory. The Bank's team was fully aware of the high-level implications of the project on digital development in Gabon and was cognizant of the challenging political and sectoral realities and the risk they posed to achieving outcomes. The Bank's team was effective at supervising the project to achieve the indicators that were set, though not proactive at revisiting with the Gabonese authorities the very ambitious end targets used to measure the affordability of broadband services<sup>85</sup> (PDO 3), although it was clear the price of wholesale capacity had tremendously decreased from the baseline, and the target for the price of a three-minute call was not going to be reached due mainly to an exogenous factor (new excise tax).
88. The supervision of fiduciary and safeguards aspects was Moderately Satisfactory (MS). The project adhered to legal covenants and the Bank's internal policies and procedures, but the Bank's team should have followed up better on the various fiduciary issues and taken the necessary corrective measures when the ratings regressed. Specifically, the FM and Procurement ratings dropped after the July 20, 2016 mission and remained MS till the project's closing date, and the Safeguards rating that dropped to MS at the very end of the project. Although the Bank's team members provided exhaustive written and verbal recommendations to the PIU when red flags manifested in FM and Procurement, they should have done a closer, in-person follow-up and escalated these

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<sup>85</sup> Average monthly price of wholesale international E1 capacity from the capital city to Europe, and price of a three-minute call.



issues in order to revert the status quo during the remaining four years. The drop in the Safeguards rating (see paragraph 72) could have been prevented had the team proactively anticipated the IPP field implementation and safeguards audit report delays.

89. The adequacy of supervision inputs and processes was Moderately Satisfactory. The task team leader (TTL)<sup>86</sup> was based in Washington, DC for the entire duration of the project except the last six months<sup>87</sup>, and the core team included procurement, FM, safeguards, and legal experts – many of whom were based in Gabon and nearby Cameroon. 18 supervision missions were conducted during the lifetime of the project<sup>88</sup>, as well as nine technical field missions<sup>89</sup> and several safeguards field studies. Supervisory missions were complemented by close remote support. The Bank’s team offered technical assistance and policy advice based on international best practices, responded to the Government’s request for an AF and five restructurings in a timely manner, and took advantage of the first restructuring to suggest scaling up many of the PDO and intermediate indicator targets, strengthening the relevance of the results framework. On policy reforms, the team leveraged the presence of a collaborative and diligent regulator to push for reforms, and supported the Government’s sustained communication campaign to sensitize stakeholders and get their continuous buy-in. The team also provided valuable technical assistance to help the Government carefully select a private wholesale operator based on international best practices – a crucial element for successful PPP implementation; this PPP agreement was subsequently renegotiated to include backbone extensions. Given the two-year delay involved in the Government’s fulfillment of disbursement conditions, the sensitivity of reforms, the relatively slow pace of construction of the backbone network, and the defects unveiled through the technical audit, it would have been judicious for the Bank’s team to recruit additional, full-time technical staff and digital policy experts in-country early on. Such recruitment, coupled with additional field visits, could have considerably expedited implementation.
90. The candor and quality of performance reporting was Satisfactory. The Bank’s team discussed strategic and technical matters openly with the Government, and aide-mémoires (AMs) and ISRs were candid and detailed. However, AMs and ISRs were often significantly delayed: on average, AMs were submitted within 45 days and ISRs within 65 days of the end of a mission, and six ISRs took over 100 days to be submitted.
91. Ensuring adequate transitional arrangements was Satisfactory. The Bank’s team helped create an adequate enabling environment for future projects and suitable implementation arrangements that foster the Government’s ownership. The project proved PPP could be an attractive and lucrative solution for infrastructural projects in Gabon, and the Bank’s team worked hard with the client to ensure that the new PPP agreement was concluded before the October 2020 closing date, ensuring sustainability. The Bank’s team could have better leveraged the Country Management Unit (CMU) to expedite the establishment of permanent cross-border interconnections with neighboring countries.

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<sup>86</sup> The initial TTL was in charge until mid-2016, before handing the project over to another TTL who stayed on till the closing date.

<sup>87</sup> When the TTL moved to Vienna, Austria.

<sup>88</sup> 17 in person, and the final one virtually due to COVID-19 restrictions.

<sup>89</sup> Three to landing stations, four to the path of the fiber-optic backbone, and two to Internet Exchange Points (IXPs).



### Justification of Overall Rating of Bank's Performance

92. Based on the considerations above, the Bank's overall performance is rated **Moderately Satisfactory**, as there were moderate shortcomings in the quality of supervision.

### D. RISK TO DEVELOPMENT OUTCOME

93. The risk to development outcome is **low**. ICT is a key priority area for Gabon's development, as outlined in the Emerging Gabon Strategic Plan 2025 (PSGE)<sup>90</sup>, whose strategic objectives include legal reforms for PPP and telecom/ICT, the promotion of the digital economy, and the construction of a world-class digital infrastructure. In January 2021, the Government confirmed that broadband and digital technologies would remain top priorities for Gabon in the medium and long terms.
94. The first phase of the backbone network was commercialized in February 2019 and national accessibility and quality of service have been generally satisfactory, with outages repaired promptly and defects revealed in the technical audit addressed by the authorities up till and beyond the closing date<sup>91</sup>. A formal contract was signed in March 2021 between the Government and Axione to incorporate "Phase 2" links in the existing PPP agreement, and there is low risk associated with the commercialization of the national backbone extension, although service quality remains to be seen and cross-border traffic with Cameroon and Equatorial Guinea will likely not materialize in the short term<sup>92</sup>.
95. Building on the achievements of the CAB4 project, the Gabonese Government has requested the financial support of the African Development Bank for the construction of over 2,000 km of fiber-optic links in underserved areas of the country, as well as the construction of a national datacenter, a Computer Security Incident Response Center, and a public-key infrastructure<sup>93</sup> platform in the communes of Franceville and Ntoum. If implemented, this new project would support the sustainability of the CAB4 project and solidify Gabon's status as a digital leader in the African continent.
96. The Gabonese Government and the World Bank will continue to support the sustainability of the achieved outcomes by investing in the ongoing eGabon and the upcoming Digital Gabon projects. The currently active eGabon (P132824) project aims to bring forward the objectives achieved under CAB4 by promoting digital entrepreneurship and leveraging access to broadband connectivity to support the delivery and management of public health services across the country. The Digital Gabon project (P175987) under preparation<sup>94</sup> could further strengthen the enabling environment for digital technology adoption and leverage broadband connectivity and usage to improve the delivery of and access to digitized government services, fostering the overall development of the ICT market.

<sup>90</sup> <http://extwprlegs1.fao.org/docs/pdf/gab149803.pdf>.

<sup>91</sup> The updated PPP will prefinance major repairs revealed by the audit, given the ongoing dispute with vendor CCSI.

<sup>92</sup> Cross-border traffic with the Republic of the Congo has been exchanged since December 2020.

<sup>93</sup> A set of roles, policies, hardware, and software needed to create, manage, distribute, use, store and revoke digital certificates

<sup>94</sup> Appraisal planned for the first half of 2021.



## V. LESSONS AND RECOMMENDATIONS

97. **Lesson 1: Enacting policy reforms and fully enabling private-sector involvement can create transformational change.** Currently well established in the leading peloton of best digitally-equipped African countries, Gabon is a good example of a country where projects led by the Government, supported by the World Bank, and largely entrusted to the private sector have produced very encouraging results. This project demonstrated that even in a country that had an extremely low (0.5%) fixed broadband penetration at inception, the proper choice, sequencing, and execution of policy reforms, coupled with the presence of a collaborative and diligent regulator and a sustained communication campaign to sensitize stakeholders and get their continuous buy-in created an enabling environment that attracted private-sector participation. The project also showed how the careful selection of the private wholesale operator based on international best practices went a long way in changing the status quo and effecting transformational change in terms of boosting broadband penetration. In fact, the entry of experienced operator Axione through a robust PPP arrangement and the subsequent renegotiation of this agreement to include backbone extensions were crucial for the success of CAB4 and the sustainability of service delivery, as the private operator is more likely to innovate and invest in improvements. *Recommendation 1:* infrastructure projects should include policy reforms as implementation enablers. PPP arrangements like the one used to implement CAB4 could be considered for future connectivity operations.
98. **Lesson 2: Strong political commitment and solid implementation arrangements that foster stakeholder coordination are crucial for successful implementation.** The CAB4 institutional arrangements included a high-level supervisory body (the Fiber Optic Commission) led by the Presidency and with representatives from line ministries, ANINF and ARCEP. The Fiber Optic Commission provided technical and operative guidance, direction, and coordination, had fiduciary and governance oversight, and bore overall responsibility for safeguards' compliance. While similar implementation arrangements can be found in many World Bank projects, what made a big difference in the case of CAB4 was strong political commitment at the highest level, as evidenced by the role of the special advisor to the President on the Fiber Option Commission and his continuous follow-up on implementation activities. These institutional arrangements, coupled with the project's focused scope, greatly improved the project's implementation, and strengthened Gabon's institutions by improving the coordination of private-sector development. *Recommendation 2:* to implement large-scale infrastructural and digital reform projects, it is crucial to secure political buy-in, and to fully align with the Government's priorities, timeline, institutional capacity, and other ongoing initiatives in the country. In this respect, establishing formal mechanisms for collaboration at the design stage can greatly accelerate implementation.
99. **Lesson 3: Legal covenants and performance-linked conditions could be considered for critical elements of a project.** The project's main risks laid in defining the practical details of how to implement PPP and Open Access principles for the effective and efficient operationalization of the regional network. In that respect, and building on the lessons learned from the CAB3 project, disbursement conditions were set to ensure that the special-purpose vehicle (SPIN) and its ACE subsidiary were duly created, registered and made operational, and that the independent private wholesale operator was selected in form and substance satisfactory to the Bank. Although disbursement conditions slowed down the project because



the Government was not able to fulfill them until two years after the project's effectiveness, they helped pave the way for a smooth implementation of the Connectivity component. *Recommendation 3*: when faced with political economy risks and/or hard-to-achieve requisites for implementation success, projects could consider mechanisms such as effectiveness conditions, disbursement conditions, and performance-based conditions.

100. **Lesson 4: Country Management Units (CMUs) could be leveraged to expedite activities that require cross-country coordination.** The World Bank has a broad presence worldwide, and CMUs are well connected to the political establishment and decision makers in the countries they cover. In that respect, the CAB4 project could have leveraged the Cameroon CMU – which covers Gabon, Cameroon, and Equatorial Guinea – to expedite the signature of the interconnection MOU with Equatorial Guinea and the ongoing construction on the Cameroonian side prior to the closing date. *Recommendation 4*: projects should involve CMUs early and continuously when high-level coordination between different countries is required.
  
101. **Lesson 5: In weak-capacity environments, building institutional capacity is beneficial for the implementation of reforms and the sustainability of investments.** The project provided extensive technical assistance and operational capacity building to the PIU, line ministry, ARCEP and ANINF, as well as policy and regulatory capacity building on PPP negotiations, regulatory tools, cost models, and M&E. It also upgraded the existing implementing agency by hiring additional staff, covering some operational costs, and offering training on the Bank's project cycle and procurement and FM guidelines. These activities helped enact much needed reforms, implement PPP and Open Access, and ensure the sustainability of investments in Gabon. *Recommendation 5*: it is important to build the institutional capacity of the PIU and governmental entities during implementation. To ensure sustainability after project closure, it is recommended to launch new projects that build on the outcomes of successful ones; cases in point are the eGabon and Digital Gabon projects that leverage the successful outcomes of CAB4.



**ANNEX 1. RESULTS FRAMEWORK AND KEY OUTPUTS**

**A. RESULTS INDICATORS**

**A.1 PDO Indicators**

**Objective/Outcome:** Increase geographical reach and usage of broadband services and reduce prices

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
International Internet Bandwidth (Bits per second per person)	Number	4,620.00 31-Dec-2010	24,000.00 31-Dec-2018		24,000.00 31-Dec-2018

**Comments (achievements against targets):**

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Access to Internet Services (number of subscribers per 100 people)	Number	14.00 31-Dec-2010	112.00 31-Dec-2018		112.00 31-Dec-2018

**Comments (achievements against targets):**



Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Access to Telephone Services (fixed mainlines plus cellular phones per 100 people)	Number	147.00	173.00		173.00
		31-Dec-2010	31-Dec-2018		31-Dec-2018

Comments (achievements against targets):

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Average monthly price of wholesale international E1 capacity link from capital city to Europe (US\$/month/2Mbps)	Number	10,500.00	270.00		270.00
		31-Dec-2010	31-Dec-2018		31-Dec-2018

Comments (achievements against targets):

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Direct project beneficiaries	Number	1,545,255.00	1,770,000.00		1,770,000.00
		31-Dec-2010	31-Dec-2018		31-Dec-2018
Female beneficiaries	Percentage	51.00	51.00		51.00





			31-Dec-2017		
Comments (achievements against targets):					

## A.2 Intermediate Results Indicators

**Component:** Component 1 - Enabling environment

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Impact on Telecom sector of World Bank Technical Assistance (composite score: 1- low impact to 5-high impact)	Number	0.00 31-Dec-2010	4.00 31-Dec-2018		4.00 31-Dec-2018

Comments (achievements against targets):

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Average cost of mobile call (three minutes, local, peak) (US\$/3 min)	Number	0.71 31-Dec-2010	0.36 31-Dec-2018		0.36 31-Dec-2018

Comments (achievements against targets):



Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Retail Price of Internet Services (per Mbit/s per Month, in US\$)	Amount(USD)	218.00 31-Dec-2010	8.00 31-Dec-2018		8.00 31-Dec-2018
<b>Comments (achievements against targets):</b>					

**Component: Component 2 - Connectivity**

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Number of operators and ISPs buying capacity from the regional infrastructure deployed	Number	0.00 31-Dec-2010	21.00 31-Dec-2018		21.00 31-Dec-2018
<b>Comments (achievements against targets):</b>					

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
International	Number	1.20	21.80		21.80



Communications (Internet, Telecoms and Data) bandwidth (Gbit/s)		31-Dec-2010	31-Dec-2018		31-Dec-2018
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Comments (achievements against targets):

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Length of Fiber Optic Network Built (km) (through the project)	Kilometers	0.00 31-Dec-2010	1,140.00 31-Dec-2018		1,140.00 31-Dec-2018

Comments (achievements against targets):

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Increased access to ICT services: Number of localities with broadband Internet access (256Kbps)	Number	3.00 31-Dec-2010	57.00 31-Dec-2018		57.00 31-Dec-2018

Comments (achievements against targets):



**B. KEY OUTPUTS BY COMPONENT**

<b>Objective/Outcome 1: To contribute to increase the geographical reach of regional broadband network services</b>	
Outcome Indicators	1. International Internet bandwidth
Intermediate Results Indicators	1. Length of fiber optic network built 2. International communications bandwidth 3. Number of localities with broadband Internet access
Key Outputs by Component (linked to the achievement of the Objective/Outcome 1)	1. Fiber-optic backbone is constructed 2. Gabon is a member of the ACE Consortium 3. Open Access and PPP are implemented 4. Localities are connected to broadband Internet 5. Telecom and information laws are revised 6. Universal access strategy is revised 7. Key agencies gain capacity in policy and regulatory matters
<b>Objective/Outcome 2: To contribute to increase the usage of regional broadband network services</b>	
Outcome Indicators	1. Internet penetration 2. Fixed and mobile telephony penetration 3. Number of direct project beneficiaries
Intermediate Results Indicators	1. Number of operators and ISPs buying capacity from the regional infrastructure deployed 2. Citizen perception of the affordability of broadband services
Key Outputs by Component (linked to the achievement of the Objective/Outcome 2)	1. Universal access strategy is revised 2. Strategy for the promotion of broadband usage is created 3. Laws on electronic transactions, electronic communications, privacy and data protection, and cybersecurity and cybercrime are revised and adopted 4. Management policy for .ga domain names is implemented



<b>Objective/Outcome 3: To contribute to reduce the prices of regional broadband network services</b>	
Outcome Indicators	1. Average monthly price of wholesale international E1 capacity link from the capital city to Europe
Intermediate Results Indicators	1. Average cost of three-minute mobile call 2. Retail price of Internet services 3. Citizen perception of the affordability of broadband services
Key Outputs by Component (linked to the achievement of the Objective/Outcome 2)	1. Gabon is a member of the ACE Consortium 2. Open Access and PPP are implemented 3. Gabon Internet Exchange is operational



**ANNEX 2. BANK LENDING AND IMPLEMENTATION SUPPORT/SUPERVISION**

**A. TASK TEAM MEMBERS**

<b>Name</b>	<b>Role</b>
<b>Preparation</b>	
Michel Rogy	Task Team Leader(s)
Kouami Hounsinou Messan	Procurement Specialist(s)
Enagnon Ernest Eric Adda	Financial Management Specialist
Bernadette Djapa Nyanjo	Team Member
Lucienne M. M'Baipor	Social Specialist
Bienvenu Rajaonson	Social Specialist
Windpouire Josephine Lydie Sankara	Team Member
Emeran Serge M. Menang Evouna	Social Specialist
<b>Supervision/ICR</b>	
Charles Pierre Marie Hurpy	Task Team Leader(s)
Rose Caline Desruisseaux-Cadet, Lanssina Traore	Procurement Specialist(s)
Henie Dahlia Takodjou Meku	Financial Management Specialist
Celestin Adjalou Niamien	Financial Management Specialist
Abdallah Wahib Jabbour	Team Member
Hussein Jaffar	Team Member
FNU Owono Owono	Social Specialist
Saba Nabeel M Gheshan	Counsel
Francis Tasha Venayen	Team Member
Sylvie Munchep Ndze	Procurement Team
Issa Diaw	Team Member
Paul-Jean Feno	Environmental Specialist
Antoinette Pongui	Team Member

Evelyne Huguette Madozein	Procurement Team
David Satola	Team Member
Alice R. Ouedraogo	Team Member
Michele Ralisoa Noro	Team Member

## B. STAFF TIME AND COST

Stage of Project Cycle	Staff Time and Cost	
	No. of staff weeks	US\$ (including travel and consultant costs)
<b>Preparation</b>		
FY11	7.200	54,377.43
FY12	19.333	122,288.14
FY13	.950	1,357.83
<b>Total</b>	<b>27.48</b>	<b>178,023.40</b>
<b>Supervision/ICR</b>		
FY13	12.478	85,096.93
FY14	13.036	133,305.62
FY15	8.112	63,397.49
FY16	15.750	123,834.64
FY17	15.650	96,939.70
FY18	17.177	124,587.81
FY19	14.610	113,931.62
FY20	9.540	59,689.82
<b>Total</b>	<b>106.35</b>	<b>800,783.63</b>



**ANNEX 3. PROJECT COST BY COMPONENT**

<b>Components</b>	<b>Amount at Approval [Parent + AF] (US\$M)</b>	<b>Actual at Project Closing [Parent + AF] (US\$M)</b>	<b>Percentage of Approval</b>
Component 1 - Enabling environment	10.90	12.39	113%
Component 2 - Connectivity	65.00	59.5	91.5%
Component 3 - Project Management	5.04	3.55	70.4%
<b>Total</b>	<b>80.94</b>	<b>75.44</b>	<b>93.2%</b>





#### ANNEX 4. EFFICIENCY ANALYSIS

1. A financial analysis was performed in 2012 during the preparation of the parent project. The analysis considered several radio wave, satellite, and fiber optic options, and concluded that given pent-up demand in Gabon<sup>95</sup>, terrestrial fiber links were the best overall option in terms of long-term cost effectiveness and bandwidth availability.
2. All scenarios showed a positive IRR after 15 years, even in adverse conditions caused by higher-than-budgeted project costs or lower-than-expected demand. Using a discount rate of 15%, the base case scenario put the project's net present value (NPV) at US\$8 million and the internal rate of return (IRR) at 26%, with the break-even point occurring in 2014.
3. The financial analysis of the parent project was revised in 2016 to simulate the impact of the additional fiber links financed under the AF and to reflect higher-than-expected Internet penetration and a small increase in international traffic through the new link with Cameroon. Using a discount rate of 15%, the base case scenario for the scaled-up project (parent + AF) was estimated to have an NPV of US\$2.2 million and an IRR of 16% percent, with the break-even point occurring in 2019. In other words, despite the lower economic return of the additional links, the stronger-than-expected demand for Internet would still allow for an acceptable economic return for all terrestrial links financed under the scaled-up project.
4. It was not possible to update the financial analysis for the purposes of this ICR, as no business plan or financial model has been received for the operationalization of the "Phase 2" network constructed by the project. However, the team learned from the Gabonese authorities in November 2020 that the PPP revenue-sharing agreement for "Phase 1" was providing recurring positive returns to the Government – meaning the project had already reached sustainability. In addition, high-level data provided by the private operator in April 2021 reveal that revenues generated through the PPP were 20% higher than those expected at the time of signature (after 5 years). Given these better-than-expected results, the fee paid to the Government was increased by 70.8% while wholesale prices dropped by 60%-85% (depending on the type of service) during the same period.
5. No quantitative economic analysis was conducted at appraisal, and although the parent project's PAD suggests a link between increased broadband penetration and GDP growth<sup>96</sup>, the unstable trajectory of Gabon's GDP between 2012 and 2020<sup>97</sup> makes it very difficult to establish causality between the dramatic increase in broadband penetration and changes to GDP.

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<sup>95</sup> This pent-up demand was confirmed during implementation.

<sup>96</sup> "World Bank research on the economic multiplier effect of increased broadband penetration rates indicates that each 10% increase in broadband penetration increases overall GDP growth in developing countries by 1.38%."

<sup>97</sup> See <https://data.worldbank.org/country/GA>



## ANNEX 5. BORROWER, CO-FINANCIER AND OTHER PARTNER/STAKEHOLDER COMMENTS

The Government of Gabon submitted a final ICR for the project (in French) on March 11, 2021. The report was authored by a national independent consultant and relied on a desk review of the project's documentation and interviews with various stakeholders. The findings and conclusions reported in the Government's ICR are included below; as the country's context and project's components were already described earlier, this summary focuses on the assessment of outcomes and performance, as well as on the lessons learned.

### 1. Overall outcomes

- a) **Relevance:** (i) Components and activities were clearly relevant and well aligned with the objectives established by the Government. The project was consistent with the PSGE and the sectoral plan "Gabon Numérique"; (ii) Areas of intervention were adequate, as the project targeted provinces with weak network coverage and populations with poor broadband access; (iii) The decentralization aspect was successful, as municipalities and local administrations were involved in project management; (iv) The project contributed to Gabon's environmental and social management strategy; (v) The project was well suited to the demands of populations and public and private administrations, who were regularly informed about activities.
- b) **Efficacy:** (i) The establishment of a legal and regulatory framework for the development of telecom and ICT has been effective. Governmental and regulatory institutions benefited from adequate technical and regulatory support from legal and business advisers in negotiations with private-sector operators, the financing of technical and financial audits for the structures to be installed and workshops to promote PPP, particularly for the design of tender documents and the operationalization of the national backbone and IXP; (ii) ARCEP's regulatory capacity improved; (iii) The project contributed to a significant improvement in connectivity, and the number of localities with Internet access increased considerably over the period 2012 – 2020; (iv) The project triggered a significant reduction in retail prices; (v) Beneficiaries expressed their satisfaction with the management of space and the reduction of involuntary resettlement operations. The sensitive ecological sites along the path of construction in the open countryside were spared, with positive effects on flora and fauna.
- c) **Efficiency:** (i) The economic and financial analysis confirmed the profitability of investment; (ii) The economic impact was significant but dependent on the ability of companies to integrate digital tools into their strategies and organizational plans; (iii) 100% of planned counterpart funds were disbursed by the Government; (iv) Overall disbursement rate was 96.1% for the first phase and 97.6% for the second phase; (v) Funds under Component 3 could have been allocated to the beneficiaries (MENP, SPIN, ARCEP) to cover their operating expenses; (vi) The distribution of expenses over time shows a concentration of expenses at the end of the project: 69% of expenses were made in 2018 for Phase I and 53% in 2019 for Phase II; (vii) The efficiency could have been higher if disbursements under Components 2 and 3 were higher.



## **2. Key factors during implementation**

- a) The effectiveness and disbursement delays between 2012 and 2015, as well as the COVID-19 pandemic, negatively affected the funding of activities, leading to a very late implementation of several activities that could have been delivered earlier.
- b) The local communities played a very significant role in the implementation of the project. During involuntary resettlement operations, they contributed to the resolution of complaints, the sensitization of the population, and the facilitation of project implementation through the provision of land spaces intended to house the technical centers.

## **3. Government's performance**

- a) Counterpart funds (around 3 billion FCFA) were very useful because they made it possible to compensate project-affected persons (PAPs), carry out several activities to repair nonconformities, and finalize the works at the end of the project.
- b) The Government was involved from start to finish in the strategic direction and monitoring of the project, and encouraged the involvement of other ministerial departments, civil society, and decentralized state services. The members of the steering committee actively participated in certain field supervision missions, allowing for the reduction of non-compliance cases – especially during the second phase.
- c) According to the beneficiaries, the decentralized technical services of the State – particularly the provincial Directorates of Cadaster and Town Planning – have provided significant services during the search for land spaces. These decentralization mechanisms strengthened grassroots democracy and allowed the construction of technical centers and fiber extensions in an environmentally-conscious manner.

## **4. World Bank's performance**

- a) Supervision missions were carried out regularly and allowed for the formulation of useful recommendations. The missions also tackled the modalities of sustainability for the project.
- b) The World Bank has shown a great deal of flexibility in accepting the extension of the project in Phase II given the delays recorded during the first phase.
- c) Loan conditions caused compliance issues and blockages, generating significant implementation delays.

## **5. Recommendations**

- a) **Support should continue post-closing to ensure sustainability.** There is low risk related to the continued operation of the fiber-optic infrastructure. Support should continue in the following areas to ensure sustainability: (i) maintenance and upkeep of the infrastructure; (ii) improvement of the methods for the maintenance of equipment; (iii) better access to Internet access markets; (iv) extension of the built infrastructure; (v) continued support to ARCEP, ANINF, and SPIN; (vi) capacity building and investment in beneficiaries and retailers/ISPs. In this context of sustainability, the ICR commended the initiatives taken by the project team to support the activities of the CAB-Gabon project under preparation (to be financed by the African Development Bank).



**b) The improvement of certain operational aspects could produce a significant positive impact on future infrastructural projects.**

- i. Network construction/extension: (i) provider contracts linked to coherent objectives and objectively-verifiable indicators, with reporting obligations; (ii) urbanization level considered before extending digital infrastructures; (iii) greater involvement of Gabonese companies in construction works; (iv) a rigorous application of ESMP provisions and environmental, health, and safety standards by contracting companies; (v) involvement of the operator Axione in the design, implementation and monitoring of fiber optic installation projects in order to reduce the risks of non-compliance; (vi) better consideration of environmental and local realities in the application of World Bank procedures; (vii) documentation of the techniques for the extension and operation of the backbone; (viii) analysis of the management methods of private operators; (ix) comparative analysis of the operation of high-capacity broadband networks.
- ii. Project management: (i) addition of a representative of the Ministry of Justice in the project's steering committee for better legal support; (ii) definition of responsibilities of all key actors on the steering committee; (iii) prompt mobilization of substantial counterpart funds and the payment of PIU salaries through these funds; (iv) rigorous application of the provisions of the Project Implementation Manual.
- iii. Budgeting and procurement: (i) strengthening of the PIU's procurement team to expedite the processing of files; (ii) diligent processing of procurement files and invoice payments; (iii) integration into tender documents of realistic worksite execution schedules that take into account the geotechnical and climatic constraints of the sites; (iv) forecasting substantial budgets intended to cover expenses related to cases of non-compliance and unforeseen events; (v) prompt issuance of no-objection notices in order to reduce implementation delays.



## ANNEX 6. SUPPORTING DOCUMENTS

1. Project Appraisal Document
2. Project Appraisal Document (Additional Financing)
3. Loan Agreement for Loan 8150-GA
4. Loan Agreement for Loan 8629-GA (Additional Financing)
5. Restructuring papers
6. ISRs
7. Aide-Mémoires
8. Borrower's ICR