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Report No: ICR00005821

IMPLEMENTATION, COMPLETION AND RESULTS REPORT

ON

INTERNATIONAL DEVELOPMENT ASSOCIATION CREDIT (IDA-52530)  
IN THE AMOUNT OF SDR 10.1 MILLION  
(US\$30 MILLION EQUIVALENT)  
TO THE ISLAMIC REPUBLIC OF MAURITANIA

AND

INTERNATIONAL DEVELOPMENT ASSOCIATION CREDIT (IDA-52550)  
IN THE AMOUNT OF SDR 10.1 MILLION  
(US\$30 MILLION EQUIVALENT)  
TO THE REPUBLIC OF TOGO

FOR THE

WEST AFRICA REGIONAL COMMUNICATIONS INFRASTRUCTURE PROGRAM  
(WARCIP) ADAPTABLE PROGRAM LOAN 2 – (APL2)

Date

August 26, 2022

Digital Development Global Practice  
Western and Central Africa Region

## CURRENCY EQUIVALENTS

(Exchange Rate Effective August 1, 2022)

Currency Unit = SDR

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SDR 1.00 = US\$0.7548

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US\$1.00 = SDR 1.3247

FISCAL YEAR

July 1 – June 30

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## ABBREVIATIONS AND ACRONYMS

ACE	Africa Coast to Europe
AICD	Africa Infrastructure Country Diagnostic
ADSL	Asymmetric Digital Subscriber Line
AF	Additional Financing
AICD	Africa Infrastructure Country Diagnostic
AIGF	Ivorian Frequency Management Agency
ANCY	National Cybersecurity Agency (Togo)
ANFR	French National Radio Frequency Agency
APDF	Association for the Promotion of Women's Rights (Togo)
APL	Adaptable Program Loan
ARAP	Abbreviated Resettlement Action Plan
ARCEP	Regulatory Authority of Togo
CAS	Country Assistance Strategy
CERT	Computer Emergency Response Team
CMU	Country Management Unit
CPF	Country Partnership Framework
CPS	Country Partnership Strategy
CSIRT	Computer Security Incident Response Team (Mauritania)
DAO	Tender document
DECE	Directorate of Environmental Assessment and Control
DPO	Development Policy Operation
ECOWAS	Economic Community of West African States
EIB	European Investment Bank
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FM	Financial Management
GDP	Gross Domestic Product
GoM	Government of Mauritania
GoT	Government of Togo
GRM	Grievance Redress Mechanism
GSMA	Global System for Mobile Communications
HDI	Human Development Index
HLO	Higher-Level Objective
HSE	Health, Safety and Environment
ICR	Implementation, Completion and Results Report
ICT	Information and Communication Technology
IDA	International Development Association

IFRs	Interim Financial Reports
IMT	International Mauritania Telecom
ISP	Internet Service Provider
ISR	Implementation Status and Results Report
ITU	International Telecommunication Union
IXP	Internet Exchange Point
M&E	Monitoring and Evaluation
Mbps (or Mbit/s)	Megabits per second
MDG	Millennium Development Goal
MPT	Ministry of Posts and Telecommunications
MTR	Mid-term Review
NGO	Nongovernmental Organization
PAD	Project Appraisal Document
PCU	Project Coordination Unit
PDO	Project Development Objective
PIU	Project Implementation Unit
PPA	Project Preparation Advance
PPP	Public-Private Partnership
PRSP	Poverty Reduction Strategy Paper
RAP	Resettlement Action Plan
RF	Results Framework
RIAS	Regional Integration Assistance Strategy
RPF	Resettlement Policy Framework
SCD	Systematic Country Diagnostic
SDIN	Digital Infrastructure Development Company of Mauritania
SIN	The Digital Infrastructure Company of Togo
SMI	Mauritanian Information Society
SOP	Series of Projects
SPV	Special Purpose Vehicle
SSA	Sub-Saharan Africa
STEP	Systematic Tracking of Exchanges In Procurement
TAs	Technical Assistance Activities
TOC	Theory of Change
ToR	Terms of Reference
UNDP	United Nation Development Program
US\$	United States Dollar
USF	Universal Service Fund
WACS	West Africa Cable System
WARCIP	West Africa Regional Communications Infrastructure Program
WARDIP	West Africa Regional Digital Integration Program

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**DATA SHEET**

**BASIC INFORMATION**

**Product Information**

Project ID	Project Name
P123093	West Africa Regional Communications Infrastructure Program - APL2
Country	Financing Instrument
Western and Central Africa	Investment Project Financing
Original EA Category	Revised EA Category
Partial Assessment (B)	Partial Assessment (B)

**Organizations**

Borrower	Implementing Agency
Islamic Republic of Mauritania, Republic of Togo	Ministère de l'éducation supérieure, de la recherche scientifique et des TICs (Mauritania), Ministère des postes, de l'économie numérique et des innovations technologiques (Togo)

**Project Development Objective (PDO)**

Original PDO

The objectives of each Project are to contribute to increase the geographical reach of broadband networks and to reduce costs of communications services in the territories, respectively, of the Islamic Republic of Mauritania and the Republic of Togo.



**FINANCING**

	<b>Original Amount (US\$)</b>	<b>Revised Amount (US\$)</b>	<b>Actual Disbursed (US\$)</b>
<b>World Bank Financing</b>			
IDA-52530	30,000,000	27,774,832	25,576,710
IDA-52550	30,000,000	28,429,537	26,820,918
IDA-68780	11,000,000	8,728,868	7,866,327
<b>Total</b>	<b>71,000,000</b>	<b>64,933,237</b>	<b>60,263,955</b>
<b>Non-World Bank Financing</b>			
Borrower/Recipient	2,300,000	0	0
EC: European Investment Bank	19,200,000	0	0
<b>Total</b>	<b>21,500,000</b>	<b>0</b>	<b>0</b>
<b>Total Project Cost</b>	<b>92,500,000</b>	<b>64,933,237</b>	<b>60,263,954</b>

**KEY DATES**

<b>Approval</b>	<b>Effectiveness</b>	<b>MTR Review</b>	<b>Original Closing</b>	<b>Actual Closing</b>
30-May-2013	16-Dec-2013	19-Sep-2016	30-Nov-2018	31-Jan-2022



**RESTRUCTURING AND/OR ADDITIONAL FINANCING**

Date(s)	Amount Disbursed (US\$M)	Key Revisions
07-Nov-2017	9.89	Change in Results Framework Change in Components and Cost Change in Loan Closing Date(s) Reallocation between Disbursement Categories Change in Implementation Schedule Other Change(s)
20-Oct-2019	20.01	Change in Loan Closing Date(s)
26-Mar-2020	25.27	Change in Loan Closing Date(s)
22-Jun-2020	32.31	Change in Loan Closing Date(s)
28-Oct-2020	36.35	Change in Results Framework Change in Loan Closing Date(s) Change in Implementation Schedule
28-Oct-2021	53.05	Change in Loan Closing Date(s)
31-Jan-2022	55.81	Change in Components and Cost Cancellation of Financing Reallocation between Disbursement Categories

**KEY RATINGS**

Outcome	Bank Performance	M&E Quality
Satisfactory	Satisfactory	Substantial

**RATINGS OF PROJECT PERFORMANCE IN ISRs**

No.	Date ISR Archived	DO Rating	IP Rating	Actual Disbursements (US\$M)
01	19-Oct-2013	Satisfactory	Satisfactory	1.50
02	28-Jan-2014	Moderately Satisfactory	Moderately Satisfactory	1.77
03	12-Jul-2014	Moderately Satisfactory	Moderately Satisfactory	3.80
04	12-Dec-2014	Moderately Satisfactory	Moderately Satisfactory	4.95
05	05-Jun-2015	Moderately Satisfactory	Moderately Satisfactory	5.77
06	31-Jan-2016	Moderately Satisfactory	Moderately Satisfactory	6.54
07	08-Sep-2016	Moderately Satisfactory	Moderately Satisfactory	7.46



08	24-Mar-2017	Moderately Unsatisfactory	Moderately Unsatisfactory	8.46
09	29-Oct-2017	Moderately Unsatisfactory	Moderately Unsatisfactory	9.69
10	11-May-2018	Moderately Satisfactory	Moderately Satisfactory	11.64
11	07-Jan-2019	Moderately Satisfactory	Satisfactory	13.19
12	01-Aug-2019	Moderately Satisfactory	Moderately Satisfactory	18.33
13	13-Feb-2020	Moderately Satisfactory	Moderately Satisfactory	24.41
14	29-Sep-2020	Moderately Satisfactory	Moderately Satisfactory	36.35
15	05-Jun-2021	Moderately Satisfactory	Satisfactory	46.79
16	28-Jan-2022	Moderately Satisfactory	Moderately Satisfactory	55.81

## SECTORS AND THEMES

### Sectors

Major Sector/Sector (%)

**Public Administration 9**

Other Public Administration 9

**Information and Communications Technologies 91**

Public Administration - Information and Communications Technologies 10

ICT Infrastructure 62

Other Information and Communications Technologies 19

### Themes

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



<b>Private Sector Development</b>	<b>92</b>
Business Enabling Environment	48
Regulation and Competition Policy	28
Innovation and Technology Policy	20
Jobs	9
Job Creation	9
Public Private Partnerships	10
Regional Integration	25
<b>Urban and Rural Development</b>	<b>18</b>
Urban Development	9
Urban Infrastructure and Service Delivery	9
Rural Development	9
Rural Infrastructure and service delivery	9

**ADM STAFF**

Role	At Approval	At ICR
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## I. PROJECT CONTEXT AND DEVELOPMENT OBJECTIVES

### A. CONTEXT AT APPRAISAL

- 1. The West Africa Regional Communications Infrastructure Program (WARCIP) seeks to provide a comprehensive solution to connectivity gaps in the region.**<sup>1</sup> Approved on January 20, 2011, the US\$300 million program supports the effort of West African countries to increase the geographical reach of their broadband networks and reduce the costs of communication services. With a focus on both international and regional connectivity, WARCIP was launched to facilitate the creation of a fully integrated network that will eventually link all countries in the region, provide affordable high-speed connectivity within countries, and strengthen network redundancy and resilience. WARCIP is implemented as a series of Adaptable Program Loans (APLs) and a Series of Projects (SOP),<sup>2</sup> including the following three phases: Phase 1 - regional APL1A (Sierra Leone and Liberia), APL1B (The Gambia, Guinea, and Burkina Faso), and APL1C (Benin); Phase 2 - regional APL2 (Mauritania and Togo); and Phase 3 – regional SOP3 (Guinea-Bissau). The subject of this Implementation Completion and Results Report (ICR) is the second regional APL, WARCIP APL2. This includes the Islamic Republic of Mauritania (Mauritania) and the Republic of Togo (Togo) and was approved by the Board on May 30, 2013. An overall Project Appraisal Document (PAD) was produced for WARCIP APL2 and completed by technical annexes for Mauritania and Togo.
- 2. Between 2000 and 2013 the West Africa region experienced steady and significant economic growth.** Regional gross domestic product (GDP) growth was 4.7 percent in 2008, slowing to 4.4 percent in 2010 as a result of the global economic downturn.<sup>3</sup> West African states collaborated to deepen integration and improve growth in the region, as emphasized in the 2007 joint Regional Poverty Reduction Strategy for West Africa, which proposed four strategic directions for regional interventions, including an intention to develop and interconnect infrastructure.<sup>4</sup> Over the 2009–2013 period, Mauritania and Togo—the two countries covered in WARCIP APL2—experienced steady annual GDP growth averaging 3 and 5.8 percent, respectively. The poverty headcount ratio at national poverty line (in % of population) fell from 42 to 31 percent between 2008 and 2014 in Mauritania, and from 61.7 to 55.1 between 2006 and 2015 in Togo<sup>5</sup>. Their development, however, was hampered by limited economic opportunities in part created by overdependence on specific sectors. Mauritania’s growth performance, for example, was limited to capital-intensive sectors and by narrow production, with exports of only a small range of commodities (fish, iron ore, and gold) that did not take full advantage of its strategic geographic location between Sub-Saharan Africa (SSA) and the Maghreb. Togo’s main sector, agriculture, employed two-thirds of the population but accounted for only 45 percent of the GDP, while secondary sectors including phosphates, cement manufacturing, construction and energy employed 12 percent of the population and accounted for 22 percent of the GDP. Both countries ranked low on the UNDP’s Human Development Index (HDI) in 2013—Mauritania 155th and Togo 169<sup>th</sup> out of 187 countries. The two countries,

<sup>1</sup> The region includes the following 16 countries: Benin, Burkina Faso, Cabo Verde, Cote d’Ivoire, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, and Togo.

<sup>2</sup> SOP (formally APL), World Bank Operations Policy and Country Services, July 18, 2017.

<sup>3</sup> 2010 Interim Report of the ECOWAS Commission.

<sup>4</sup> The PAD for the second series of the first phase of WARCIP, May 2011.

<sup>5</sup> World Bank, Poverty and Inequality Platform



however, undertook several reforms to improve their Information and Communications Technologies (ICT) sectors and increase the sector's contribution to the economy.

3. **Mauritania showed strong commitment to telecom market liberalization and the promotion of fair competition.** The telecom sector was fully liberalized, and the incumbent operator, Mauritel, a subsidiary of the Moroccan group Maroc Telecom, was privatized in 2001. As in the subregion, the fixed network showed a very low level of development (3 percent of penetration as of December 2012), but the mobile segment was dynamic and competitive, with three competing mobile operators: Mauritel, Mattel and Chinguitel. As of December 2012, the mobile penetration rate was 113 percent, one of the highest in the West Africa region. Competition among the three operators accounted for nearly 65 percent of the total coverage of mobile networks. Service prices had decreased since 2009,<sup>6</sup> but a further decrease was necessary given the limited purchasing power of the population. The national fiber optic backbone was limited and did not reach all provincial capitals (that is, key economic and administrative cities). This impeded the development of mobile broadband,<sup>7</sup> which requires a strong fiber optic backbone to transport large data flows. Access to international connectivity via Senegal and the SAT-3/WACS<sup>8</sup> submarine cable was costly and vulnerable to incidents and service interruptions. The lack of an Internet Exchange Point (IXP)<sup>9</sup> in Mauritania further raised demand for international connectivity, increased its prices further, and aggravated the impact of disruptions even on local content and services. These weaknesses resulted in lower internet adoption and poor quality of service, leaving the fixed and mobile broadband markets with low penetration. This situation was an obstacle to the government's priority objectives of modernizing the administration and making public services accessible to everyone through ICT. It also slowed the development of Mauritania's broadband internet market, rendering the country unable to reap the full benefits of the ICT revolution in the form of growth, jobs and regional integration.
4. **Togo's telecom sector had significant opportunities to expand, but its growth was hampered by limited access and affordability.** The mobile internet penetration rate was 54 percent in 2012, with an annual growth of 13 percent; however, there was still much progress to be made. The mobile market was run under a duopoly comprised of Togo Cellular, the mobile subsidiary of the state-owned incumbent operator Togo Telecom (now privatized), and the mobile operator Etisalat, owned by Moov, which is now a subsidiary of the Moroccan group Maroc Telecom and was at appraisal a subsidiary of Atlantique Telecom. The fixed-voice and internet segments were dominated by Togo Telecom. The number of internet subscribers remained limited, with an internet penetration rate of 6 percent, and less than 1 percent for broadband. Growth in broadband internet was still slow and highly constrained by limited access and affordability. Togo's international capacity was through a single submarine cable connection to the West Africa Cable System (WACS), operated by state-owned incumbent Togo Telecom. With no available alternatives, international connectivity prices remained high. Consequently, dependence on international capacity for both domestic and international traffic, in the absence of a national/regional IXP, resulted in high service prices. The lack of a carrier hotel/data center<sup>10</sup> to host local content also increased the demand for international capacity, which in turn further increased the cost and reduced access to and quality of service. The lack of a carrier hotel/data center also prevented Togo from attracting private investment and from increasing the ICT sector's contribution to the economy.

<sup>6</sup> <https://www.itu.int/net4/ITU-D/ipb/#ipbtimeseries-tab>.

<sup>7</sup> Mobile broadband is defined as third-generation mobile data (3G) and above.

<sup>8</sup> South Atlantic 3/West Africa Submarine Cable, linking Portugal and Spain to South Africa.

<sup>9</sup> IXPs (or IxEs) are common grounds of IP networking, allowing participant Internet service providers (ISPs) to exchange data destined for their respective networks.

<sup>10</sup> A carrier hotel / data center is a building typically strategically located in the center of a downtown area where network and cloud service equipment, space, and bandwidth are available for rental to retail customers (firms). This allows them to connect to telecommunications and network service providers with a minimum of cost and complexity.



## Rationale for World Bank Support

- World Bank support was encouraged by the alignment of WARCIP with the World Bank Regional Integration Assistance Strategy (RIAS) update, where it featured as a flagship program.** The progress report on the regional integration assistance strategy for Sub-Saharan Africa, *Partnering for Africa's Regional Integration* (March 21, 2011),<sup>11</sup> sought to create economies of scale, facilitate intraregional trade and exports, connect landlocked countries to regional and global trade routes by reducing barriers to the movement of goods and services between countries, and improve the regional business environment. WARCIP was also aligned with the 2011 World Bank Africa Strategy (titled "Africa's Future") and showcased the World Bank's support for it.<sup>12</sup> By contributing to more affordable access to internet and supporting the development of national and regional communication infrastructure, WARCIP aimed at promoting sustainable employment (Pillar 1: Competitiveness and Employment) and creating a critical building block for ICT applications (Foundation Governance and Public Sector Capacity). WARCIP also leveraged public and private sector partnership (PPP) investments in the Africa Coast to Europe (ACE) submarine cable.

## Higher Level Objectives:

- The project's higher-level objectives (HLOs) responded to government priorities in each country.** For Mauritania, WARCIP was aligned with the first pillar "Growth and Diversification" of the World Bank Country Partnership Strategy (CPS) FY13-FY16, where objective 6 focuses on increased access to internet services. The CPS was congruent with the government's objectives and priorities articulated in the Third Poverty Reduction Strategy Paper (PRSP3) action plan, where WARCIP is fully aligned with the first core strategy of accelerating economic growth by putting emphasis on developing infrastructure in support of growth. WARCIP was also aligned with the National Strategy for the Modernization of the Administration and ICT 2012-2016,<sup>13</sup> in particular: (i) pillar 1 orientation 12 to develop broadband networks and implement an Internet Exchange Point (IXP) (items 122 and 123); (ii) pillar 2 orientations 21 and 22 to create a legal environment for the promotion of the digital economy and the establishment of a global orientation framework for the development of ICT (items 213 and 221); and (iii) pillar 4 orientation 43 to upgrade the data center and set up a Government intranet (items 431 and 432). The project also laid out the foundations for orientations 46 and 47 (pillar 4) to develop local content and digital services and, more broadly, pillars 5 and 6 to develop the digital economy and sectorial technologies. The HLOs were also aligned with the Policy Statement for the Telecommunications Sector of 2013<sup>14</sup> and, at the closing of the project, remain relevant to Mauritania's new Digital Transition Agenda 2022–2025, whose orientations were influenced by the studies delivered under the WARCIP project, and to Mauritania's strategy for broadband and universal access by 2019.<sup>15</sup> For Togo, the HLOs were aligned with the government's vision and the priority reforms adopted by the government through policy and regulatory decisions aiming at improving the affordability of communication services, promoting fair competition, and lifting barriers to the deployment and access to digital infrastructure. The project is also aligned with Togo's Systematic Country Diagnostic (SCD), which identifies unreliable internet and costly telecommunication services

<sup>11</sup> World Bank, *Africa - Partnering for Africa's regional integration - progress report on the regional integration assistance strategy for Sub-Saharan Africa* (Washington, DC: World Bank Group, 2021), [WB CAS Progress Report number 60387](#).

<sup>12</sup> February 2011, Report No. 59761.

<sup>13</sup> <http://www.tic.gov.mr/IMG/pdf/strategiecsspofr.pdf>.

<sup>14</sup> [https://www.are.mr/pdfs/telec\\_dps%20071\\_1\\_13%202.pdf](https://www.are.mr/pdfs/telec_dps%20071_1_13%202.pdf).

<sup>15</sup> [http://tic.gov.mr/IMG/pdf/strategie\\_promotion\\_hd\\_rim\\_volum-1\\_2.pdf](http://tic.gov.mr/IMG/pdf/strategie_promotion_hd_rim_volum-1_2.pdf).



as a major constraint, and to the Country Partnership Framework (CPF)<sup>16</sup> objective to strengthen ICT to improve the business environment and help generate more and better jobs.

### Theory of Change (Results Chain)

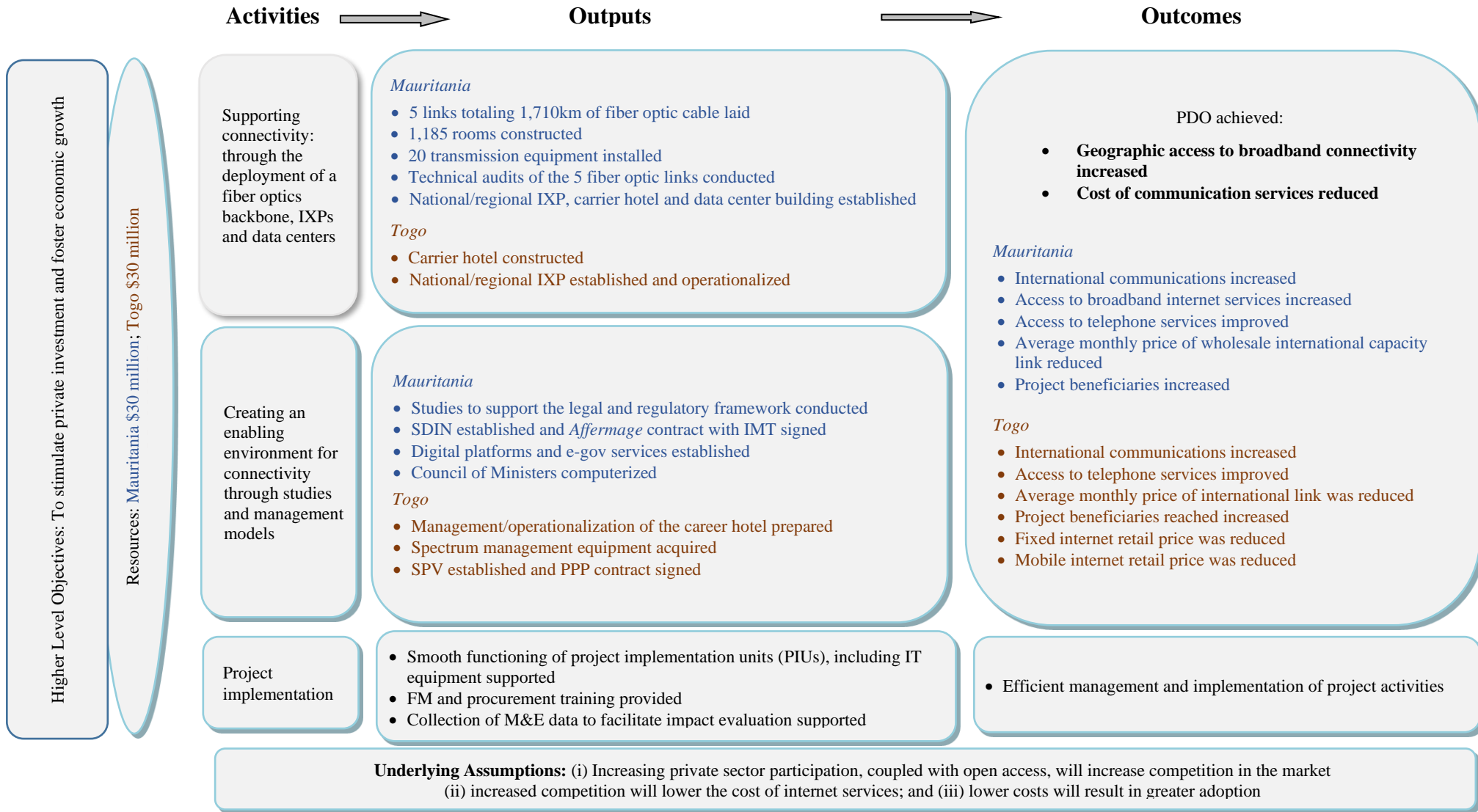
7. **The Project Appraisal Document (PAD) did not include a Theory of Change (TOC) diagram because this was not required under World Bank procedures when the project was prepared.** The TOC presented in chart 1 (below) has been prepared for this ICR.
8. **The Project Development Objective (PDO) of WARCIP APL2 was to increase the geographical reach of broadband networks and reduce communication service costs in Mauritania and Togo.** This was to be achieved by increasing regional and national connectivity, and by deploying IXPs in neutral carrier hotels. In Mauritania, at appraisal, WARCIP was to conduct the feasibility study for the carrier hotel, with construction to be cofinanced by the European Investment Bank (EIB). For Togo, the carrier hotel was to be financed and implemented under the project. This is coupled with strong support for the creation of an enabling environment for connectivity by fostering governance, improving policies and regulations, and strengthening institutional capacity. The premise was that increasing the geographical reach of broadband networks and reducing the cost of communications will stimulate investment and foster economic growth. Figure 1 illustrates a Results Chain that is appropriate for WARCIP APL2.

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<sup>16</sup> FY17–FY20 CPF; the CPF was extended for two additional years.



Chart 1: Theory of Change for WARCIP APL2





## Project Development Objectives (PDOs) and Key Indicators (at Appraisal)

9. The PDO was to “contribute to increase the geographical reach of broadband networks and to reduce costs of communications services in the territories, respectively, of the Islamic Republic of Mauritania and the Republic of Togo.” At appraisal, achievements were to be assessed through the following key indicators:
- 1 Volume of international traffic: International Communications (Internet, Telecoms, and Data) bandwidth per person in kbits per second per person
  - 2 Access to internet services (number of subscribers per 100 people)
  - 3 Access to telephone services (fixed mainlines plus cellular phones per 100 people)
  - 4 Average monthly price of international capacity link (E1 or 2Mbps) from the capital city to Europe in US\$
  - 5 Direct project beneficiaries: Number of direct project beneficiaries – of which female %
10. Both countries used the above indicators from the project start until the first restructuring, approved on November 7, 2017, when the results framework was updated. Additional details on this can be found in section B “*Significant changes during implementation.*”
11. **Targeted beneficiaries:** WARCIP APL2 beneficiaries are the entire populations of Mauritania and Togo. In addition, beneficiaries include all public and private entities such as wholesale and retail telecom operators, public administrations, nongovernmental organizations (NGOs), banks and other private sector establishments.

## Components

### Component 1: Supporting Connectivity

12. The component focused on the deployment of key national/regional connectivity infrastructure on the basis of a PPP model, and open and non-discriminatory access to leveraging private sector investment. The component included (i) the deployment of five missing fiber-optic links in Mauritania, totaling 1,710km, to provide connectivity redundancy<sup>17</sup> to the cross-border links to ECOWAS—namely, to the landlocked countries of Mali, Niger, and Burkina Faso—and to North Africa (via the connection with Morocco). These links are used to distribute international connectivity to most provincial capitals and increase the transport network’s capabilities to allow the deployment of fixed and mobile broadband internet, contributing thereby to reducing the urban/rural divide in the subregion; (ii) the establishment of national and regional Internet Exchange Points (IXPs) in neutral carrier hotel/data center buildings in both Mauritania and Togo; and (iii) the supply of international bandwidth to the carrier hotel in Togo to create a market for international bandwidth.

### Component 2: Creating an Enabling Environment for Connectivity

13. The component focused on providing support to optimize the governance, ownership, and financing of the connectivity infrastructure in both countries. It included the preparation of the transaction design and operating model for the ownership and management of the infrastructure developed under component 1, which included

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<sup>17</sup> An interconnected network provides alternative routes to Internet traffic in case of a disruptive incident on one or more fiber optic links, not only for the host country but for neighboring countries as well.



a carrier hotel and an IXP in Togo, and the five fiber optic links in addition to the IXP in Mauritania, under a PPP arrangement and open access. In Togo, the component also supported the finalization of all legal and contractual instruments for the establishment of the Special Purpose Vehicle (SPV) and the supply of international bandwidth. In addition to transaction design, this component focused on addressing policy and regulatory bottlenecks to maximize the benefits of the connectivity agenda. Detailed studies were launched to support the government in putting in place a regime for open access to the landing station, carrier hotel, and the proposed backbone links in Mauritania. Additional support to improve the policy and regulatory environment was also included in the projects, depending on the specific needs of each country. This support consisted of a wide range of activities, including support to Mauritania to develop technical, financial, and operational conditions to access existing fibers; define regulation for fiber-optic sharing and interconnection; define reference offers for international connectivity; develop cost models for interconnection (fixed and mobile); and support the regulation of dominance and the issuing of new licenses. The component also made provision to strengthen the institutional capacity of the sector regulators and relevant line ministries in both countries.

### Component 3: Project Implementation

14. The component aimed to provide the support needed to strengthen the capacity of both governments to implement components 1 and 2 of the project. This included setting up Project Implementation Units (PIUs) within the line ministries and financing office equipment, operating costs, and trainings. The component also covered the cost of audits, communications, monitoring and evaluation (M&E), and environmental and social studies, including their implementation and the monitoring of their implementation. It also aimed to provide project implementation contingencies.

## B. SIGNIFICANT CHANGES DURING IMPLEMENTATION (IF APPLICABLE)

### Revised PDOs and Results Framework (RF)

15. **WARCIP APL2 underwent several restructurings, but none introduced any significant changes to the project design or PDO in Mauritania or Togo.** An Additional Financing (AF) for Togo in the amount of EUR 9.4 million was introduced in October 2020 to fill a financing gap for the construction of the carrier hotel<sup>18</sup>. During the first project restructuring, the RF was reviewed once to align it with the evolution of the sector (see below).

### Other Changes

16. **The project underwent seven Level-2 restructurings—four to extend the closing date, and three including other changes as detailed below. The project was extended in total by three years and two months.**

(i) The first restructuring<sup>19</sup> was approved on November 7, 2017 and included the following:

- For **Mauritania**, the cancellation of activities related to the cofinancing of the carrier hotel/data center which became entirely financed by EIB (instead of the initial arrangement of 52.5 percent by World Bank and 47.5 percent by EIB). The restructuring also introduced a 12-month extension of the closing date from November 30, 2018 to November 30, 2019, and reviewed the RF.

<sup>18</sup> See Para 41.

<sup>19</sup> Restructuring Paper No.: RES27585.



- For **Togo**, the adjustment of the disbursement conditions to accelerate the processing of large construction contracts, the regrouping of project activities and the reallocation of funds between disbursement categories. In addition, the restructuring included a review of the RF and an eighteen-month extension of the closing date until May 31, 2020.
- (ii) (The second restructuring<sup>20</sup> was approved on October 20, 2019 to extend the closing date of the Mauritania portion of the project by nine months until August 31, 2020, in order to provide time for the completion of the fiber optic backbone links and comply with the environmental safeguards commitments (trees planting along the fiber optic route).
- (iii) The third restructuring<sup>21</sup> was approved on March 26, 2020 to extend the closing date for **Mauritania** by another three months until November 29, 2020 in order to address delays caused by the COVID-19 pandemic.
- (iv) The fourth restructuring<sup>22</sup> was approved on May, 28 2020 to extend the closing date for **Togo** by an interim five months until October 31, 2020 to allow the confirmation of financing needs prior to requesting an AF.
- (v) The fifth restructuring<sup>23</sup> was approved on October 28, 2020 and included:
- For **Mauritania**, a 12-month extension of the closing date until November 30, 2021. This final extension for Mauritania was intended to allow the completion of the remaining activities.
  - For **Togo**, a 12-month extension of the closing date until October 31, 2021, and an AF of 9.4 million Euros to fill a financing gap for the construction of the carrier hotel.
- (vi) The sixth restructuring<sup>24</sup> was approved on October 28, 2021 to extend the project closing date for Togo by another three months to January 31, 2022
- (vii) The seventh and final restructuring of WARCIP APL2 was approved on January 31, 2022 for **Togo** to cancel US\$4.5 million of unused IDA financing so that it could be recommitted to other Bank projects.

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

17. The changes introduced during implementation had no major implications for the TOC produced for this ICR:
- a) **Mauritania.** The extension of the closing date by three years was essential to compensate for delays caused by a number of factors, including delays in the signing of the construction contract for the five fiber optic links, technical difficulties in the deployment of the infrastructure, and delays caused by the COVID-19 pandemic. The extensions also made room for the completion of the safeguard commitments, the successful construction of the fiber optic links, and the full delivery of all project activities. The cancellation of the cofinancing allowed funds to be focused on goods, works, consultant services, and operational costs, while still allowing the carrier hotel / data center to be constructed through funding from another donor (EIB), creating no implications for the TOC. The review of the RF in Mauritania changed “*Access to Internet Services*” to “*Access to Broadband Internet Services – 3G+ and ADSL+*” focusing the RF on broadband access. This is more aligned with the project objectives, up to date with the evolution of the sector, and more quality-oriented.

<sup>20</sup> Restructuring Paper No.: RES38577.

<sup>21</sup> Restructuring Paper No.: RES41797.

<sup>22</sup> Restructuring Paper No.: RES40610.

<sup>23</sup> Restructuring Paper No.: RES48543.

<sup>24</sup> Restructuring Paper No.: RES50145.



- b) **Togo.** The simplification of the design of project activities, and the adjustment of the disbursement conditions, ensured the efficient and timely implementation of the project without any impact on the PDO. The three years and two months closing date extension made room for the countering of delays caused by a long review and approval process on the client side, delays in the construction of the carrier hotel, and the onset of the COVID-19 pandemic. The AF (P169945) was necessary to acquire more resources to respond to the increase in the cost of construction of the carrier hotel, which was caused by (i) an update of the security and certification requirement of the carrier hotel by the client and (ii) a price offered for the construction of the carrier hotel that was higher than expected possibly due to the political situation of the country at the time. The AF also allowed the successful delivery of the different studies conducted under the project activities. Finally, the last restructuring to cancel funds that had been allocated to activities that ultimately did not materialize was requested by the client so that these funds may be redirected to other World Bank projects. All aforementioned restructurings in Togo had no implications for the TOC. The review of the RF in Togo replaced “*Access to internet services*” by two new indicators “*Fixed Internet Retail Price*” and “*Mobile Internet Retail Price*,” which is more aligned with the project PDO of reducing the costs of communications services and allowed for a more accurate monitoring of the decrease of internet costs across both the fixed and mobile segments.

## II. OUTCOME

### A. RELEVANCE OF PDOs

#### Assessment of Relevance of PDOs and Rating

18. **The Relevance of the PDO is rated *Substantial*.** At the regional level, the project addressed the connectivity gaps in Mauritania and Togo, with the purpose of better connecting both to neighboring countries and the region as a whole. In this context, the PDO is very relevant to the World Bank’s strategy in Africa and to its regional objectives as expressed in the initial 2018 RIAS and in its update for the FY21–FY23 period, particularly with regard to area of focus 1 on connectivity. Moreover, allowing increased regional trade and improving economic opportunities for the two countries to become more competitive internationally are levers that are very relevant to the WBG development objectives and to its twin goals of ending extreme poverty and boosting shared prosperity. The project design supported elements of the national development strategies across West Africa, which emphasize the role of the affordability and geographical reach of broadband networks in sustainable development. The PDO is also aligned with the ECOWAS Regional Infrastructure Development Master Plan, as well as its strategic framework 2015–2020,<sup>25</sup> where it addressed some of the challenges expressed in section 1.6.6 “ECOWAS ICT sector.” The update of the legal and regulatory framework in Mauritania and Togo also allows for more pertinent and effective regulation of the sector, and enhanced harmonization with the regional ICT regulations. Finally, the digital agenda gained significantly in relevance following the COVID-19 pandemic. The project was aligned with the priority of countries to meet the growing demand for digital services by extending the reach of connectivity and contributing to improved affordability.

<sup>25</sup> <https://wacomp.projects.ecowas.int/wp-content/uploads/2020/03/ECOWAS-STRATEGIC-FRAMEWORK-FOR-PRIVATE-SECTOR-AND-ENTERPRISE-PROMOTION.pdf>.



19. **Mauritania:** The PDO was fully consistent with the Government of Mauritania’s (GoM) economic vision and with its 2012–2016 Strategy for ICT and the modernization of public service. The PDO contributed toward the realization of the Millennium Development Goals (MDGs) (targets 1 and 2 by supporting economic growth; and target 18 by making available the benefits of new technologies, especially ICT). The PDO was also consistent with the Policy Statement for the telecommunications sector, adopted on January 31, 2013. At closure, the PDO remains relevant to the Strategy for broadband promotion and universal access of Mauritania (2019) and to the new Mauritanian digital agenda 2022–2025, for which the project was an enabler of its fundamental vision to “Make digital and Innovation a key lever for the Modernization of the Administration, Social Inclusion and Strengthening Competitiveness.” Finally, the project remains relevant to the FY18–FY23 CPF, where it contributes to objective 1 to promote economic transition for diversified and resilient growth, particularly area of focus 1.3 to promote the development of productive cities and adjacent territories in the context of decentralization. It also contributes to objective 3 to strengthen economic governance and private sector-led growth, and in particular, focus area 3.2 to improve private sector participation in economic activities.
20. **Togo:** The PDO was aligned with the World Bank’s 2<sup>nd</sup> Interim Strategy Note (ISN) for FY12–FY13 to support Togo’s program of recovery from its long period of instability, to promote growth and reduce poverty. The project supported objectives (a) to improve access to, and the quality of, productive infrastructure, and (b) to use ICT to make the delivery of public services more equitable in terms of costs and quality. At closure, the PDO remains aligned with Togo’s 2018–2022 Development Plan and the new 2025 Togo Digital Strategy that puts digital transformation at the forefront of the national agenda. The PDO remains aligned with the FY17–FY20 CPF and its two-year extension. The activities supported by the project addressed the constraints identified by the CPF, namely, the constraint of “Unreliable internet and costly telecommunications” identified in focus area 1 “Private Sector Performance and Job Creation.”

## B. ACHIEVEMENT OF PDOs (EFFICACY)

### Assessment of Achievement of Each Objective/Outcome

The overall efficacy of WARCIP APL2 is rated **Substantial**.

21. **The overarching development objectives of WARCIP APL2 were to increase the geographical reach of broadband networks and reduce the costs of communication services in the territories of Mauritania and Togo.** This section disaggregates the two parts of the PDO—to (1) to increase the geographical reach of broadband networks; and (2) to reduce the costs of communication services in the territories of Mauritania and Togo—and then takes an evidence-based approach to describe how the activities delivered during the project contributed to the positive outcomes. The section uses the PDO indicators and intermediate indicators to measure the achievement of each objective. The aggregated rating for WARCIP APL2 is based on the evaluation of each PDO outcome in each of the respective countries.

**Objective 1** to increase the geographical reach of broadband networks is rated **Substantial**.

22. **The increase in the geographical reach of broadband networks was measured in WARCIP APL2 by three outcome indicators:** (i) the volume of international traffic – bandwidth in kbits per second per person; (ii) access to Broadband Internet Services – 3G+ and ADSL+ (number of subscribers per 100 people) in Mauritania; and (iii) access to telephone services (fixed mainlines plus cellular phones per 100 people). The three indicators aimed



to measure the increase in geographical reach through improvements in the adoption of phone services (more users), and improvements in the usage and quality of internet services (more international traffic and broadband users). Intermediate indicators provided additional means to measure and assess the achievements.

Figure 3: Increase in the geographical reach of broadband networks

Outcome Indicator	Baseline (2011)	End Target	Achieved	Target Status
<b>Mauritania</b>				
Volume of international traffic: International Communications (Internet, Telecoms, and Data) bandwidth per person in kbits per second per person	6	11	<b>19.61</b>	Exceeded
Access to Broadband Internet Services – 3G+ and ADSL+ (number of subscribers per 100 people)	2	11	<b>70.9</b>	Exceeded
Access to Telephone services (fixed mainlines plus cellular phones per 100 people)	100	124	<b>151</b>	Exceeded
<b>Togo</b>				
Volume of international traffic: International Communications (Internet, Telecoms, and Data) bandwidth per person in kbits per second per person	2.5	6	<b>5.76</b>	96% of target
Access to Telephone services (fixed mainlines plus cellular phones per 100 people)	48.9	75	<b>80.47</b>	Exceeded

(i) Volume of international traffic: bandwidth in kbits per second per person

23. **The volume of international traffic increased substantially.** In 2010, **Mauritania** signed a loan agreement with EIB to acquire a direct connection to the Africa Coast to Europe (ACE) submarine cable. The cable became operational in December 2012 and provided affordable international connectivity to Mauritania. The investment in five fiber optic links deployed under WARCIP APL2 was a critical enabler of this effort, since it allowed the capacity provided by the ACE cable to reach a significant number of end users. The backbone provided the transport capabilities that allowed the commercialization of more international connectivity through fixed and mobile broadband internet offers. The positive influence of the activities financed under WARCIP APL2 started before the construction works for the backbone were completed, with operators racing to acquire 4G licenses to position themselves in a strongly emerging broadband market. This was followed by a substantial increase in the deployment of 4G by the telecom operators as soon as the fiber optic links became operational<sup>26</sup>. The PPP and open access model used in WARCIP APL2 allowed fair access to the infrastructure deployed, including an IXP that offered the telecom operators a more efficient use of international connectivity, leading to more competitive offers and reduced internet service prices. This further encouraged the adoption of internet services and led to an increase in the volume of international traffic, from 6 kbits per second per person in 2011 to 19.61 kbits per second per person at project closing, exceeding the end target of 11 kbit/s per person.

<sup>26</sup> 4G was deployed by Chinguitel in Nouakchott and 6 new regional centers (Nouadhibou, Zouerate, Atar, Akjoujt, Rosso and Kaedi) in August 2021. Mattel deployed 4G in Nouakchott and Nouadhibou in January 2021 and in Zouerate, Rosso, Akjoujt and Atar as of December 2021. Finally as of February 2021, Moov Mauritel Deployed 4G in Nouakchott, Nouadhibou, Kiffa, Néma, Aioun and Aleg. See news article on the expansion of 4G here: <https://www.agencecofin.com/operateur/3011-93569-mauritanie-rivale-de-mauritel-et-chinguitel-mattel-a-entame-l-extension-de-sa-couverture-4g-au-dela-de-nouakchott#:~:text=Les%20soci%C3%A9t%C3%A9s%20avaient%20toutes%20obtenues,la%20transformation%20num%C3%A9rique%20du%20pays>.



24. **Togo's** direct connection to the WACS submarine cable became operational on May 11, 2012. The connection provided affordable international capacity and was the main contributor to the significant increase in the volume of international traffic observed during the project for Togo. The project was expected to purchase international capacity for the carrier hotel/data center, which would have further increased the volume of international traffic. Although this purchase was unsuccessful, the benefits of the project through the introduction of the carrier hotel as an aggregator of demand for international traffic were felt across the sector and have indirectly contributed to the improvements. The IXP delivered under WARCIP APL2 allowed better usage of the international connectivity provided by the WACS cable and contributed to a decrease in prices and an increase in adoption and usage. This is corroborated by the substantial increase in the number of individuals using the internet—from 7.1 percent in 2015 to 24 percent in 2020 (source, ITU). This positive trend has continued to benefit Togo since the project closed, for example, the private sector has already started investing in an alternative submarine cable to WACS. The volume of international bandwidth increased in Togo from 2.5 kbits per second per person at project start to 5.76 kbits per second per person at project closure, which represents 96 percent of the end target of 6.0 kbits per second per person.

(ii) *Access to Broadband Internet Services: 3G+ and ADSL+ (number of subscribers per 100 people)*

25. **Access to broadband internet services soared in Mauritania, far exceeding its target in the RF.** The project activities contributed directly to this increase by making broadband available to population groups living in areas previously not covered, as shown by the increase in the intermediate indicator *Number of localities with broadband Internet access*, which jumped from a baseline of 144 in 2011 to 221 in June 2021. The deployment of 1710km of fiber optic cable allowed telecom operators to accelerate the deployment of mobile broadband substantially. The availability of the fiber optic backbone in 2020 triggered a radical shift in interest among telecom operators to acquire a 4G license, after numerous previously unsuccessful attempts to offload concessions, the last in 2018.<sup>27</sup> This positive trend in broadband penetration has continued to benefit Mauritania after the project closed. Additionally, the deployment of an IXP has helped to decrease the demand for international capacity and lower the cost of traffic transit, thereby contributing to a decrease in the price of service. This, combined with the studies and reforms introduced in the sector – including through the World Bank-financed Development Policy Operation (DPO-P171585) – has helped improve competition and affordability and facilitated greater adoption of internet services. This is corroborated by the strong results reflected in the ICT indicators for Mauritania. For instance, between 2016 and 2021, unique mobile-broadband subscriptions (per 100 inhabitants) registered a substantial increase from 17 to 40 (source – GSMA), and the share of the population who have at least 3G mobile coverage jumped from 0 percent in 2014 to 44 percent in 2020 (source – ITU). For Togo, this PDO indicator was not included.

(iii) *Access to telephone services (fixed mainlines plus cellular phones per 100 people)*

26. **The share of the population with access to telephone services exceeded its targets in both countries. In Mauritania**, access to telephone services was already high and started at a baseline of 100, meaning most end users in Mauritania were equipped with at least either a landline or a cellular phone. The project brought several improvements to the network in Mauritania. The introduction of a high bandwidth and an open-access backbone influenced positively the quality of service and affordability of phone services, which in turn contributed to higher adoption, leading to an increase in the value of the indicator throughout the duration of the project to finally reach 151 people at project closure, far exceeding the target of 124. **In Togo**, although no activities were carried out by WARCIP APL2 to directly improve telephone services, the indirect impact, coupled with sectorial

<sup>27</sup>James Barton, "Mauritanian operators acquire 4G licenses – at long last," *Developing Telecoms*, 6 October, 2020, <https://developingtelecoms.com/telecom-business/operator-news/10081-mauritanian-operators-acquire-4g-licences-at-long-last.html>.



improvements and regional trends, contributed to a substantial increase. Access to telephone services in Togo improved from 48.9 to 80.5 people between project start and closure, exceeding the target of 75.

**Objective 2** to reduce the costs of communication services is rated **Substantial**.

27. **The reduction of the costs of communication services was measured in WARCIP APL2 by three outcome indicators:** (i) the average monthly price of international capacity linkage (E1 or 2Mbps) from the capital city to Europe, in US\$; (ii) the fixed Internet Retail Price (US\$ per Mbps); and (iii) the mobile Internet Retail Price (US\$ cents per Mb) in Togo. Intermediate indicators, which provided additional means to measure and assess the achievement of objective 2, included the retail price of internet services in Mauritania. The indicators accurately capture the decrease in the cost of international capacity and how this translates into a decrease in retail prices to end-users.

Figure 4: Reduction in the costs of communications services

Outcome Indicator	Baseline (2011)	End Target	Achieved	Target Status
<b>Mauritania</b>				
Average monthly price of international capacity linkage (E1 or 2Mbps) from the capital city to Europe, in US\$	7,000	250	<b>54.7</b>	Exceeded
<b>Togo</b>				
Average monthly price of international capacity linkage (E1 or 2Mbps) from the capital city to Europe, in US\$	2348	115	<b>90</b>	Exceeded
Fixed Internet Retail Price (US\$ per Mbps)	70	46	<b>22.44</b>	Exceeded
Mobile Internet Retail Price (US\$ cents per Mo)	2.6	1.7	<b>0.7</b>	Exceeded

(i) *Average monthly price of international capacity linkage (E1 or 2Mbps) from the capital city to Europe, in US\$*

28. **The reduction in the cost of international E1 capacity was significant, far exceeding its targets in both countries. In Mauritania,** this was primarily motivated by the operationalization of the ACE cable, which provided Mauritania with a direct and more affordable international link. WARCIP APL2 contributed to this cost reduction by delivering two key infrastructures: (i) an IXP that allows telecom operators to be interconnected and thus reduces dependence on international capacity and the cost of transit; and (ii) an open-access fiber optic backbone operated by the same PPP (called IMT – *International Mauritania Telecom*) as the ACE cable financed by the EIB loan. The ACE cable offers an alternative link that is more competitive and accessible to all users, consequently driving the price of the E1 link down. This is illustrated by the decrease in the value of this indicator for Mauritania, from a baseline of US\$7,000 to less than US\$54.7 (almost one-quarter of the target) at project closure. **In Togo,** although the cost reduction was for the most part due to the connection of Togo to the WACS submarine cable, the project financed an IXP that, in addition to the same benefits mentioned above for Mauritania, brought a reduced dependence on the overpriced indirect international links (through cross-border connections). This in turn has contributed to reducing the cost of service (see fixed and mobile internet retail prices in figure 4) and has brought additional revenue because the excess capacity can be commercialized and exported to landlocked neighbors.

(ii) *Fixed Internet Retail Price (US\$ per Mbps)*



29. **The retail price of fixed internet in Togo decreased significantly to less than 50 per cent of the target.** This was mainly due to a combination of regional trends and sectoral improvements, thanks to policy reforms that promoted competition and improved affordability, including reforms introduced to the sector through the World Bank-financed Development Policy Operation (DPO) P166739. The IXP implemented by WARCIP APL2 in Togo was also important in decreasing traffic transit and reliance on international connectivity by allowing local traffic to be routed locally, which has a significant impact on the cost of internet services. The value of this indicator in Togo decreased from a baseline price of US\$70.00 to US\$22.44 per Mbps, against the US\$46.00 per Mbps target in the results framework. **Mauritania** did not have a PDO indicator to monitor the decrease in the retail price for the fixed segment alone. However, the intermediate indicator captured a similar improvement in the retail price for both fixed and mobile internet services. This was motivated by the combination of the deployed infrastructure (backbone and IXP) and the strategic studies conducted under the project, which promoted competitiveness in the fixed segment and in the telecom sector overall and contributed to the decrease in the value of the intermediate indicator from a baseline of US\$51.00 at project start to US\$36.00 at closure.

*(iii) Mobile Internet Retail Price*

30. **As with the retail price of fixed internet, the retail price of mobile internet in Togo also decreased during the implementation of the project.** As outlined in the previous paragraph, this was due mainly to policy reforms and positive market trends, including increased competition and a reduction in the cost of internet bandwidth. The IXP implemented during the project also contributed to reducing the retail cost of mobile internet from a baseline of US\$2.60 per Mbps to US\$0.70 Mbps, below the target of US\$1.7 per Mbps.

**In addition to achieving almost all PDO outcome targets, other substantial milestones achieved during WARCIP APL2 include the following:**

31. **In Togo, the project implemented several key activities.** The carrier hotel/data center was completed under a PPP and provides a secure location to host the domestic and regional IT equipment of business and government customers. The completed IXP is currently operational and provides interconnection capabilities to telecom operators. It is an important component for increasing the availability of local content and reducing the usage of international capacity, which leads to more affordable services. The purchase of international capacity for the carrier hotel, however, was not completed owing to a series of non-compliances on the part of the received bidders. But even though the purchase did not materialize through WARCIP in Togo, building on the impact of the carrier hotel/data center on the generation of broadband traffic, the country is working on alternatives, with the arrival of two private sector-led additional submarine cables deployed, respectively, by Moov and by Google/Equiano. (Private operator CSquared has exclusive international capacity reseller rights for Equiano into Togo.)

32. **In addition to the activities outlined in the previous paragraph, WARCIP APL2 also delivered several technical assistance activities (Tas) in Togo.** These Tas produced structuring studies and strategic plans that promote open access and support the ICT sector, both technically and in terms of laws and regulation. First the project delivered a technical assistance activity to prepare the management and operationalization of the carrier hotel under a PPP arrangement. The project supported the creation of a state-owned Special Purpose Vehicle (SPV) called the Digital Infrastructure Company (*Société d'Infrastructures Numériques*, or SIN) established by the Government of Togo (GoT) in 2016 and which owns the carrier hotel. Additionally, the project supported the implementation of the PPP management contract between SIN and the selected private partner that will manage the carrier hotel on its behalf, and the signature of the PPP agreement in November 2020. WARCIP APL2 also supported policy priorities in application of the ICT strategy, through the hiring of a firm that helped the GoT elaborate its 2025



Togo Digital Strategy. This strategic study will inform accelerated digital transformation in the country for the coming years and includes a specific activity to identify recommendations for strengthening the operations of the SIN, a step that will further bolster the SPV. Finally, the project helped address policy, market, and regulatory bottlenecks to maximize the benefits of the proposed connectivity agenda, including through the provision of spectrum management equipment, meant to help the sector regulator monitor the efficient use of spectrum resources. Unfortunately, it was not possible to deliver the equipment before the project closed, and the activity had to be canceled, but the sector regulator is planning to continue the acquisition of this equipment using its own funds.

33. **In Mauritania, the project implemented all the intended activities.** All 1710km of the five fiber optic links were successfully deployed and generated additional revenue that reached US\$2,132,935 for 2021 and Q1 2022. The project supported the creation of the Digital Infrastructure Development Company (*Société pour le Développement des Infrastructures Numériques*, or SDIN), which is the state-owned SPV established by the GoM in 2014 and which owns the fiber optic links, as well as the establishment of the PPP arrangement for the management of the fiber optic links between the SDIN and IMT. The project also delivered the study for the construction of the technical building for the carrier hotel/data center.<sup>28</sup> The project successfully delivered a national/regional IXP managed by an association. These activities provided a substantial boost to Mauritania's capabilities in the ICT sector and began showing benefits immediately after completion, with the successful granting of 4G licenses and the deployment of 4G in several areas in Mauritania. The infrastructure deployed had also a positive impact on the competitiveness of the telecom market and contributed to improvements in the affordability of internet services, as explained above in the section dedicated to objective 2 – reducing the costs of communications services.
34. **Other achievements of WARCIP APL2 in Mauritania included an important number of Tas (44 in total) that delivered studies essential to the country's ICT sector.** The activities included the elaboration of the tender documents, business plan and management model for the deployed infrastructure under an open and nondiscriminatory access. The technical and financial conditions to access fiber optic networks of unlicensed companies were also determined in a separate TA. The project provided strong support to the line ministry and the national regulator, and delivered a number of structuring studies that include (i) the elaboration of a national strategy to promote broadband and universal access; (ii) the elaboration of a regulatory framework for broadband; (iii) the elaboration of the legal framework and application decrees for the Mauritanian Information Society; (iv) an important study on ICT sector taxation; (v) the elaboration of a reference offer and business plan for international capacity; (vi) the feasibility study and business plan for the mobilization of funds for a second submarine cable connection, a study that enabled Mauritania to engage with donors and successfully pursue a second connection that is currently being prepared with EIB; (vii) the elaboration of a national strategy and roadmap for Mauritania's transition from analog to digital television; (viii) the feasibility study for the implementation of e-government; and (ix) the feasibility study and action plan for the implementation of a national incubator. All of these activities contributed to strengthening the enabling environment in the form of policies and regulations and provided plans for the implementation of a number of key elements in the sector.
35. **Additionally, the project achievements included the implementation of several essential platforms that have contributed to the modernization of the Mauritanian Administration.** These include (i) the implementation of a national ICT observatory; (ii) the implementation of domain names (in particular, .mr) and their management; (iii) preparations for the implementation of a computer emergency response team (CERT) and a computer security incident response team (CSIRT); (iv) the acquisition of a secure platform to host applications that were

<sup>28</sup> The construction of the data center was financed completely by the EIB, based on the study conducted under WARCIP APL2.



implemented to counter the impact of the COVID-19 pandemic; (v) the preparation and implementation of a platform to digitize administrative procedures and the development of a catalog of e-gov services and e-payments for these services; (vi) the implementation of an application to manage the flow of documents between ministries; (vii) the implementation of a task management system for the line ministry; and (viii) the implementation of websites for government ministries. The project also placed emphasis on strengthening the capacity of the government, an objective that was addressed through the acquisition of essential equipment including (i) ICT equipment for the line ministry; (ii) a video-conferencing system for the government's intranet; and (iii) the implementation of a secure communication system to link members of the government. Finally, the project provided capacity building for the line ministry that took the form of a training program for the 2015–2018 period.

### Justification of Overall Efficacy Rating

36. The overall efficacy of WARCIP APL2 is rated **Substantial**. The project delivered a rich combination of connectivity infrastructure and technical and institutional support. The completion of the project activities has been for the most part successful, and although some activities were not delivered (for example, the purchase of international capacity for the carrier hotel and of spectrum management equipment for the regulator in Togo), there was no major impact on the attainment of the PDOs. All were achieved, and most of the outcome and intermediate-level indicators either met or exceeded their targets.

## C. EFFICIENCY

### Assessment of Efficiency and Rating

37. The overall efficiency for **Mauritania** is considered **High**. The project included a number of complementary activities that were important to the ICT sector and strategic milestones that have shaped the sector and will continue to affect it positively for years to come. The deployment of 1710km of fiber optics was a much-needed strengthening of the national backbone, and its positive effects were immediately observed. The deployment of the IXP was also a highly positive step and a key item that complemented the extension of the fiber optic backbone. The PPP model used to manage the deployed infrastructure in WARCIP APL2 is the same that is already in place for the management of the ACE submarine cable, a model that has proven its efficiency in other WARCIP or CAB countries connecting to ACE, and in Mauritania since it came into effect in 2012. The choice of PPP gave the telecom operators – all members of the IMT – open and equal access to the backbone and IXP. This, combined with the diversified activities introduced through the Tas, represents good value for money and a positive investment for Mauritania. The cancellation of the cofinancing during the first restructuring was a strategic decision that had a positive impact on the overall outcome for Mauritania because it facilitated the coordinated delivery of both intended outputs (the fiber backbone links by the World Bank, and the data center by the EIB).

38. The project activities have contributed positively to the country's GDP, which reached US\$1,088 million over the 2014–2020 period, an amount that is well beyond what was invested in the project. Additionally, the more-than-sixfold increase of internet usage over the life of the project (from 6.2 percent in 2013 to 40.8 percent in 2020) is a solid improvement to which the project has contributed and constitutes a strong argument for the project's merit. Overall, the project activities helped in an efficient way to create an enabling environment for connectivity and to foster broadband competition. They also contributed to the significant drop in prices over this period (as



captured by PDO level indicator 4) and to the surge in internet usage. The efficiency of the client from a supervisory point of view was satisfactory. Follow-up was made in a timely manner overall, and the constant communication between the World Bank team and the client allowed for the smooth progress of the activities. See annex 4 for a detailed financial and economic analysis.

39. The overall efficiency for **Togo** is considered **Modest**. The project managed to deliver the carrier hotel / data center and the IXP, both essential infrastructure that positively influence the sector and promote competition and adoption. The return on investment for the project is expected to be satisfactory in the coming years (see analysis in the annex). The carrier hotel / data center has already received requests and expressions of interest from several public and private actors, and the SIN is in the process of revising its business plan in order to make its offer more attractive to investors and bring more customers to the carrier hotel. The choice of a PPP management contract for WARCIP APL2 in Togo was a good option that allowed a qualified and performant technical partner to be in place without any delay and bring the necessary technical expertise to the carrier hotel in Togo. The model was designed with incentivizing mechanisms that encourage the private partner to contribute to the commercial success of the carrier hotel.
40. The combination of the activities delivered in Togo by WARCIP APL2, and the PPP model and open access principles put in place, represent a good investment for the GoT. The positive effect of the project is illustrated by its contribution to the increase in the country's GDP, which reached US\$376 million over the period 2014–2020, an amount that is well beyond what was invested. The impact of the project has also contributed to improved internet usage, which increased more than fivefold over the life of the project, from 4.5 percent in 2013 to 24 percent in 2020. This boom in the telecommunications sector was made possible by (i) a significant drop in prices over this period (as captured by PDO-level indicators 3, 5 and 6) and (ii) the increased availability of bandwidth (see PDO-level indicator 1). The efficiency of the client from a supervisory point of view is moderately satisfactory. Despite the delays and compliance issues detailed elsewhere in the document, the client worked in tandem with the World Bank to bring the project to a positive conclusion and deliver most of the planned activities. See annex 4 for a detailed financial and economic analysis.
41. **The project faced some efficiency issues in Togo.** (i) The unsuccessful call for tenders for international capacity (subcomponent 1.2) – due to non-compliances on the part of the received bidders – was an unanticipated negative outcome because the purchase would have put the carrier hotel in a stronger posture vis-à-vis prospective customers (although it is expected that this situation will evolve favorably with the expected arrival of new submarine cable in Togo). Although the SIN is reviewing its business plan to make the carrier hotel more attractive to customers, no information was shared by the government on this reviewed business plan, which should factor in the expected arrival in Togo of new private sector-led submarine cables. (ii) The project financing increased by a significant amount during project implementation. This was due to a lower estimation of the construction cost of the carrier hotel, followed by a review of the technical requirements by the client, which led to a value more than double what had been initially estimated. The selected bid was also substantially higher (by US\$7.6 million) than the budget allocated to the activity. Although this was addressed successfully through the AF and the carrier hotel was eventually constructed and operationalized, it is believed that the initial requirement for the carrier hotel should have been reviewed further during consultations with the government, which could have led to a better estimation of the cost during project preparation (although this could have further delayed the timeline for project approval). Overall, a smoother collaboration between the client and the World Bank might have led to increased efficiency, including a more straightforward implementation. All of the aforementioned issues are apparent in the ratings provided during the latest Implementation Status & Results Report (ISR), which was only Moderately Satisfactory for components 1 and 2 as well as for the overall



implementation progress of the Togo portion of WARCIP APL2. All of these factors justify the modest overall project efficiency rating for Togo.

### Efficiency Rating

42. The efficiency of WARCIP APL2 is rated **Substantial**. The project had positive outcomes and led to satisfactory economic and financial results in both Mauritania and Togo. Despite that, efficiency is not rated High because of a number of issues faced mainly in the Togo portion of the project.

## D. JUSTIFICATION OF OVERALL OUTCOME RATING

43. The overall outcome of WARCIP APL 2 is rated **Satisfactory** based on the High rating of relevance, and a Substantial rating of both efficacy and efficiency.<sup>29</sup>

## E. OTHER OUTCOMES AND IMPACTS (IF ANY)

### Gender

44. The project did not offer specific indicators to measure the impact on women of increased geographical reach and reduced cost of communication services. While the RF included an indicator on the percentage of female beneficiaries, it did not provide additional indicators on how women specifically benefitted from the project. ICT and related infrastructure are considered to be enabling tools for economic development and social change. They are particularly valuable resources for women in developing countries such as Mauritania and Togo, who often suffer from limited availability of time, social isolation, and a lack of access to knowledge and productive resources. The project increased internet access and reduced the price of internet services, which has given more women access to internet services at a more affordable price. This will help women develop strong cooperation among themselves for economic and social activities. Additionally, because of the cultural biases in Mauritania and Togo, girls are typically prevented from attending school and women from going to work or performing activities by themselves. By improving access to internet services, women are now in a better position to work from home and access online education and basic services. Mobile phone access can also alleviate some of the other constraints faced by women at the personal and professional levels, reduce the cost of money transfer, and improve information gathering. A World Bank study suggests that internet access can support female entrepreneurs in connecting to domestic and international markets and enables a flexible work environment that is more favorable for women with children.<sup>30</sup> In Togo, at the level of the CFAO-CENTRO consortium,<sup>31</sup> the final Health, Safety and Environmental (HSE) monitoring report underscored the fact that more than 20 women served on the site in trade and other activities that were formerly reserved for men, including backhoe loader, grader, mobile crane drivers, painter supervisors, topographers, and other specialties in the field of civil engineering.

<sup>29</sup> For additional information on how the overall outcome rating was derived, refer to the ICR Bank Guidance (March 2020), section D, Justification of Overall Outcome Rating.

<sup>30</sup> See *World Development Report 2012: Gender Equality and Development*, and *World Development Report 2016: Digital Dividends* for further discussion.

<sup>31</sup> CFAO is a multinational company and a key player in mobility, healthcare, consumer goods, infrastructure, and energy. CENTRO, currently rebranded as Basis, is a software company specialized in digitization and artificial intelligence (AI).



## Institutional Strengthening

45. **The project contributed significantly to strengthening the institutional capacity and technical skills of various public stakeholders (line ministries, sector regulators, other ministries, and government entities).** This was achieved through the implementation of tools, the acquisition of equipment, and capacity building via missions, workshops, and trainings.
46. **Mauritania:** Institutional strengthening was provided at different levels and through various activities. (i) The project supported the implementation of PPP and open-access principles in digital infrastructure, a practice that strengthens the institutional arrangements in Mauritania, promotes competition, and provides a benchmark for future collaboration between the public and private sectors. (ii) The project also financed studies that addressed several aspects of the digital economy. The studies allowed the stakeholders to engage with the international consultants who carried out analyses of the sectorial constraints and interacted with specialized organizations such as the GSMA and ITU for input and experience sharing. This allowed institutions in Mauritania to become more familiar with international best practices, acquire knowledge and experience, identify weaknesses, exchange information, and prepare roadmaps and action plans to improve their role in the sector. Most studies included events to validate preliminary findings and collect feedback from the different stakeholders, or to disseminate the final reports (mid-term reviews, workshops, missions, and so on). These events allowed the public and private actors to interact and collaborate with each other, and to agree on the next steps and on the plan moving forward. WARCIP APL2 included a substantial number of studies that were, throughout their entire development, very beneficial to institutional strengthening in Mauritania. (iii) Institutional strengthening in WARCIP APL2 was also provided in the form of tools and platforms made available to the government to allow it to exchange information and function more efficiently. The project financed the acquisition of ICT equipment and video-conferencing solutions, and the implementation of various platforms for task management, communication, document exchange and so on, in addition to the implementation of teams for ICT emergency and security response (see the full list in paragraph 37). (iv) Finally, the project financed a five-year training program, in addition to the trainings provided to PIU staff on topics such as safeguards, procurement and financial management. This has greatly benefited the capacity of government staff and contributed to institutional strengthening in Mauritania.
47. **Togo:** The project provided institutional, regulatory, and legal support to the government by enabling it to (i) create the Digital Infrastructure Company (SIN), (ii) establish a PPP management contract for the management of the carrier hotel, (iii) create the National Cybersecurity Agency (ANCY), (iv) support the regulator (ARCEP); (v) establish a master plan for the digital development of the territory, (vi) conduct a study on the taxation of the sector, and (vii) support the establishment of the Togo Digital Strategy 2025. A team of engineers from ARCEP benefited from trips to the Ivory Coast to study with the Ivorian Frequency Management Agency (AIGF) and to study with the National Radio Frequency Agency (ANFR) in France. Furthermore, experts from the WARCIP PIU (a Procurement Specialist, an Administrative and Financial Manager, an Organization Management Specialist, and an IT specialist) received training in Morocco, each in his or her own area of expertise. The project also enabled the different stakeholders to interact with one another and with other ICT-specialized agencies and consultants and allowed them to deepen their knowledge and experience in ICT trends and international best practices.



### Mobilizing Private Sector Financing

48. **WARCIP APL2 leveraged private investment in both Mauritania and Togo.** The project focused on establishing PPP arrangements for the management of the deployed infrastructure and pursued establishing SPV and promoting open access principles. Improving (i) connectivity through the deployed infrastructure and (ii) the legal and regulatory framework through the TAs conducted under the project have stimulated a radical shift in the private sector's interest to invest in ICT. This is illustrated in Mauritania by the telecom operators' increased interest in 4G technology, and by the keen interest expressed by investors in the carrier hotel / data center in Togo. The mobilization of private sector financing was incorporated in the project design and was successfully carried out throughout the implementation of WARCIP APL2. The participation of the private sector was also manifested in the engagement during the different studies, during the Monitoring and Evaluation (M&E), and after the activities were delivered.

### Poverty Reduction and Shared Prosperity

49. With the improved access to, and greater affordability of, internet services brought by the project, Mauritania and Togo can focus on leveraging high-speed internet to help resolve their development challenges, including fostering economic growth. The affordability of internet services has significantly improved thanks in part to the infrastructure deployed during WARCIP APL2 and to the developments that were introduced into the legal and regulatory framework, which have led to a surge in access in both countries, as made apparent by the RF. Evidence presented in a World Bank policy research paper<sup>32</sup> suggests that, in various parts of Africa, mobile broadband coverage has had a significant impact on poverty reduction and on shared prosperity. In Nigeria, for example, household total consumption increased by 6 percent after one year of 3G/4G mobile coverage and by 8 percent after two years; and the proportion of households in extreme poverty decreased by 4 percent after one year and by 7 percent after two years (Source, WB Policy Research Working Paper 9230). Financial inclusion has also been greatly facilitated by improved access to mobile services. For example, following the reduction in internet service costs in The Gambia and Guinea under WARCIP APL 1B, the central banks in these countries started issuing more licenses for money transfer outlets in rural and urban areas. Mauritania and Togo are expected to follow suit. Additionally, greater affordability of internet services in both Mauritania and Togo is expected to have a significant impact on job creation for youth in the two countries. The reduction in the prices of internet services will encourage youth to engage more in the economy, particularly in the informal sector and through businesses such as *cybercafés*, mobile/PC repair and maintenance, application development, etc.

### Other Unintended Outcomes and Impacts

50. **Mauritania:** The project brought improvements in the governance of the Universal Service Fund (USF). The fund's role is to ensure access to basic services in remote areas of the country and to stimulate private investment. However, due to inefficiencies in the use of the USF in Mauritania, the government took certain precautions to try and improve its situation. By the end of the project, the government had dissolved the fund and reshuffled its governance, with the proceeds transferred into treasury, which became a bigger governance challenge. The line ministry (Ministry of Digital Economy) was better positioned and more engaged in the context

<sup>32</sup> Kalvin Bahia, Pau Castells, Genaro Cruz, Takaaki Masaki, Xavier Pedros, Tobias Pfitze, Carlos Rodriguez-Castelan, and Hernan Winkler, *The Welfare Effects of Mobile Broadband Internet: Evidence from Nigeria*, Policy Research Working Paper 9230 (Washington, DC: World Bank Group, 2020), <https://openknowledge.worldbank.org/handle/10986/33712>.



of WARCIP APL2. This contributed to putting the line ministry in charge of the USF, leading to significant improvements in its efficiency.

51. **Togo:** The improvement brought by WARCIP APL2 in Togo had various benefits, as detailed in previous sections. At the regional level, the project contributed to improvements in the position of Togo as an emerging regional ICT hub. In just 10 years, Togo went from being a regionally and internationally unknown country in the digital space to a recognized and digitally advanced country in the region. This is substantiated by the improvements in Togo's international ranking in digital services and e-government,<sup>33</sup> the expected arrival of new private sector-led submarine cables, and Togo becoming in recent years a preferred destination for international and regional events related to digital matters.<sup>34</sup>

### III. KEY FACTORS THAT AFFECTED IMPLEMENTATION AND OUTCOME

#### A. KEY FACTORS DURING PREPARATION

52. **Preparation of WARCIP APL2.** A background analysis was conducted to assess options to address the connectivity gaps in Mauritania and Togo. The preparation team relied on the active engagement of sectoral expertise within the World Bank and on development partners active in Mauritania, such as the EIB. The project benefited from lessons learned from ICT infrastructure projects in other countries in the areas of PPP, open access, and dealing with weak implementation capacity. Best practices and the emerging international experience of countries such as Kenya, Tanzania, Rwanda, and Uganda showed that the best management structure for high-capacity broadband networks is a well-designed and sustainable PPP. Integrating the private sector brings access to private capital, reduces public sector operational risk, ensures faster delivery of project activities, and improves project management overall. The preparation team also considered risks and risk mitigation measures for the two countries that included a number of project risks, in addition to country risks. For example, (i) the interest and level of participation of the private sector under the connectivity component; (ii) possible delays in the implementation of sector reforms; (iii) possible resistance from the incumbent, especially in the case of Togo; and (iv) overall weak capacity to implement the project. A Project Preparation Advance (PPA) was granted to both countries and financed the preparation of the project (the hiring of the PIU and the preparation of the safeguard and procurement documents for appraisal), as well as the establishment of a PPP framework and an open access regime for the carrier hotel in Togo and the fiber optic backbone in Mauritania. The project in Togo, however, could have benefited from more thorough preparation in the estimation of the cost and requirements of the carrier hotel. This might have resulted in less substantial cost overruns.
53. **Implementation arrangements.** A new PIU was established in each country under the line ministries. In the case of Mauritania, in addition to the PIU, a National Connectivity Steering Commission was put in charge of providing overall technical and operational guidance, direction, and coordination during project implementation. In Togo, the PIU was assisted by a project team called the Focal Units Forum, composed of representatives of relevant ministries, the national regulator, and the private sector. This helped strengthen the institutional arrangement and allowed the PIU to focus on the operational aspects of project implementation while being in constant contact with the main stakeholders of the ICT sector. The

<sup>33</sup> UN e-government survey, 2020 – ITU indicators.

<sup>34</sup> These events include the International Forum on Intermediation, Digital and Innovation in 2022, Internet Governance Forum 2021, and Global Cybersecurity summit 2022, among others.



same composition of the PIU was adopted in both countries, consisting of a project coordinator, a procurement specialist, a financial management specialist, a M&E specialist, and an accountant. Technical specialists were added to reinforce the capacity of the PIU and allow the line ministries to implement project activities more effectively.

## B. KEY FACTORS DURING IMPLEMENTATION

54. **Mauritania:** The implementation of WARCIP APL2 in Mauritania was influenced by a number of factors, both negative and positive:

- a) **Factors subject to the control of the government and/or implementing entities** included these: (i) the timing of major procurement reforms introduced in Mauritania during the PPA phase, and additional reforms during the project phase, had negative implications for project implementation. These reforms led to a revision of the entire procurement process, which consequently caused delays that affected most of the project activities; (ii) the technical, economic, and legal structuring of the PPP model took some time to identify, validate and implement. This was necessary to ensure the sustainability of the arrangement and mitigate any associated risks.
- b) **Factors outside the control of the government and/or implementing entities** included the following: (i) the restrictions introduced to curb the spread of the COVID-19 pandemic caused a major disruption of the supply chain and delayed the construction work on the fiber optic links; (ii) additional delays during the construction of the fiber optic links were associated with difficulties in civil works due to the rocky nature of certain sections, which had not been anticipated during the feasibility study and the field survey.
- c) **Factors subject to World Bank control.** The project benefited from strong World Bank engagement in the country through frequent consultations and supervision missions that kept all parties engaged and helped keep the project on track. This resulted in a strong commitment from the government and development partners (EIB).

55. **Togo:** a number of factors affected the implementation of WARCIP APL2 in Togo:

- a) **Factors subject to the control of the government and/or implementing entities** included these: (i) political tensions and civil unrest affected Togo in 2017 and 2018 and had grave consequences for the progress of the project. The political tension coincided with the bidding for the construction of the carrier hotel and may have negatively affected the bidding process because only three bidders ultimately submitted a proposal. The prevailing political situation may also have impacted the pricing of the received bids, which may have included a significant security premium; (ii) the elaboration of the Terms of Reference (ToR) and their validation by the World Bank, and compliance with the World Bank's Financial Management and procurement guidelines, were very challenging for the PIU; (iii) the government had established a process that required a review and validation of every deliverable and procurement step, regardless of the threshold. This cumbersome process made procurement a very lengthy and arduous endeavor. On the other hand, the project benefited from a strong interest and buy-in of the line ministry. This resulted in good government engagement and facilitated the resolution of any ongoing issues.
- b) **Factors outside the control of government and/or implementing entities** included these: (i) the COVID-19 pandemic, coming right after the period of political tensions, posed a serious threat to the



progress of the project activities as a result of supply chain disruptions and the additional delays generated by the imposed restrictions, which strongly affected the tender process; (ii) the challenges in providing international capacity to the carrier hotel due to the technical, financial, and regulatory non-compliance of the three interested bidders led to an unsuccessful bidding process.

- c) **Factors subject to World Bank control.** The project faced a significant cost overrun associated with the construction of the carrier hotel in Togo. The selected bid exceeded the budget associated with the activity by a substantial amount (US\$7.6 million). This might have been linked to the political unrest in the country, which may have affected interest in the bid and its price (see Para. 55.a. above).

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

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

#### M&E Design

- 56. **The overall design of the M&E framework, which was a common design in WARCIP operations, is considered adequate for both Mauritania and Togo.** The results framework included a well-defined and measurable set of indicators, and the entities in charge of data collection were chosen during the design phase. A small refinement of project indicators might have made the evaluation of the achievements of the PDO more prevalent, for instance, with regards to the project impact on women and youth and how this is captured in the PDO.
- 57. **The link between the project activities and the evolution of the value of certain project indicators is sometimes difficult to establish.** Often during infrastructure projects, the deployment of the financed infrastructure is completed toward the end of the project lifecycle because it is preceded by safeguard and feasibility studies that take a long time to come to fruition. This means that indicators that are strongly linked to the infrastructure to be deployed may be weaker during the early stages of the project (for example, while the infrastructure is still in the study phase, which is usually a considerable portion of the project). This aspect underlines the relevance of the project indicators during the various steps of implementation, and what should be measured to suit the timeline of the execution of project activities. A revision of the RF may prove to be a better approach in order to have an RF that is tailored to the project at different stages.

#### M&E Implementation

- 58. **The PIUs were responsible for tracking project performance indicators as defined in the M&E framework.** Quarterly monitoring reports were published, and a survey was carried out to obtain testimonies relating to the project. A mid-term review (MTR) was conducted in September 2016 to identify gaps in achieving the PDO, along with corrective measures. Steering and Technical committees were established to ensure the availability of measures destined to overcome any setbacks. In Mauritania, the steering committee was to meet at least three times a year and hold monthly meetings, but those objectives were not fully met. Working groups were set to follow up and validate the progress of studies, but feedback often took longer than expected because of the irregularity of the meetings. Technical audits



were commissioned to validate the conformity of network construction. The Togo component of the project suffered from delays in the recruitment of an M&E specialist toward the end of the project, which caused delays in the collection of the RF indicators and consequently a downgrade of the M&E rating for Togo from Satisfactory to Moderately Satisfactory during the ISR of September 2020. This Moderately Satisfactory rating was maintained until the project closed.

59. **The target values of the project indicators could have benefited from adjustments during implementation.** A number of project indicators have increased substantially well beyond their targets. Considering the duration of the project, various factors could have affected the value of the indicators. Compared to other sectors, the telecommunications market evolves more rapidly due to the fast pace of development of the underlying technologies, making it difficult to accurately predict trends in certain market indicators. This aspect should have been incorporated in the M&E design by setting more ambitious targets initially or increasing the targets of the RF during one of the restructurings.

### M&E Utilization

60. The project teams utilized the M&E framework to assess progress toward the achievement of the PDO and addressed implementation challenges as they were presented. Quarterly completion reports were published and shared on time with the World Bank, and financial management (FM) and implementation manuals were updated regularly and made operational. Based on the data collected from the mission reports, including the MTR, the World Bank and the governments considered several restructurings, including additional financing and extensions of the project closing dates. The M&E data are still being collected after the project closed, at least in Mauritania. The Mauritanian government indicated that the data are very useful for monitoring the progress of the sector and will continue to play a meaningful role for years to come.

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

61. The Quality of M&E is rated **Substantial**. The M&E frameworks were revised only once during the November 2017 restructuring. Considering the relatively young status of the ICT sectors in both countries, and the challenges they faced during the COVID-19 pandemic, Mauritania and Togo undertook delivery of relatively complex technical components and generated successful outcomes. However, the rating is not High because of minor shortcomings, mainly gaps in data collection for Togo (starting the end of 2019) due to delays in the hiring of the M&E specialist.

## B. ENVIRONMENTAL, SOCIAL, AND FIDUCIARY COMPLIANCE

### Environmental and Social Issues and Safeguards Compliance

#### Mauritania

62. The project was classified as Environmental Category B.<sup>35</sup> The project triggered the following policies: Environmental Assessment (OP 4.01), Natural Habitats (OP 4.04), Physical Cultural Resources (OP 4.11), and Involuntary Resettlement (OP 4.12). Potential impacts relevant to investments included: the

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<sup>35</sup> The potential environmental and social impacts were considered small-scale and site-specific and thus easily remediable and reversible.



disturbance of natural habitats, reduction of vegetation cover, soil erosion and degradation due to activities involving excavation, impacts on historical sites or archaeological remains, nuisance due to dust and noise from works, disruption of agricultural and socioeconomic activities, the risk of social conflicts due to non-local employment, and the risks of increased prevalence of HIV/AIDS and other sexually transmitted diseases due to foreign workers. An Environmental and Social Management Framework (ESMF) and a Resettlement Policy Framework (RPF) were prepared prior to appraisal to clarify principles, mitigation measures, and the appropriate organizational arrangements.

63. The project included training in safeguard policies and strengthening the capacity of the Directorate of Environmental Assessment and Control (DECE) to oversee the development of safeguard documents and ensure compliance with the project's environmental and social safeguard instruments during implementation. Based on the screenings carried out, operational documents were developed and validated, including the Environmental and Social Impact Assessment (ESIA), the Environmental and Social Management Plan (ESMP), a simplified Resettlement Action Plan (RAP), and the environmental and social clauses to be included in the tender documents. A memorandum of understanding for the implementation of the ESMP, the RAP and the monitoring of the environmental and social clauses of the project was signed with the DECE, which has the environmental and social mandate at the national level.
64. On the environmental level, a compensatory reforestation program was successfully completed in October 2020. Executed by three NGOs, it resulted in the reforestation of 56 hectares amounting to more than 40,000 plants in project sites divided into three lots, with success rates varying between 95 and 98 percent. An environmental issue occurred during project implementation, related to shortcomings in working conditions and safety and environmental health standards at the construction sites. Mitigation measures were implemented and consisted of (i) milk distribution operations at the level of urban communities to compensate for the negative effects of construction (dust); (ii) the mandatory wearing of safety equipment by workers; (iii) a permanent supply of drinking water in the workplace; and (iv) documentation of interactions with the local communities. The insurance policies included in the contract were provided by the company and its subcontractors, which also ensured the permanent collection and registration of employment contracts. A public health expert was mobilized, and distancing and hygiene measures were put in place to limit the spread of the COVID-19 pandemic at the community level.
65. On the social side, a Grievance Mechanism (GRM), a complaint management committee, and complaint reception platforms were set up to resolve any possible grievances. The committees and focal points designated for the project benefited from capacity building and community information and awareness sessions to make the GRM operational. Eight complaints were received and resolved amicably. The complaints are well documented and include statements signed by complainants attesting that their problems have been resolved in a manner that is satisfactory to all parties.

## Togo

66. The project was rated as a Category B. The environmental safeguard policies triggered were Environmental Assessment (OP/BP 4.01), Natural Habitats (OP/BP 4.04), Physical Cultural Resources (OP/BP 4.11) and Involuntary Resettlement (OP/BP 4.12). The exact nature and location of the investments could not be determined initially, so the GoT held consultations to prepare an ESMF and an RPF.<sup>36</sup> The main social impacts of the project were better access to ICT services for the population, and

<sup>36</sup> The ESMF and RPF were both published in Togo in March 2013 ([www.artp.tg/rapport/Rapport\\_Final\\_CGES\\_WARCIP\\_TOGO.pdf](http://www.artp.tg/rapport/Rapport_Final_CGES_WARCIP_TOGO.pdf) and [www.artp.tg/rapport/Rapport\\_FINAL\\_CPR\\_WARCIP-Togo.pdf](http://www.artp.tg/rapport/Rapport_FINAL_CPR_WARCIP-Togo.pdf)) and on the World Bank website.



improved government service delivery. In this regard, the project contributed to (i) enabling ICT to become a driver of sustainable economic growth; (ii) enabling the GoT to use ICT to improve the delivery of services; (iii) improving access to, and the quality of, ICT services for the government, businesses, and the general population; and (iv) reducing isolation and enhancing economic activities in rural areas.

67. The ESIA/ESMP process for the construction and equipment of the carrier hotel in the Atchanté district of “Lomé 2” was conducted between April 2014 and August 2016. The report was produced by the National Agency for Environmental Management, which also issued an Environmental Compliance Certificate in August 2016.<sup>37</sup> Social risks were assessed as low, and so no Resettlement Action Plan (RAP) or specific social measures were planned for the project.
68. Risk assessment of gender-based violence, sexual exploitation and abuse, and sexual harassment was carried out in a meeting in Massouhoin. The meeting was organized with two women agents—an anthropologist and a program manager—from the NGO WILDAF Togo, along with the president of the Association for the Promotion of Women's Rights (APDF) and the person in charge of gender at the Ministry of Social Action. On December 17, 2021 a meeting was held to inform the local population about the end of the worksite, the departure of the workers, the evaluation of the employment of local labor, and the management of complaints and grievances. Some delays were, however, noted in the implementation of the GRM, and there was a lack of evidence that the code of conduct was signed by all the workers employed for the project.
69. The project’s overall Environmental and Social performance is rated **Satisfactory** in conformity with the latest mission and the ISR of January 2022.

## Fiduciary Compliance

### Procurement

70. **Mauritania:** The procurement assessment for Mauritania is based on implementation progress, the project's procurement plan, and the application of the recommendations of the aide-memoires of the supervision missions. During implementation, there were considerable delays in the procurement process of the main backbone contract, including its execution, which resulted in additional costs because of several amendments to the contract of the M&E firm, as well as an amendment to the contract of the construction company. It should also be noted, as explained in previous sections of this ICR, that the cofinancing arrangement with EIB for the construction of the data center did not result in the execution of the works within the lifetime of the project.
71. **Togo:** At appraisal, a procurement assessment was carried out, during which the main risks identified were the lack of experience and expertise in the World Bank’s procurement procedures and the lack of a procurement manual. The procurement unit was new and had no qualified procurement staff. The mitigation measures agreed upon included (i) the recruitment of a procurement officer; (ii) the planning of procurement trainings; (iii) the recruitment of a qualified procurement consultant to assist the PIU in difficult procurements; (iv) the nomination of a procurement officer within the Ministry’s Procurement Committee; and (v) the preparation of a project procurement manual. Despite these measures, the project experienced significant procurement-related delays caused by resistance from the Ministry of Digital Economy to pursue the needed reforms, and the burdensome process introduced by the Ministry

<sup>37</sup> Agence Nationale pour la Gestion de l’Environnement (ANGE). Cf. Ministry of Environment and Forest Resources (MERF), Arrêté 037/CAB/ANGE/DEIE/CCE (August 16, 2016), [numerique.gouv.tg/wp-content/uploads/files/2017/06%20-%20Juin/Certificat%20de%20conformité%20environnementale\\_WARCIP-TOGO.pdf](http://numerique.gouv.tg/wp-content/uploads/files/2017/06%20-%20Juin/Certificat%20de%20conformité%20environnementale_WARCIP-TOGO.pdf).



involving the review and validation of every deliverable and procurement step regardless of the thresholds or the significance of the deliverables. At project closing, although most procurement activities were completed, including the construction of the career hotel, the bidding process to purchase international capacity for the carrier hotel was not successful. During consultations held in preparation for the elaboration of the ICR, the Togo PIU also stressed that the PIU's inexperience with World Bank procedures should have been met with more handholding support from the fiduciary team, and that such support would have led to better results.

72. The overall project procurement performance is considered **Moderately Satisfactory** in the last ISR of January 2022. The rating was "Satisfactory" until it was downgraded in the ISR of September 2020 due to delays in the execution of some procurement procedures, missing supporting documents in the Bank's Systematic Tracking of Exchanges in Procurement tool (STEP), and a file classification that required improvement.

### Financial Management (FM)

73. **Mauritania:** Adequate FM arrangements were in place during project implementation. While the FM risk was considered "Moderate" during implementation, there was a fluctuation in FM performance. From September 2014 through June 2017, FM performance varied between "Moderately Satisfactory" and "Satisfactory," while in November 2017 the FM performance was Moderately Unsatisfactory but was upgraded to "Moderately Satisfactory" in October 2018 and became "Satisfactory" from April 2021 onward. The project complied with its obligations of financial reporting and auditing. The required external audit reports as well as the Interim Financial Reports (IFRs) were submitted to the World Bank with acceptable quality. Furthermore, no overdue external audit reports, IFRs, or outstanding FM issues were reported at project closure.
74. **Togo:** At appraisal, the FM capacity was assessed for the PIU and established within the Ministry of Posts and Telecommunications (MPT), and the overall FM risk was considered Substantial. This risk, however, was downgraded to Moderate once the mitigation measures were implemented. These included (i) the appointment of a qualified FM specialist; (ii) the preparation of an accounting manual; (iii) the introduction of a computerized accounting system; and (iv) the appointment of an external auditor. As highlighted several times in the ISRs, the FM system generally functioned in a satisfactory manner thanks to (i) compliance with the project's reporting obligations through the timely submission of quarterly IFRs that were of acceptable quality; (ii) maintenance of the project's accounting records until project closure; (iii) implementation of most of the recommendations resulting from the previous supervision missions; and (iv) the timely submission of the audit reports with a quality that was acceptable. Overall, the project's FM performance is considered "Satisfactory." The complaints management mechanism was set up in both countries. Three complaints were received during the course of the project in Togo, regarding delays in the payment of wages to workers at the carrier hotel construction site. These complaints were handled to the satisfaction of the complainants. No complaints were recorded from the local residents of the project sites.
75. The overall project FM performance is considered **Satisfactory** in the last ISR of January 2022. The rating was "Moderately Satisfactory" until it was upgraded in the ISR of September 2020 owing to positive improvements in the maintenance of the project's accounts and the timely submission of financial reports with no notable reservations.



## C. BANK PERFORMANCE

76. The overall World Bank performance rating is considered **Satisfactory**.

### Quality at Entry

77. The World Bank's performance in ensuring quality at entry for WARCIP APL2 is rated **Satisfactory**.

78. The project built on the reforms and ICT sector improvements in the West Africa region as well as on Mauritania and Togo's commitments to implementing further reforms. In this regard, the World Bank team provided all the necessary support to the two governments during project preparation. The design and choice of the PPP model helped strengthen institutional capacity, ensured private sector participation, allowed efficient and timely implementation and disbursement of project funds, and established a firm foundation for the project. The project team provided appropriate support and input to the two governments to make sure that the project was successful despite any challenges that might arise during implementation. World Bank procedures were adequate in ensuring transparency and buy-in from the different stakeholders and allowed the project to be implemented in a way that is beneficial to the two countries.

79. In terms of project design: (i) the low capacity of the two countries in fiduciary procedures, as well as in the technical and managerial aspects related to PPP, were properly identified; (ii) the composition of the World Bank teams preparing the project was well balanced and included staff with operational experience, a strong ICT technical background, economics skills, public administration knowledge, and country experience. Despite the long implementation period (from 2013 to 2022), staff turnover was not extensive. The inherent risks were well highlighted in the PAD and in the technical annexes produced for Mauritania and Togo. The project cost for Togo, however, was underestimated. The M&E arrangements, as well as the identification of the potential environmental and social impacts and the arrangements for the associated safeguard instruments, were also adequately highlighted. The poverty, gender, and social development aspects were all enablers of the project's proposed design and were incorporated in the design and choice of the different activities financed under WARCIP APL2. Finally, coordination with the other donors (mainly the EIB in Mauritania) was incorporated in the project design and allowed for transformative improvements in the digital sector in a relatively short period of time thanks to efficient coordination in donor financing.

### Quality of Supervision

80. The World Bank's performance in ensuring quality supervision is rated **Satisfactory**.

81. The task team included an adequate mix of specialists, including ICT policy specialists, social development and environmental specialists, M&E specialists, and FM and procurement specialists, all with experience in supporting similar projects in environments comparable to Mauritania and Togo. The World Bank's technical and fiduciary teams provided regular support to maximize the project's development impact, and demonstrated adaptability to the context through adjustments, including project restructurings, AF, and extensions of the project's closing date. Regular supervision missions were conducted to address the different issues and bottlenecks that posed risks to the implementation of project activities. Additionally, the team demonstrated unparalleled resilience on several occasions when dealing with new government orientations that were not compatible with project activities (pertinent as they may have been), World Bank procedures, and/or the terms of the project Financing Agreement. During such episodes, the task team supported the PIU in preparing risk-benefit assessments, evaluated available options, and engaged in extensive discussions with the government and the different World Bank teams to reconcile orientations and put the project back on track. These occurrences were underscored



during the ICR consultations, where the Togo PIU expressed great appreciation to the team (and the Task Team Lead in particular) for “extraordinary support that was critical to the survival of the project.” The project’s MTR was performed in September 2016 to identify gaps in the achievement of the PDO, along with measures (including restructuring) to reorient the project and ensure that it achieved its intended objectives. Overall, 16 missions were carried out between 2013 and 2021 and served to monitor the project’s progress and provide the necessary support to the government. Because of the COVID-19 pandemic, the supervision missions leading to project closure were carried out virtually. Progress and guidance were recorded in the ISRs and aide memoires, which were timely produced after each mission. The task team regularly received progress data and highlighted issues for the attention of World Bank management. In addition, quarterly and annual progress reports and monthly fiscal reports were used to monitor the project’s outcome and results indicators.

#### Justification of Overall Rating of Bank Performance

82. The overall World Bank performance rating is considered **Satisfactory**. This takes into account the Satisfactory rating for Quality at Entry and effective Quality of Supervision.

#### D. RISK TO DEVELOPMENT OUTCOME

83. The development outcomes achieved by the project are likely to be sustained. The digital agenda remains important to the Government of Mauritania, which decided to participate in the West Africa Regional Digital Integration Program (WARDIP) – SOP1 to continue the development of the ICT sector, building on the success of WARCIP APL2, and to the Government of Togo, which expressed interest in a Togo Digital Acceleration project to support implementation of the Togo Digital Strategy 2025 funded under WARCIP APL2. Nonetheless, there are some risks to development outcomes that should be monitored and mitigated, as highlighted below:

84. **Mauritania:** The risks to development outcomes in Mauritania is low and could be linked to the following aspects: (i) The government may decide to terminate the PPP contract with IMT and regain full control over the management of the national fiber optic backbone; (ii) there is a risk of non-compliance with the IMT operator's commitments in terms of preventive and curative maintenance of the fiber optic backbone and IXP; and (iii) there is a risk of non-optimal use of the IXP if it is not provided enough connectivity or maintained properly. The forementioned risks would put in jeopardy the open access, competitiveness, and the effectiveness of the deployed infrastructure, posing thereby a risk to the sustainability of the PDO. However, these risks are very unlikely as the GoM has demonstrated and continues to demonstrate a strong commitment to the digital agenda and is capitalizing on the project gains to further improve the sector, with strong support from donors. The GoM is committed to pursuing reforms of the sector through the third DPO and is considering the financing of additional digital infrastructure under a PPP approach, both for additional fiber optics with the new WARDIP-SOP1 (with the World Bank) and for a second submarine cable connection (with the EIB).

85. **Togo:** The risks to development outcomes in Togo is moderately low and could be linked to the following aspects: (i) there is a risk that the carrier hotel / data center will not to have an adequate business plan and in consequence not reach a steady income stream to cover its operating costs and achieve a proper return on investment; (ii) there is a risk of the non-optimal use of the IXP; and (iii) there is a risk that the new submarine cable landing in Togo will not connect to the carrier hotel / data center and IXP. All these risks would put in jeopardy the effectiveness of the infrastructure deployed and any benefits that might



come from it, consequently putting at risk objective 2 (reducing the cost of communication services). However, the risks do not seem likely to occur. The GoT is aware of the importance of the ICT sector, and the line ministry is very ambitious, proactive, and engaged to mobilize private sector investment in the sector. In addition, further engagement in Togo is being considered (through a follow-up operation) in order to ensure that the infrastructure delivered under WARCIP APL2 is positioned to bring the full intended benefits to the sector in Togo.

## V. LESSONS AND RECOMMENDATIONS

86. The project offers several important lessons, as summarized in the following paragraphs:

87. **The project demonstrated that robust policy dialogue with public and private sector stakeholders facilitates the design of the PPP model, with open-access principles that are adapted to the country context.** The project benefited from proactive engagement in both Mauritania and Togo and was consequently able to identify in each country the most adapted PPP design that ensures open access and optimal use of the infrastructure. In Togo the approach enabled a strong private partner to join early in the process, bringing the necessary technical expertise when it was most needed. In Mauritania, timely consultations with sector stakeholders and coordination with other donors enabled the incorporation of a design where the private sector plays a central role and can benefit from the advantages of fair and nondiscriminatory access to connectivity. The role of the regulator is key in ensuring that fair access to and pricing for connectivity is going to be upheld.

**Recommendation:** The team must ensure regular consultations with the government, private sector, and development partners during the preparation of the SPV design. PPP consultations involving all sector stakeholders early in the process and close coordination with the regulator are key to the success and sustainability of both the PPP model, and the open access principles.

88. **The original timeline was ambitious and overlooked the extent of implementation challenges and procurement delays for donor-funded large infrastructure operations, but the reactivity and flexibility of the team was important in overcoming the challenges.** The creation of the SPV and the establishment of implementation requirements in general take a long time and therefore delay project activities. The project faced other challenges as well due to the long review and validation process in Togo and the procurement and safeguard requirements delays in Mauritania. However, the project underwent several adjustments that allowed it to be flexible in the face of these different challenges, namely (i) utilizing the available instruments (restructuring, AF, cancellation of cofinancing); (ii) revising the design of the activities to facilitate implementation; (iii) adjusting the budget to deliver the planned activities despite the challenging political context in Togo; (iv) coordinating donor support to maximize the development impact in Mauritania; and (v) overall meeting client demands while upholding World Bank procedures and the terms of the financing agreement. Additionally, the team's resilience was instrumental in bringing the project to a positive closure.

**Recommendation:** The establishment of SPVs for digital infrastructure has generally been a lengthy process that has caused delays in all countries where WARCIP was implemented. This should be factored into the estimation of the project duration. In addition, the adaptability and flexibility of the team using the available instruments is also recommended because this enables the team to deal more efficiently with preparation and implementation challenges for donor-funded large infrastructure operations.



**89. Cooperation and coordination with donors are important and should be factored in the technical design of the project. This can speed up the development outcome and increase the impact of World Bank-funded projects.** The overall experience and success of WARCIP in Mauritania is an example of major and transformative improvements in the digital sector in a relatively short period of time due to efficient coordination in donor financing. These include (i) the financing of the ACE cable by EIB under a PPP approach, which has made international connectivity available and affordable, and the expansion of the fiber backbone by the World Bank under a PPP approach, which has allowed this international connectivity to reach the larger population; (ii) the financing of the feasibility study for the data center by the World Bank and its construction by EIB based on World Bank studies; and (iii) currently, further investments in a second submarine cable connection (with EIB) that the GoM is considering, along with a further increase in the reach of the fiber backbone and improvements to the digital services provided to citizens (with the World Bank under WARDIP-SOP1).

**Recommendation:** The coordination of donor support is an effective instrument to speed up development outcomes and increase the impact of World Bank-funded projects, and should be reflected in the technical design of the project.

**90. The project demonstrated that PIU experience, and homogeneous and effective World Bank support, are the essential bricks for building an efficient monitoring mechanism for World Bank-funded projects.** The task team's flexibility, proactiveness, and handholding support are essential, particularly considering the level of complexity of World Bank procedures, and the difficulties that are often encountered when trying to adapt them to the context of low-capacity countries. Likewise, the persistence of the task team and the close connection with the PIUs, seeking CMUs support as needed, are important factors for the project's success.

**Recommendation:** The task team and in particular the fiduciary teams should provide close support to the project PIUs, while working in tandem with the Country Management Unit (CMU).

**91. Procurement is at the origin of various delays sustained during the implementation of World Bank-funded projects as well as compliance challenges.** There are several changes that could be made to significantly improve project implementation and reduce its time. These include (i) careful preparation and review of bidding documents; (ii) improvements in procurement procedures by the government to remove any obstacles to contracting and implementation without breaking transparency or compliance with World Bank guidelines; (iii) a thorough selection of qualified companies based on performance and track records by the procurement and control commissions to ensure contracts are completed successfully, in full compliance, and on time; and (iv) the possible use of lump sum contracts instead of contracts based on time spent by M&E companies to avoid any increase in the M&E cost due to delays in construction on non-compliance. Finally, the PIU could also improve project disbursement rates by carefully monitoring contract implementation.

**Recommendation:** Efforts should be undertaken to further improve procurement and avoid delays in project implementation. Careful contract management can also improve disbursement.



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

**A. RESULTS INDICATORS**

**A.1 PDO Indicators**

**Objective/Outcome:** Project Development Objective Indicators

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	100.00 31-Dec-2011	124.00 31-Dec-2017		151.00 30-Jun-2021
<b>Comments (achievements against targets):</b>					

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Mauritania - Volume of international traffic: International Communications (Internet, Telecoms, and Data) per person - Kbits per second per	Text	6.00 31-Dec-2011	11.00 31-Dec-2017		19,61 30-Jun-2021



person

Comments (achievements against targets):

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Mauritania -Average monthly price of wholesale international E1 capacity link from capital city to Europe - Amount (USD) per monthper 2 Mbps	Amount(USD)	7,000.00 31-Dec-2011	250.00 31-Dec-2017		54.70 30-Jun-2021

Comments (achievements against targets):

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Access to Broadband Internet Services - 3G+ and ADSL+ (number of subscribers per 100 people)	Number	2.00 31-Dec-2011	11.00 31-Dec-2017		70.90 30-Jun-2021

Comments (achievements against targets):



Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Direct project beneficiaries	Number	3,355,930.00	5,061,125.00		4,994,570.00
		31-Dec-2011	31-Dec-2017		31-Dec-2020
Female beneficiaries	Percentage	51.00	51.00		51.00
<b>Comments (achievements against targets):</b>					

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Togo - International bandwidth per person (population) - Kbits persecond per person	Number	2.50	6.00		5.76
		31-Dec-2012	29-May-2020		20-Dec-2021
<b>Comments (achievements against targets):</b>					

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Togo - Access to Telephone Services (fixed mainlines plus cellular phones per 100	Number	48.90	75.00		80.47
		31-Dec-2012	31-Dec-2017		20-Dec-2021



people)					
<b>Comments (achievements against targets):</b>					

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Togo - Average monthly price of wholesale international E1 capacity link from capital city to Europe - Amount (USD) per month 2 Mbps	Amount(USD)	2,348.00 31-Dec-2012	115.00 31-Oct-2021		90.00 20-Dec-2021
<b>Comments (achievements against targets):</b>					

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Togo - Direct project beneficiaries	Number	3,350,000.00 31-Dec-2012	6,000,000.00 31-Dec-2017		5,790,000.00 20-Dec-2021
Female beneficiaries	Percentage	30.00	40.00		43.90
<b>Comments (achievements against targets):</b>					



Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Togo - Fixed Internet Retail Price (USD per Mbps)	Amount(USD)	70.00 27-Sep-2016	46.00 31-May-2020		22.44 20-Dec-2021
Comments (achievements against targets):					

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Togo - Mobile Internet Retail Price (USD cents per Mo)	Amount(USD)	2.60 27-Sep-2016	1.70 31-May-2020		0.70 20-Dec-2021
Comments (achievements against targets):					

## A.2 Intermediate Results Indicators

Component: MAURITANIA - Supporting Connectivity

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Mauritania - Number of	Number	144.00	200.00		221.00



localities with broadband Internet access (256 Kbps)		31-Dec-2011	31-Dec-2017		30-Jun-2021
<b>Comments (achievements against targets):</b>					

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Mauritania - Cross-border interconnections built	Number	0.00 31-Dec-2011	1.00 31-Dec-2017		0.00 30-Jun-2021
<b>Comments (achievements against targets):</b>					

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Mauritania - Length of Fiber Optic Network Built (km)	Kilometers	0.00 31-Dec-2011	1,577.00 31-Dec-2017		1,720.00 30-Jun-2021
<b>Comments (achievements against targets):</b>					

**Component: MAURITANIA - Creating an Enabling Environment for Connectivity**

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised	Actual Achieved at
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				Target	Completion
Mauritania. Retail Price of Internet Services (per Mbit/s per Month, in US\$)	Amount(USD)	51.00 31-Dec-2011	27.00 31-Dec-2017		36.00 30-Jun-2021
<b>Comments (achievements against targets):</b>					

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Mauritania - Average cost of mobile call (three minutes, local, peak) - USD/3mn	Amount(USD)	0.52 31-Dec-2011	0.31 31-Dec-2017		0.60 30-Jun-2021
<b>Comments (achievements against targets):</b>					

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Mauritania - Number of operators and ISPs buying capacity from the infrastructure deployed	Number	0.00 31-Dec-2011	8.00 31-Dec-2017		9.00 30-Jun-2021
<b>Comments (achievements against targets):</b>					



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-2012	3.00 31-Dec-2017		4.20 30-Jun-2021

Comments (achievements against targets):

**Component: TOGO - Supporting Connectivity**

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Togo - Number of operators and service providers getting capacity from the regional infrastructure deployed (as a percentage of total)	Percentage	0.00 31-Dec-2012	100.00 31-Oct-2021		0.00 30-Sep-2021

Comments (achievements against targets):

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Citizen perception of the	Percentage	0.00	75.00		0.00



affordability and quality of broadband services (Including perception by women) (Percentage, Custom)		01-Mar-2021	31-Oct-2021		30-Sep-2021
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Comments (achievements against targets):

**Component: TOGO - Creating an Enabling Environment for Connectivity**

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Togo - Increase of number of players in the sector	Number	3.00 31-Dec-2012	8.00 31-Oct-2021		6.00 20-Dec-2021

Comments (achievements against targets):

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-2011	3.00 31-Oct-2021		2.00 20-Dec-2021



Comments (achievements against targets):

Component: TOGO - Project Implementation, Communications and Monitoring and Evaluation (M&E)

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Percentage of grievances addressed within 30 days after reception	Percentage	0.00	95.00		100.00
		31-Mar-2021	31-Oct-2021		31-Dec-2021

Comments (achievements against targets):



**B. KEY OUTPUTS BY COMPONENT**

**Project Development Objective:** The objectives of each Project are to contribute to increase the geographical reach of broadband networks and to reduce costs of communications services in the territories, respectively, of the Islamic Republic of Mauritania and the Republic of Togo

Outcome Indicators	<p><b>Mauritania</b></p> <ol style="list-style-type: none"> <li>1. Access to Telephone Services (fixed mainlines plus cellular phones per 100 people)</li> <li>2. Volume of international traffic - Kbits per second per person</li> <li>3. Average monthly price of wholesale international E1 capacity link from capital city to Europe</li> <li>4. Access to Broadband Internet Services - 3G+ and ADSL+ (number of subscribers per 100 people)</li> <li>5. Direct project beneficiaries – of which female beneficiaries</li> </ol> <p><b>Togo</b></p> <ol style="list-style-type: none"> <li>1. International bandwidth per person (population) - Kbits per second per person</li> <li>2. Access to Telephone Services (fixed mainlines plus cellular phones per 100 people)</li> <li>3. Average monthly price of wholesale international E1 capacity link from capital city to Europe</li> <li>4. Direct project beneficiaries – of which Female beneficiaries</li> <li>5. Fixed Internet Retail Price (US\$ per Mbps)</li> <li>6. Mobile Internet Retail Price (US\$ cents per Mo)</li> </ol>
Intermediate Results Indicators	<p><b>Mauritania</b></p> <ol style="list-style-type: none"> <li>1. Number of localities with broadband Internet access (256 Kbps)</li> <li>2. Cross-border interconnections built</li> <li>3. Length of Fiber Optic Network Built (km)</li> <li>4. Retail Price of Internet Services (per Mbit/s per Month, in US\$)</li> <li>5. Average cost of mobile call (three minutes, local, peak) - US\$/3mn</li> <li>6. Number of operators and ISPs buying capacity from the infrastructure deployed</li> <li>7. Impact on Telecom sector of World Bank TA (composite score: 1- low impact to 5-high impact)</li> </ol> <p><b>Togo</b></p> <ol style="list-style-type: none"> <li>1. Number of operators and service providers getting capacity from the regional infrastructure deployed</li> </ol>



	<ol style="list-style-type: none"> <li>2. Citizen perception of the affordability and quality of broadband services (also perception by women)</li> <li>3. Increase of number of players in the sector</li> <li>4. Impact on Telecom sector of World Bank TA (composite score: 1- low impact to 5-high impact)</li> <li>5. Percentage of grievances addressed within 30 days after reception</li> </ol>
Key Outputs by Component 1	<p><u>Supporting Connectivity</u></p> <p><b>Mauritania</b> Construction of five backbone links including:</p> <ol style="list-style-type: none"> <li>1) laying of 1,710km of fiber optic cable</li> <li>2) construction and installation of 1,185 rooms offering environment to set up data centers</li> <li>3) supply and installation of 20 transmission equipment</li> <li>4) technical audits by an international firm of the five sections</li> <li>5) establishment of national and regional IXP in a neutral carrier hotel building</li> </ol> <p><b>Togo</b></p> <ul style="list-style-type: none"> <li>– Construction of Carrier Hotel</li> <li>– Completion and making operational IXP</li> <li>– Signing of PPP Agreement between: (i) State-owned Enterprise Digital Infrastructure Company; and (ii) private partner selected to manage Carrier Hotel</li> </ul>
Key Outputs by Component 2	<p><u>Creating an Enabling Environment for Connectivity</u></p> <p><b>Mauritania</b></p> <ul style="list-style-type: none"> <li>– Conclusion of <i>affermage</i> contract for the operation of fiber optic network</li> <li>– Preparation of tech. specifications for IXP, monitoring/control; and setting up of PPP</li> <li>– Setting up of platform for the dematerialization of administrative formalities</li> <li>– Studies conducted on regulation of the ICT sector</li> <li>– Provision of ICT equipment</li> </ul> <p><b>Togo</b></p> <ul style="list-style-type: none"> <li>– Finalization of TA for the management and operationalization of Carrier Hotel</li> <li>– Completion of Study (Togo Digital Strategy 2025) to inform accelerated digital transformation in</li> </ul>



	Togo
Key Outputs by Component 3	<p><u>Project Implementation (Mauritania and Togo)</u></p> <ul style="list-style-type: none"><li>– Setting up of PIU/PCU</li><li>– Environmental and Social Studies</li><li>– Office equipment; Audits; and M&amp;E</li></ul>

**ANNEX 2. BANK LENDING AND IMPLEMENTATION SUPPORT/SUPERVISION****A. TASK TEAM MEMBERS**

<b>Name</b>	<b>Role</b>
<b>Preparation</b>	
Boutheina Guerhazi	Task Team Leader(s)
Gurcharan Singh	Procurement Specialist(s)
Alain Hinkati	Financial Management Specialist
Lucienne M. M'Baipor	Social Specialist
Rita Dambita	Social Specialist
Paula F. Lytle	Social Specialist
Maman-Sani Issa	Social Specialist
Africa Eshogba Olojoba	Social Specialist
Paul-Jean Feno	Social Specialist
<b>Supervision/ICR</b>	
Tounwende Alain Sawadogo, Arthur Denis Pascal Foch, Xavier Stephane Decoster	Task Team Leader(s)
Kouami Hounsinou Messan, Brahim Hamed	Procurement Specialist(s)
Josue Akre	Financial Management Specialist
Angelo Donou	Financial Management Specialist
Fatou Fall Samba	Financial Management Specialist
Sarra Saleck	Procurement Team
Cheikh Hamallah Diagana	Social Specialist
Mohamed Moustapha Sarr	Procurement Team
Urbain Thierry Yogo	Team Member
Komlan Kpotor	Environmental Specialist



Abdoul Ganyi Bachabi Alidou	Team Member
Nadia Mireille Zenia Amoudji Agnegue	Team Member
Fatoumata Diallo	Social Specialist
Nikolai Alexei Sviedrys Wittich	Procurement Team
Esinam Hlomador-Lawson	Procurement Team
Maimouna Toure	Procurement Team
Batouly Dieng	Procurement Team
Paulette C.E. Aida Thioune Zoua	Team Member
Anta Tall Diallo	Procurement Team
Emmanuel Ngollo	Team Member
Michael Hamaide	Team Member
Evelyne Huguette Madozein	Procurement Team
Mohammad Ilyas Butt	Procurement Team
Yahya Ould Aly Jean	Procurement Team
Tracy Hart	Environmental Specialist
Michele Ralisoa Noro	Procurement Team
Soheyla Razaghi Mahmoudi	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>		
FY12	18.842	138,241.54
FY13	17.712	153,896.13
FY14	0	330.40
<b>Total</b>	<b>36.55</b>	<b>292,468.07</b>
<b>Supervision/ICR</b>		



FY12	0	1,276.99
FY13	.334	17,605.34
FY14	20.589	189,714.56
FY15	23.885	153,924.62
FY16	21.094	140,755.41
FY17	22.275	133,639.34
FY18	20.677	147,637.85
FY19	21.201	164,425.01
FY20	36.434	207,620.57
<b>Total</b>	<b>166.49</b>	<b>1,156,599.69</b>

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**ANNEX 3. PROJECT COST BY COMPONENT**

<b>Components</b>	<b>Amount at Approval (US\$M)</b>	<b>Actual at Project Closing (US\$M)</b>	<b>Percentage of Approval (US\$M)</b>
MAURITANIA - Supporting Connectivity	0	21.50	0
MAURITANIA - Creating an Enabling Environment for Connectivity	0	5.30	0
MAURITANIA - Project Implementation	0	3.20	0
TOGO - Supporting Connectivity	0	27.90	0
TOGO - Creating an Enabling Environment for Connectivity	0	3.20	0
TOGO - Project Implementation	0	3.90	0
<b>Total</b>	<b>0.00</b>	<b>65.00</b>	<b>0.00</b>



## ANNEX 4. EFFICIENCY ANALYSIS

### Mauritania

#### Financial Analysis

##### *Assumptions*

1. At project appraisal (May 2013), the project planned to (i) build four key missing links of the regional and national fiber optic backbone that had been identified, at a total length of 1,577km and a total estimated cost of US\$39.5 million; and (ii) construct the national and regional IXP for an estimated US\$1.2 million. The IXP has been left out of the financial analysis performed at appraisal because the US\$1.2 million (3 percent variation) would not change the conclusions of the Financial Analysis conducted on the four fiber optic links.
2. Assuming a 10 percent discount rate, the initial financial analysis showed that a period of 20 years will be necessary to achieve an adequate economic return: it estimated an IRR over 20 years of 11 percent and an NPV of US\$2.149 million. Over a 10-year period, the IRR would be negative (-6 percent) as would the NPV (-US\$20.769 million).
3. The initial financial analysis also confirmed that the proposed routes are appropriate candidates for a PPP.

##### *Results of the Financial Analysis*

4. The official start of the backbone construction work was on February 20, 2019<sup>38</sup> but was slowed down by the COVID-19 crisis. The work was completed at the end of 2021.
5. The operating time of less than 18 months is too short to properly assess the return on investment generated by an infrastructure project (a national fiber backbone) with a 20-year life cycle. In addition, the five routes reported a total turnover of US\$1.59 million in 2021 and US\$500,000 in quarter 1, 2022 (which is globally aligned with the initial financial analysis), but no data are available yet regarding operational cost, sales price, number of customers, bandwidth, and so on.
6. As a consequence, limited data are available to extrapolate expected revenues and costs for the project; thus the real financial results have not been evaluated with regard to the evolution of the Net Present Value (NPV) and the Internal Rate of Return (IRR) result for the project investments. Nevertheless, the positive impact of the project on the country's GDP growth, as well as its contribution to the evolution of the penetration of telecommunication

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<sup>38</sup> Aide-Mémoire: November 11–15, 2019.



services in the country, due to the decrease in tariffs for end users, are undeniable (see next section – Economic Analysis). The NPV of the project over 20 years can be assumed to be positive.

### **Economic Analysis**

7. Technical assistance under component 2 of the project (creating an enabling environment for connectivity - US\$5.3 million) supported several key regulatory priorities of the regulatory authority as well as broadband stimulation strategies. These led to lower prices and better access to communications services.
8. The project showed strong results in achieving PDO level indicators and it can therefore be said with reasonable confidence that WARCIP APL2 project has contributed substantially to positive changes in the ICT sector in Mauritania.
  - PDO level indicator 1: Volume of international traffic bandwidth per person in kbits per second. This objective exceeded its target. The international communications increased to 19.61 kbit/per person from a baseline of 6 kbit/per person, against the target of 11 kbit/per person.
  - PDO level indicator 2: Access to internet services (number of subscribers per 100 people). This objective exceeded its target. Access to internet services reached 70.90 percent from a baseline of 2 percent against the target of 11 percent.
  - PDO level indicator 3: Access to telephone services (fixed mainlines plus cellular phones per 100 people). This objective exceeded its target. Access to telephone services improved from a baseline of 100 per 100 people to 151 per 100 people against the target of 124 per 100.
  - PDO level indicator 4: Average monthly price of international capacity link (E1 or 2Mbps) from the capital city to Europe in US\$: This objective exceeded its target. The average monthly price of wholesale international capacity link was reduced from a baseline of US\$7,700 to US\$54.70 against the target of US\$250.
  - PDO level indicator 5: Project beneficiaries: Number of direct project beneficiaries, of which female percent: The beneficiaries reached 4.99 million against the target of 5.06 million. This objective is considered met/substantially met (99 percent). The subtarget of 51 percent of the beneficiaries being female was fully met.
9. To capture the economic contributions of the project activities in Mauritania on a high-level basis, this economic analysis will focus on the relevant macro indicator, Internet user penetration (percentage of national population using Internet) measured by the International Telecommunications Union (ITU).



- 10. The ITU performed an analysis of the internet penetration impact<sup>39</sup>. In 2018, this leading regional study, which covers most of the countries in the Africa region, confirmed that a 10-percentage increase in the mobile broadband penetration rate in Africa would lead to a 2.5 percent increase in GDP. In 2020, ITU analysis revised the impact at +2 percent. In addition, a frequently cited World Bank study (Qiang and Rossotto 2009)<sup>40</sup> found that low-income and middle-income countries experienced about a 1.38 percent increase in GDP for each 10-percentage point increase in broadband penetration
- 11. A high-level estimation of the impact of an increase of the Internet usage penetration is built by comparing (i) a Base Case scenario with the actual Internet usage penetration in each country over the last years with (ii) a Counterfactual scenario where the project would not have taken place and the Internet usage penetration would have been lower. The Internet usage penetration in the Counterfactual scenario is built by extending the 2010-2013 trend for the years 2014 and onward, that is, when the WARCIP APL2 project activities started to deliver results. The project impact on GDP is then calculated from the base scenario by applying the findings of the 2009 World Bank study by Qiang and Rossotto (a 10-percentage point increase in Internet usage penetration would increase GDP growth by 1.38 percent).

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
Internet penetration (without WARCIP)	4	4.5	5	6.2	7.2	8.3	9.6	11.2	12.9	15.0	17.4	
Internet users (% - ITU source)	4	4.5	5	6.2	11.8	17.6	24.1	24.2	35.1	36.7	40.8	
Penetration increase due to project					4.6	9.3	14.5	13.0	22.2	21.7	23.4	
GDP (billion USD)	5.63	6.76	6.73	7.22	6.59	6.17	6.40	6.80	7.35	7.89	7.91	
GDP growth		20%	-1%	7%	-9%	-6%	4%	6%	8%	7%	0%	
% of GDP impact (WB: 10% => 1.38%)					0.64%	1.28%	1.99%	1.80%	3.06%	2.99%	3.23%	Total
Impact GDP increase (million USD)					42	79	128	122	225	236	256	1088

- 12. Even based on this estimated lower impact, the project had a positive impact on the country's GDP of US\$1,088 million over 2014–2020, well beyond the amount of the project. The percentage of people using the internet has increased more than sixfold over the life of the project, from 6.2 percent in 2013 to 40.8 percent in 2020. This boom in the telecommunications sector was made possible by the significant drop in prices over this period (as captured by PDO level indicators 4) which was in part due to the commissioning in November 2015 of the IXP funded by the project.

<sup>39</sup> ITU, *Economic contribution of broadband, digitization and ICT regulation: Econometric modelling for Africa* (2018), [https://www.itu.int/pub/D-PREF-EF.BDT\\_AFR-2019](https://www.itu.int/pub/D-PREF-EF.BDT_AFR-2019).

<sup>40</sup> Christine Zhen-Wei Qiang, Carlo M. Rossotto, and Kaoru Kimura, "Economic Impacts of Broadband," in *Information and Communications for Development 2009: Extending Reach and Increasing Impact*, chapter 3 (Washington, DC: World Bank Group, 2009).



## TOGO

### Financial Analysis

#### *Assumptions*

1. At project appraisal (May 2013), the construction work of the Carrier Hotel/IXP had been estimated at West African CFA franc (XOF) 3 billion (around US\$6.0 million). The initial financial analysis estimated an Internal Rate of Return (IRR) over ten years of 26.6 percent and a Net Present Value (NPV) of US\$8.49 million.
2. The initial XOF 3 billion was revised to XOF 8 billion (US\$14.3 million) in 2016 to cope with new requirements from the GoT. This extra cost was covered by a restructuring in 2017 to reallocate resources between disbursement categories. An international tender was issued in Dec. 2017 for the construction of the Carrier/IXP Hotel. The lowest bid was for XOF 12.2 billion (US\$21.9 million), XOF 4.2 billion above the allocated budget. The Additional Financing (AF) in May 2021 allocated XOF 4.2 billion (US\$7.6 million) to the project to cover the difference between the allocated budget and the winning bid plus an extra XOF 1 billion (US\$1.8 million) to cover for cost overruns related to the construction of the Carrier Hotel.
3. At AF (May 2021), the total cost of the construction work to build the Carrier Hotel/IXP was then revised to XOF 13.2 billion (US\$23.7 million). This translated into a revised IRR of 26 percent for the project, with a break-even point in 7 years and a revised NPV of US\$2.58 million.

#### *Results of the Financial Analysis*

4. The construction of the Carrier Hotel was finalized in Dec 2021, with the first customers welcomed starting in January 2022. The operating time of only a few months is too short to properly assess the return on investment generated by an infrastructure (Carrier Hotel) with long life cycle.
5. Although the IXP was inaugurated in June 2017, the cancellation of the activity related to the purchase of international internet bandwidth (following an unsuccessful call for tender) has had an impact on the IXP development plan. In addition, no revenue information has been provided by TGIX (the nonprofit consortium running the IXP in Togo) for this ICR.
6. As a consequence, the evaluation of the real financial results has not been carried out with regard to the evolution of the NPV and the IRR result for the project investments. Nevertheless, the positive impact of the project on the country's GDP growth, as well as its contribution to the evolution of the penetration of telecommunication services in the



country, due to the decrease in tariffs for end users, is undeniable (see next section – Economic Analysis). The NPV of the project over 10 years can be assumed to be positive.

### **Economic Analysis**

7. An important part of the project (component 2 – US\$11 million) sought to create an enabling environment and improve sectoral efficiency (including price regulation and market competition) to remove existing bottlenecks in the ICT sector. The project showed strong results in achieving PDO-level indicators and it can therefore be said with reasonable confidence that the project has contributed substantially to positive changes in the ICT sector in Togo.
  - PDO-level indicator 1: International bandwidth per person (population). The target of 6 kbps per user is nearly achieved with a value of 5.76 kbps per user (96 percent of the target), and a baseline of 2.5 kbps per user.
  - PDO-level indicator 2: Access to Telephone Services. The WARCIP-Togo reached 80.47 percent penetration among the population, exceeding the target of 75 percent, and a baseline of 48.9 percent.
  - PDO-level indicator 3: Average monthly price of wholesale international E1 capacity link from capital city to Europe. The target of US\$115 for a E1 link (2Mbps) is achieved with a value of US\$90 for a E1 link, and a baseline of US\$2,348.
  - PDO-level indicator 4: Direct project beneficiaries. The target of 6 million is nearly achieved with a value of 5.79 million (96 percent of the target), with a baseline of 3.35 million. The subtarget of 40 percent of the beneficiaries being female is achieved with a value of 43.9 percent, and a baseline of 30 percent.
  - PDO-level indicator 5: Fixed internet retail price. The target of US\$46 per Mbps is achieved with a value of US\$22.44, and a baseline of US\$70.
  - PDO-level indicator 6: Mobile internet retail price. The target of US\$1.7 cents per Mbps is achieved with a value of US\$0.7 cents per Mbps, and a baseline of US\$2.6 cents per Mbps.
8. To capture the economic contributions of the project activities in Togo on a high-level basis, this economic analysis will focus on the relevant macro indicator, Internet user penetration (percentage of national population using Internet) measured by the International Telecommunications Union (ITU).



- 9. The ITU performed an analysis of the internet penetration impact.<sup>41</sup> In 2018, this leading regional study, which covers most of the countries in the Africa region, confirmed that a 10-percentage increase in the mobile broadband penetration rate in Africa would lead to a 2.5 percent increase in GDP. In 2020, ITU analysis revised the impact at +2 percent. In addition, a frequently cited World Bank study (Qiang and Rossotto 2009)<sup>42</sup> found that low-income and middle-income countries experienced about a 1.38 percent increase in GDP for each 10-percentage point increase in broadband penetration.
- 10. A high-level estimation of the impact of an increase of Internet usage penetration is built by comparing (i) a Base-Case scenario with the actual Internet usage penetration in each country over the last 10 years with (ii) a Counterfactual scenario where the project would not have taken place and the Internet usage penetration would have been lower. The Internet usage penetration in the Counterfactual scenario is built by extending the 2010-2013 trends for the years 2014 and onward, that is, when the project activities started to deliver results. The project impact on GDP is then calculated from the Base-Case scenario by applying the findings of the 2009 World Bank study by Qiang and Rossotto (a 10-percentage point increase in Internet usage penetration would increase GDP growth by 1.38 percent).

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
Internet penetration (without WARCIP)	3.0	3.5	4.0	4.5	5.2	5.9	6.8	7.7	8.8	10.1	11.6	
Internet users (% - ITU source)	3.0	3.5	4.0	4.5	5.7	7.1	11.3	12.4	15.5	19.3	24.0	
Penetration increase due to project					0.5	1.2	4.6	4.6	6.7	9.2	12.4	
GDP (billion USD)	3.43	3.87	3.87	4.32	4.57	4.18	6.03	6.40	7.11	7.22	7.57	
GDP growth		13%	0%	12%	6%	-9%	44%	6%	11%	2%	5%	
% of GDP impact (WB : 10% => 1.38%)					0.08%	0.17%	0.63%	0.64%	0.92%	1.27%	1.71%	<b>Total</b>
Impact GDP increase (million USD)					3	7	38	41	65	91	130	<b>376</b>

- 11. Even based on this estimated lower impact, the project had a positive impact on the country’s GDP of US\$376 million total over the period 2014–2020, well beyond the amount of the project. The percentage of people using the Internet increased more than fivefold over the life of the project, from 4.5 percent in 2013 to 24 percent in 2020. This boom in the telecommunications sector was made possible by (i) the significant drop in prices over this period (as captured by PDO level indicators 3, 5 and 6) and (ii) the increased availability of bandwidth (see PDO level indicator 1.)

<sup>41</sup> ITU, *Economic contribution of broadband, digitization and ICT regulation*.

<sup>42</sup> Qiang, Rossoto, and Kimura, “Economic Impacts of Broadband.”



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

### Mauritania

The objectives of the WARCIP-Mauritania Project are in perfect alignment with the priorities set in the national ICT strategy, and with the expectations of the various stakeholders—government, citizens and users of ICT—and the private sector as an important lever for economic and social development.

The WARCIP-Mauritania Project enabled the construction of five new sections of the national fiber optic network, with a total length of 1,700km. The length of this network therefore increased from 2,300km before the project to 4,000km, an increase of approximately 74 percent. The objective of this infrastructure is to facilitate the distribution of high-speed Internet connectivity from the submarine cable in Nouakchott and the transport of data collected by telecommunications operators, at affordable costs, thus enabling a reduction in the Internet services prices offered to end users while improving quality and reach. The impact of this infrastructure on the supply of ICT services in the country is of a structuring nature in the sense that all sectors are potential beneficiaries of its use on a daily basis.

The legislative texts put in place within the framework of the "creation of favorable conditions for connectivity" component will have a structuring and lasting impact on the development of ICT and its use in the administration to the extent that these texts govern the activity of certain structures already in place and are used daily for the management of challenges related to connectivity.

Operationally, the impact targets in the project's PAD have almost all been achieved or exceeded:

- The target for the volume of international traffic per inhabitant was 11 kbps in 2017, and increased to 20kbps in 2021;
- The target for access to Internet services, measured by the number of subscribers per 100 people, has been largely exceeded. In the PAD, the target was 11 percent in 2017. This rate is estimated at 71 percent in 2021;
- The target for access to telephone services (fixed lines and mobile phones per 100 people) was 124 percent. This target was exceeded to reach 151 percent in 2021;
- The average monthly price of an E1 link from the capital Nouakchott to Europe has fallen very significantly to below the 2015 targeted value of US\$250. As of September 30, 2021, the value is US\$55 per month (for 2 Mbps).

In terms of timing, the execution of the project has taken longer than expected, but in the context of Mauritania, this is not unusual. In addition, other factors contributed to the accumulation of delays in the implementation of project activities, including (i) significant delays in procurement procedures in general, and particularly contracts requiring high levels of technical know-how, (ii) the COVID-19 pandemic, and (iii) the underestimation, from the outset, of the time needed to undertake activities in rocky work fields.

In financial terms, the final execution rate of the IDA line was 92.6 percent on November 23, 2021, which is an acceptable rate compared to other projects of similar scope and complexity.

For the part of the project financed under state funds, the final execution rate is 51.2 percent. This could



have been better if the project had benefited from an institutional anchoring that ensured the persistent engagement of the government.

Finally, the financing planned by the EIB could not be mobilized by project closure owing to delays in the construction of the technical building (data center).

In terms of prospects, the project will make it possible to put in place infrastructure and regulatory texts to improve connectivity in the country, but these achievements require the continuation of the reforms undertaken in order to consolidate them and obtain the support of all stakeholders with the vision to further develop ICTs in the country. A new phase of the project could be dedicated to supporting the digital transition initiated in the country through the continuation of the extension of the fiber optic network to cover the municipalities, and the continuation of reforms that are likely to improve private investment in the ICT sector.

## **TOGO**

### **1. Financial management analysis**

At the end of the supervision missions, the World Bank considers that the fiduciary arrangements in place make it possible to ensure acceptable risk management. The administrative, financial, and accounting management of the Project is deemed Satisfactory overall, and the residual financial management risk is Moderate. The following positive points were identified: (i) timely submission of the interim financial report as of December 30, 2020, with acceptable quality; (ii) project accounts kept up to date; (iii) the selection of an external auditor, who is in the process of finalizing the contract (through negotiation), which means that the external audit for the 2020 financial year could have been carried out no later than June 2021; (iv) an improvement of the project disbursement rate, which rose from 63.8 percent in October 2020 to 70 percent in April 2021. The PIU was reminded of the need to finalize the recruitment process as soon as possible for the new financial specialist for the project. The interim financial report as of March 31, 2021 was submitted on time (May 6) and is being reviewed by the World Bank. With regard to the external audit of the project's accounts for 2020 and for subsequent financial years, the mission reiterates its recommendation that the PCU, in agreement with the other stakeholders, needs to take the appropriate measures to finalize the related recruitment process.

### **2. Procurement analysis**

Procurement for the project was carried out in accordance with a) the World Bank's Guidelines on Procurement Financed by IBRD and IDA Credits (January 2011); b) the World Bank's Guidelines on the Employment and Selection of Consultants by World Bank Borrowers (of January 2011); c) the World Bank's Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants (October 15, 2006 and revised in January 2011 – Anti-Corruption Guidelines); and (d) provisions of the financing agreement. An assessment of the procurement capacities of the Ministry of Digital Economy and Digital Transformation has been carried out. Institutional procurement arrangements, and the committees required by the national procurement code (Person Responsible for Public Procurement, the Public Procurement Commission, and the Public



Procurement Control Commission), are formally established within the MENTD. The relevant staff have experience in procurement, and some members are familiar with the World Bank's project implementation and procurement procedures. However, strengthening the capacity of the members of these various bodies is necessary to ensure that procurement in the ministry proceeds with acceptable speed. The members of these various bodies have their own activity, and therefore procurement-related activities come across to them as an additional burden. Given the number and scale of projects managed by the MENTD, the establishment of a dedicated procurement pool would improve procurement efficiency. Taking into account the existence of a procurement unit and an internal control committee within the MENTD, the overall procurement risk of the project is classified as Moderate.

### **3. Environmental and social analysis (including safeguard)**

The project triggered two environmental and social safeguard policies, namely OP/BP 4.01 (on Environmental Assessment) and OP/PB 4.11 (physical or cultural discovery). The project was awarded environmental and social category B because the work site is fenced and isolated from dwellings. Generally, the potential impacts associated with the construction and outfitting of the Carrier Hotel are low in magnitude and site-specific. Potential adverse impacts associated with these works are manageable and mitigable to an acceptable level. The construction work had a number of weak, site-specific, negative environmental impacts, such as the clearing of the raising of dust on the site caused by the clearing of the vegetation cover, and its attendant risks on the health and safety of the workers, as well as work accidents. To ensure effective implementation of the safeguard instruments, two people from the PIU—a Financial Management specialist and an Environmental specialist—participated in training stakeholders on the World Bank's safeguard policies and on the monitoring of safety aspects in April 2018, and then on Environmental and Social Standards in February 2019.

#### **Quality of supervision**

##### **1. Quality of implementation support**

The World Bank carried out generally satisfactory actions during the implementation of the WARCIP-TOGO project. Based on the progress observed during the mission, the achievement of the Project Development Objectives is deemed Moderately Satisfactory (MS), and the Project Implementation changed from MS to Satisfactory (S). The World Bank was attentive to the various constraints and difficulties that could have affected the implementation of the project. In this context, continuous communication was established with the officials in charge of the project on the World Bank side, with the objective of finding appropriate solutions to the various questions raised. This made it possible to achieve the project's objectives.

##### **2. Evaluation of financial management, procurement, and the performance of environmental safeguards**

World Bank support was outstanding both in the technical aspects and in terms of coordination. For aspects of procurement and financial management, for example, the World Bank, through its recommendations, helped the project achieve the objectives in each area.



**Procurement:** In the area of procurement, the following aspects should be noted: Obtaining validation from the Public Procurement Commission (PPC) posed a problem with regard to both compliance with deadlines and form. Although the ministry is digitized, NO requests were made both electronically and on paper. The observations of the PPC are often observations of forms. NO can be given subject to taking into account these observations.

**Financial Management:** The World Bank also suggested field visits to verify supporting documents for better results during the audit. To avoid ineligible payments, a recommendation has been made for dues to be paid before the project's closing date. Also, the performance of certain deliverables, such as the Carrier Hotel construction work, must be tested for a given period. Similarly, it has been recommended that an escrow account be opened to hold the funds for the final accounting and financial audits of the project.

**Performance of environmental safeguards:** Regarding the environmental safeguard component, it was noted that no accidents were recorded since the last mission. However, at the end of the project, the PIU ensured that the end-of-site reports on environmental and social management were produced within the required deadlines. The COVID-19 implementation report measures were shared with the World Bank. The World Bank determined the project's environmental risk rating to be Low, and the project's overall performance in terms of environmental management to be Satisfactory. With the aim of improving environmental management, recommendations were made, namely: (i) the clear division of the implementation of social measures in the execution reports; and (ii) the sharing of the screening report for carrying out work on the access roads to the Carrier Hotel ; (iv) the preparation and archiving of documentation of the implementation of social measures for the work of the Carrier Hotel ; (v) the preparation of the report on the implementation of the project's complaint management mechanism and implementation of the plan to revitalize the MGP; and (vi) the signing of the code of good conduct by the contracting and subcontracting companies as well as their personnel. (The code of conduct was also signed by the PIU staff.) On this basis, the social risk rating of the project was Moderate, and the overall social risk management performance remained Moderately Satisfactory.

### **Relevant and timely solutions to challenges and constraints**

The recruitment of an acting FM specialist following the death of the project FM specialist. The request for partial cancellation of the project credit (resources that could not be used by the end of the project) in order to be used for other projects in the Togo's portfolio. The restructuring of the project enabled the implementation of activities to achieve the objectives within a relatively long period following the extensions. The granting of additional funding to cover cost overruns that could have hindered the continued construction of the Carrier Hotel and/or the completion of certain related activities that are essential to reinforcing the achievements of the PDO. To preserve the history of the project after its closure, a reliable and regularly updated documentation database was established through the creation of an Electronic Document Management platform developed within the PIU using open-source solutions. Thus, the PIU has electronic copies of all project documentation, processed by each of the experts (procurement, financial management, M&E, environmental and social safeguards, deliverables/reports, and so on).



**ANNEX 6. SUPPORTING DOCUMENTS (IF ANY)**



Annex 6 -  
WARCIP\_Mauritanie\_rç



Annex 6 -  
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